

KNOWLEDGE EROSION AND DEGRADATION:
**A Single Case-Study of Knowledge Risks and Barriers in a Multi-
Business Organisation**

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Abstract

The nature and value of knowledge is well documented throughout history, including within organisations. The preservation of knowledge is an acknowledged although neglected area within the evolving field of knowledge management, particularly with pressures for improved organisational performance on organisations both within private and public sectors in dynamic, competitive global environments. Organisations are facing increasing challenges due to industry disruption and faster-paced or high-velocity work environments and the need for agility. Additionally, increasing casualised labour, skills shortages, ageing workforces and increasing migration of employees and other effects combine to impact organisations' capacity to manage and retain knowledge. Failed projects, due to neglect of knowledge practices within organisations, have raised recognition of knowledge risk, conceptualised as knowledge erosion and knowledge degradation.

This contextualist study initially considers western philosophical roots of knowledge and contrasting paradigms with implications for how critical knowledge may be at risk of erosion or degradation; the study also explored societal, modernist and neo-liberalist forces influencing knowledge. Societal and neo-liberalist perspectives raise questions about how knowledge is sourced, produced and dispersed. Technological changes (e.g. internet, artificial intelligence, social media and digitalisation) are also considered, in terms of the value of human versus machine knowledge.

Knowledge in its various forms has become one of the most important commodities, globally. While globalisation, digitalisation and associated changes have greatly facilitated knowledge creation and management, they have also created challenges for accessibility and preservation of some forms of traditional knowledge and have recently resulted in the recognition of knowledge erosion, degradation or loss; however, to understand these latter concepts it is necessary to understand the nature of knowledge and contextual influences. Reviewing the origins and evolution of knowledge from a Western perspective, it is clear that: knowledge is multi-dimensional; a number of types of knowledge are recognised in several major philosophies; knowledge is valued in different ways; major contextual influences on knowledge include social status, political system, community literacy and accessibility; and there are many potential direct and indirect forms of erosion or degradation.

To address the question of whether a complex multi-function organisation (wholesale and retail operations), understands and experiences risks of key knowledge being eroded and

degraded, a quasi phenomenological cross-sectional study was undertaken using purposive sampling methods. Semi-structured collaborative interviews, with a small sample of managerial participants, focused on thoughts, perceptions, and experiences of knowledge erosion and degradation, as well as the extent to which knowledge erosion and degradation risks impact work areas and organisational effectiveness or performance.

Responses reveal that while participants from varying functional areas were aware of the value of knowledge and acknowledged the need for long-serving individuals to be allocated time to impart knowledge, that the organisation was hierarchical leading to the perception of decision-making by a small senior managerial group – resulting in disadvantage where knowledge transfer was not adequate or timely. Other issues raised included overreliance on technology that could result in information erosion and degradation with varied impacts on operations, including organisational and financial performance.

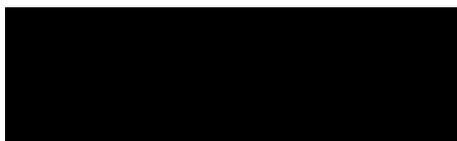
These investigations demonstrate that, in this organisation: the risk of knowledge erosion degradation and loss is recognised; increased knowledge exchange and expanded participation in decision-making would be beneficial; and a need is confirmed for a comprehensive, integrated knowledge management system – including strategies to preserve knowledge. Despite limitations due to the small sample size, this study is useful for Management and Human Resource Management personnel and practitioners in crafting strategies to optimise knowledge practices including knowledge preservation. The broader implication is that in a world where knowledge is one of the most important and expensive commodities, the multiple risks of knowledge erosion, degradation or loss as well as preservation techniques will become increasingly significant.

Keywords: Knowledge philosophies, Knowledge types and values, Knowledge degradation and loss, Knowledge preservation, Knowledge management.

Declaration

I, Judith Watson, declare that the PhD thesis entitled ' Knowledge Erosion and Degradation: A Single Case-Study of Knowledge Risks and Barriers in a Multi-Business Organisation is no more than 110,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except, where otherwise indicated, this thesis is my own work.

Judith Watson



Date: 13/03/20

Dedication

This thesis is dedicated to the memory of my parents who believed in my ability to pursue knowledge and encouraged me to follow my dreams. While neither of my parents had the opportunity to further their studies, they supported me in my endeavours to go university and made many sacrifices to ensure that I could undertake what was in my heart and what drove my interest. Their life experiences makes them more deserving as they had wisdom that is often not within the reach of formal study and I continue to reflect and to draw upon these pearls of wisdom especially from my mum forever sketched in my memories.

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Being a part-time and mature student with multiple challenges does not fit as neatly into the conventional paradigm of a young aspiring full time career academic.

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Table of Contents

Abstract	ii
Dedication.....	v
Acknowledgements.....	vi
Chapter 1 Introduction and Background	1
1.1 Background and Context	1
1.2 Reflections	2
1.3 The Changing Context and Effects on Organisations	3
1.4 Knowledge Gaps, Problems and Rationale.....	6
1.5 Purposes, Aims and Research Question	9
1.6 Research Design and Methods.....	11
1.7 Thesis Structure.....	11
Chapter 2 Knowledge: Historical Roots and Ruminations	15
2.1 The Concept, Differing Perspectives and Specific Objectives	15
2.2 The Ancient Greek Philosophers and Views on Knowledge.....	17
2.2.1 Doubtful Knowledge and Finitude	17
2.2.2 Scepticism and Truthful Knowledge	18
2.2.3 Monostic Materialism	19
2.2.4 Innate, Eternal and Unchanging Knowledge.....	20
2.2.5 Deductive or True Knowledge	21
2.2.6 Ethics and Knowledge	22
2.3 The Rationalist View - Knowledge through the Mind	24
2.3.1 False or Doubtful Knowledge and Reliable Knowledge	25
2.3.2 Self-Reflection and Self-Review and Certain Knowledge	26
2.3.3 Cartesian Scepticism, Truth “Real Knowledge”	27
2.3.4 Lowest Versus Highest Level Knowledge.....	27

2.4 The Empiricist View - Knowledge through Experience.....	28
2.4.1 Sense Influenced Knowledge and the Empty Cabinet.....	29
2.4.2 Non Dogmatic Knowledge, Group Discourse and Ineffable Knowledge.....	29
2.4.3 Deflationism, Truth and Knowledge	30
2.4.4 Ideas, Impressions and Knowledge	31
2.4.5 Well-Founded Versus Groundless Ideas and Knowledge.....	32
2.4.6 Reliability and Externalism, True Belief and Conscientious Knowers	32
2.4.7 Synthesis Based Knowledge, Analytic and Synthetic Knowledge	34
2.5 Analytic Tradition	34
2.5.1 Secure Knowledge and Self-Consciousness	34
2.5.2 Conservative Knowledge- a Critique.....	35
2.5.3 Certain Knowledge and Truisms	35
2.6 Contemporary Approaches to Knowledge.....	35
2.6.1 Knowledge Shaped by Paradigms	35
2.6.2 Knowledge as Justified True Belief and Plausible Knowledge	36
2.6.3 Epistemic Failure, Unfounded or Misapprehended Knowledge and ‘Easy Knowledge’	37
2.6.4 Historical Knowledge	37
2.6.5 Sociology of Knowledge, Errors and Blind Alleys	38
2.6.6 Observable Knowledge and Persistence	38
2.6.7 Standpoint Epistemology and Paradigmatic Driven Knowledge	39
2.6.8 Foundationalism, Knowledge and Pragmatism – Useable Knowledge.....	40
2.6.9 Relative, Contingent, Fallible Knowledge and, Knowledge Certainty	41
2.6.10 Common Sense Knowledge and Doubt, Verification and Useable Information .	41
2.6.11 Working Knowledge, Given Knowledge and Challenging the Status Quo.....	41
2.6.12 Coherentism and Background Knowledge.....	42
2.6.13 Knowledge by Acquaintance, Indeterminable Knowledge and Knowledge by Description.....	43

2.6.14 Kinds of Contrastivist Knowledge.....	44
2.6.15 Knowledge, Scrutiny and Armchair Knowledge.....	46
2.6.16 A Contingency Perspective and Common-Sense Knowledge	46
2.6.17 Claude Levi-Strauss - Structuralism ‘Higher Order Knowledge’ Versus ‘Primitive Knowledge’	47
2.6.18 Post Structuralism, Factual Knowledge and Discourse	47
2.6.19 Accidental and Rules Based Knowledge	48
2.6.20 Knowledge and Performativity.....	48
2.6.21 Other Knowledge Classifications	49
2.7 Implications for Contemporary Society of Knowledge Degradation and Erosion	49
2.7.1 Evidence, Changed Technologies and Priorities, Degradation Pressures.....	49
2.7.2 Implications from the Greek Philosophies.....	50
2.7.3 Implications from the Rationalists.....	54
2.7.4 Implications from the Empiricists	55
2.7.5 Implications from the Analytic Approach	56
2.7.6 Implications for Contemporary Issues.....	56
2.8 Philosophies and Concepts of Knowledge Synthesis.....	59
2.8 Summary.....	59
Chapter 3 – Knowledge in the Context of Social Change.....	61
3.1 Introduction.....	61
3.2 Modernity.....	61
3.3 Post Modernism.....	63
3.3.1 Social Degradation, Inauthentic Culture, Cultural Erosion	64
3.3.3 The Post-Modern Condition Related to Knowledge	64
3.4. Forms of Capitalism, Late and New Capitalism	66
3.4.2 Cultural dominance, Massification and Knowledge Risk.....	67
3.4.4 Post-Industrialisation, Neoliberalism and Knowledge Capitalism Perspectives on Knowledge	68

3.4.2.3 Feminist humanist and post-structuralist perspectives on knowledge.....	73
3.5 Social Theories and Social Change	73
3.5.2 Bureaucracy.....	73
3.5.3 Alienation and Ignorance and Non-Knowledge.....	74
3.5.4 Social Control Theory and Knowledge Erosion and Degradation	75
3.5.5 Structuralism, Structuration and Human Behaviour.....	75
3.6 Globalisation	76
3.6.1 Blurred Industry Boundaries, Shrinking Borders, Discontinuity and Change	78
3.6.2 Market Reform and Offshoring.....	79
3.6.3 Deindustrialisation and Displacement of Labour.....	79
3.6.4 Downsizing and Industry Rationalisation.....	80
3.6.5 Knowledge Economy.....	80
3.7 Technological Advancement and the 4 th Industrial Revolution.....	81
3.7.1 Fourth Industrial Revolution.....	82
3.7.2 Digital Age	84
3.7.3 Digital Transformation and Agile Practices.....	85
3.7.4 Machine Learning.....	87
3.7.5 The Second Machine Age	91
3.7.6 Objective Culture and Non-Knowledge.....	92
3.8 Technology, Computerisation and Homogenisation-Knowledge Impacts.....	94
3.8.1 Technology- “Cognitive Economy”, Minimalism and “Being Able to do Without Knowing”	95
3.8.2 Technological Impacts and Knowledge Erosion and Degradation	95
3.9 Knowledge and Modern Society.....	99
3.9.1 Era of Informationalism.....	100
3.9.2 Information Overload, Time Pressures and Overlooked Knowledge.....	100
3.9.2 Knowledge Stagnation, and Knowledge for Societal Good.....	101

3.9.3 Diffuse, Evidence Based and Incomplete Knowledge.....	103
3.9.4 Knowledge Ventriloquism and Echo Chambers	105
3.9.5 Politics of Expertise, Ignorance, Unknowns and Degraded Knowledge	106
3.10 Social and Contemporary Organisational Context and Knowledge Risk Challenges	108
3.10.1 Changing Nature of Work Systems and Practices.....	110
3.10.2 Data Ambiguity	111
3.12 Socially Decentralised Knowledge.....	112
3.12.1 Local and Public Preference Knowledge, Diversified Knowledge, Multiple Sources and Platforms	113
3.12.2 Policy Knowledge.....	113
3.12.3 Social Ignorance	114
3.12.4 Scientific Knowledge and Ignorance	116
3.12.5 Knowledge Use.....	116
3.12.6 Responsibility for Knowledge and Risks.....	118
3.12.7 Decline of Expert Knowledge - a Form of Degradation.....	119
3.12.8 Citizen Science	120
3.12.9 Learning and Attention Deficit.....	121
3.12.10 Complexity, Incomplete and Non-Comprehensive Knowledge.....	121
3.12.12 Concepts of Self and Knowledge in Modern Society	123
3.12.13 Cultural ‘Illiteracy’ Threats, ‘Pastiche’ Knowledgeability and Relevant Knowledge	123
3.13 Knowledge Erosion and Degradation - Socially Reconstructed.....	124
3.14 Summary.....	124
Chapter 4 - Knowledge Management and Knowledge Erosion and Degradation Risk implications– A Review	126
4.1. Introduction.....	126
4.2 Constructs and Forms of Knowledge	126
4.2.1 Classification and Organisational Knowledge	126

4.2.2 Reliable and Responsible Knowers and Low versus High Grade Knowledge	127
4.2.3 Consensus Knowledge, Common Ground Knowledge and Common Knowledge	127
4.2.4 Indigenous and Exogenous Knowledge.....	128
4.2.5 Types of Organisational Knowledge	128
4.2.6 Intellectual Capital and Cultural Knowledge	129
4.3 Tacit and Explicit Knowledge.....	129
4.3.1 Tacit Knowledge and Organisational Performance	130
4.3.2 Explicit Knowledge	131
4.3.3 Explicit and Tacit Knowledge Model.....	132
4.3.4 Knowledge Gaps.....	135
4.3.5 Commodification of Knowledge	135
4.4 Knowledge Management	136
4.4.1 Audit, Knowledge Use and Reuse	138
4.4.2 Knowledge Management Paradigms and Perspectives	139
4.4.3 Best Practice, Knowledge and Knowledge Management	141
4.4.4 Knowledge Intensive Business Services (KIBS) and Project Organisations.....	143
4.4.5 Knowledge Intensive Exchanges and Processes	144
4.4.6 Knowledge Workers	144
4.4.7 Knowledge Management for Competitive Advantage	146
4.4.8 Knowledge Management and Strategy, Competitive Advantage and Performance	147
4.4.9 Knowledge Based View of the Firm, Value Creation and Knowledge Advantage	148
4.4.10 Knowledge Strategy and Advantage.....	149
4.4.11 Harnessing and Extracting Knowledge for Innovation.....	150
4.4.12 HRM Role and Knowledge Management	150
4.4.13 Knowledge Management Activities.....	152

4.4.14 Knowledge Management Cycle	152
4.4.15 Knowledge Chain Model and Management Wheel.....	154
4.5 Knowledge Management Systems (KMS)	155
4.5.1 Critiques of Knowledge Management Systems	157
4.5.2 KM Processes and Knowledge Capture.....	158
4.5.3 Knowledge Governance.....	161
4.6 Knowledge Management Models, Frameworks and Tools	162
4.6.1 Quality and Lean Framework and Practice.....	163
4.6.2 Knowledge Management Leadership	164
4.7 Knowledge Management and Organisational Performance	164
4.7.1 Organisational Performance and Effectiveness.....	164
4.7.2 Knowledge for Performance Improvement and Organisational Results	167
4.7.3 Organisational Learning and Knowledge Change.....	167
4.8 Knowledge Management Areas	171
4.8.1 Knowledge Acquisition	171
4.8.2 Knowledge Sharing, Culture and Data Assessment	172
4.8.3 Knowledge and Organisational Culture.....	174
4.8.4 Knowledge Creation	179
4.8.5 Knowledge Transfer	180
4.8.6 Knowledge and Communities	185
4.9 Knowledge Erosion and Degradation.....	186
4.9.1 Knowledge Obsolescence, Depreciation and Stripping.....	187
4.9.2 Knowledge Fragmentation and Complexity	187
4.9.3 Knowledge Leakage and Seepage	188
4.9.4 Knowledge Safety and Risk, and Ecological Perspective.....	189
4.9.5 Safeguarding Critical Knowledge	192
4.9.6 Knowledge Loss and Retention.....	193

4.9.7 Agency Theory and Knowledge Erosion and Degradation Risk	194
4.10 Knowledge Erosion and Degradation Barriers and Risks	194
4.10.1 Knowledge Capture	195
4.10.2 Knowledge Acquisition, Building and Creation	195
4.10.3 Knowledge Sharing and Contribution	199
4.10.4 Organisational Realignment Impacts.....	202
4.10.5 Organisational Performance Pressures	204
4.10.6 The Changing Nature of Work and Workforce.....	205
4.10.7 Learning and Knowledge Barriers.....	207
4.10.8 Organisational and Culture, Management and Leadership Considerations.....	210
4.10.9 Employee/Individual Considerations and Knowledge Barriers and/or Risks....	215
4.10.10 Knowledge Transfer and Knowledge Spillovers Risks	218
4.10.11 Knowledge Retention, Explicit knowledge Loss and Organisational Forgetting Barriers and Risks	219
4.11 Knowledge Erosion and Degradation Risk Mitigation and Prevention Strategies ...	221
4.11.1 Past Knowledge, Legacies and Preserving Key Information.....	222
4.12 Bridging the Research Void or Gap	223
4.13 Summary	223
Chapter 5 – Research Methodology.....	225
5.2 Influences on Design, Research Philosophy and Paradigm.....	225
5.2.1 Literature Review Findings.....	225
5.2.2 Epistemology.....	226
5.2.2 Ontology.....	227
5.3 Qualitative Research Design, Framework and Process	231
5.4 Case Study –Organisation X	235
5.4.1 Triangulation	236
5.5.2. Relevance to Management Research	240

5.5.3 Participant Voice and Multiple Perspectives	240
5.5.8. Phenomenography	243
5.6 Qualitative Methods	245
5.7 Research Purpose, Questions	247
5.7.1 Main Interview Question Topic Areas (MIQTAs)	249
5.8 Data Collection and Analysis.....	250
5.8.1 Participant demographic profiles.....	251
5.8.2 Data Coding and Collecting Phases.....	253
5.9 Research Governance and Ethics	261
5.9.1. Fairness and Equity, Discrete Data Gathering and Sensitivity	262
5.9.2 Empowerment of Participants and Professional Standards.....	263
5.9.3 Researcher Role, Reliability and Validity.....	263
5.9.4 Quality Criteria and Qualitative Research	265
5.10 Summary	267
Chapter 6 - Analysis of Findings	269
6.1 Introduction.....	269
6.2 Conceptions and Operationalisation of knowledge, Knowledge Work and Knowledge Erosion and Degradation	269
6.3 Thematic Analysis	286
6.3.1 Theme 1: Knowledge Preservation, Protection and Organisational Memory.....	289
6.3.2 Theme 2: Knowledge sharing barriers/risks	297
6.3.3 Theme 3: Sourcing and Accessing Knowledge.....	308
6.3.4 Theme 4: Knowledge Transfer Barriers and Risks	323
6.3.5 Theme 5: Technology, systems and knowledge barriers and risks	333
6.3.6 Theme 6: Knowledge, Learning and HRM Considerations.....	341
6.3.7 Theme 7 Leadership, Management and Organisational Culture Considerations .	348
6.4 Synopsis of Key Findings and Strategies to Prevent Knowledge Erosion and Degradation Risks	362

6.4.1 Key Strategy Areas	364
6.5 Conceptual Frameworks	366
6.6 Summary	371
Chapter 7 Conclusions and Reflections	372
7.1 Introduction.....	372
7.2 The Research Design and Core Research Question Revisited.....	373
7.3 Case Study Findings.....	373
7.4. Implications of Findings	374
7.4.1 Recommendations from the Study	384
7.5 Lessons learned	386
7.5.1 Lessons learned- Research perspective.....	387
7.5.1 Lessons learned- Organisation X perspective	388
7.6 Contributions and Significance	389
7.6.1 Contribution to Academic Knowledge	389
7.6.2 Significant Practical Contributions.....	390
7.7 Limitations and Future Research.....	391
7.8 Summary and Final Comments.....	392
References	393
Appendix 1 - Key Terms	527
Appendix 2 Background Notes on Historical Philosophies and Approaches to Knowledge	554
Appendix 3: Supplementary Notes on Knowledge in a Social Change context	556
Appendix 4 Organisational Knowledge Management - Background	563
Appendix 5 Qualitative Research Strategies	588
Appendix 5.1 -Information to Participants Involved in Research.....	591
Appendix 5.2- Consent Form for Participants Involved in Research	593
Appendix 5.3 – Letter to Participants	595
Appendix 5.4 Preparation Prior to Interview.....	596

Appendix 5.5 – Key Questions	596
Appendix 5.6 – Organisation X, Supplementary information.....	598
Appendix 6 - Details of Feedback and Analysis From Participants –	603

List of Tables

Table 4.1 Explicit and Tacit Knowledge Gap	135
Table 4.2 Knowledge Activities	152
Table 5.1 Summary of Phases followed in this research study	234
Table 5.3 Main Interview Question Topic Areas	249
Table 5.4 Participant demographic profiles.....	252
Table 6.1: Conceptions of Knowledge Erosion and Degradation	266
Table A4.1. Summary of key terms relating to organisational knowledge	563
Table A4.3 Strategic Alignment	570

List of Figures

Figure 1.1 Summary of thesis chapters – showing the main connecting sequence.	12
Figure 4.1 SECI model.....	133
Figure 4.2 Knowledge Management Paradigms and Intersection Areas	140
Figure 4.3 An Overview of Knowledge Management Solutions and Foundation.....	143
Figure 4.4 Knowledge Gap and Strategic Gap	149
Figure 4.5 Overall knowledge management cycle.....	153
Figure 4.6 The Knowledge Chain Model.....	154
Figure 4.7 Knowledge Management Wheel.....	155
Figure 4.8 Illustrative Stage in the Process of Implementation of KMS	157
Figure 4.9 Knowledge Management Processes	159
Figure 4.10 Knowledge Management Processes	159
Figure 4.11 Knowledge Management Processes	160
Figure 4.12 Knowledge Management Framework	163
Figure 4.13 Organisational Learning Framework	168
Figure 4.14 Knowledge Acquisition Constructs.....	168
Figure 4.15 The Wang and Noe Knowledge Sharing Model	173

Figure 4.16 Schneider’s two-by-two matrix of organisational culture types	175
Figure 4.17 Organisational Cultural archetypes	176
Figure 4.18 A Psychological Framework of Employees’ Tensions Towards KS	178
Figure 5.1. Summary of Fused Research Approach Paradigm.....	230
Figure 5.2 Summary of Research Design Framework.....	232
Figure 5.3 Summary of Research Process: (a) recurring Overall cycle; (b) more detailed phases	233
Figure 5.4 Hybridised Research Approaches used in this study	245
Figure 5.5 Summary of the Participatory and Dialogue Interview Model applied in this research.....	256
Figure 6.1 Conceptual framework of some observed Knowledge Erosion and Knowledge Degradation Risks and Barriers	367
Figure 6.2 Knowledge Optimisation Framework for Sustainability	368
Figure 6.3 Conceptual Model of Links between Management of Knowledge Quality and Organisational Performance and Effectiveness	369
Figure 6.3A Pre-disposing enablers for quality knowledge and knowledge building within organisations	370
Figure 7.1: An Integrated KM Cycle	374
Figure 7.2 KM Function.....	375
Figure 7.3 A process model of the relation of intellectual assets to creation of value in the Enterprise.....	376
Figure 7.4 A Contextual Hierarchy Model of the Relation of Intellectual Assets to Creation of Value in the Enterprise	377
Figure 7.5 Four Useful Categories of Knowledge to Manage.....	379
Figure 7.6 Knowledge Management Maturity level	381
Figure 7.8 Organisational Learning and Organisational Memory - Lessons learned process	382
Figure 7.9 Integrated Model of Knowledge Management	384

Chapter 1 Introduction and Background

1.1 Background and Context

This chapter provides a macro context within which Australian organisations operate and considers the challenges that such organisations face. This integrated summary includes the following: a problem statement and rationale for the research; an explanation of the research position; purpose, aims and significance of the study; the methodological approach employed; the associated assumptions and limitations. Finally, a summary of all chapters is included, demonstrating the main interconnections.

This study traverses an area within the knowledge preservation field of knowledge management, on what may constitute specific forms of generic knowledge decline designated as *knowledge erosion and degradation*.

The researcher emphasises that due to the focus around a possible phenomenon such as knowledge erosion and degradation (in a coupled form) referred to as knowledge erosion and degradation) the need for conceptualisation and discussion of perspectives around knowledge feature markedly in the next two chapters as the assumption is made that it is important to have a solid foundation upon which to operationalise knowledge erosion and degradation.

The extent to which contiguous concepts of knowledge erosion and degradation are a major issue for a multi-business organisation is difficult to quarantine or discern. This research seeks to clarify possible approaches to curtailing possible knowledge erosion and degradation and its nuanced shapes and forms. Ascertaining the extent or prevalence of knowledge erosion and degradation, including strategies to curtail further knowledge degradation, is also attempted.

The observed effects of knowledge strategies have been documented by numerous studies: on organisational performance (Heisig, 2016; McIver & Lepisto, 2017), value of knowledge being measured (Dickel & De Moura, 2016) and associated risks of diminished knowledge levels (Hannah & Robertson, 2015; Olander & Hurmelinna-Laukkanen, 2015, 2015b; Zieba, 2016). However, given organisation performance and sustainability considerations, the

primary focus here has been to make sense of factors that might influence this phenomenon [knowledge erosion and degradation], as well as elicit ideas to help prevent this continuing over time. Such solutions could enhance an organisation's viability.

1.2 Reflections

As a consultant and adjunct lecturer working within the cognate management disciplines, over the years, I have found watching students and their responses to learning or knowledge building at times incongruent with my expectations; this seems to be primarily due to students investing less time in deep reading. I have also observed various behaviours from both students and clients, indicating seeking of instant and relevant information as well as the challenge of accumulating and managing knowledge; it is also obvious how time-poor people are, in accessing and sharing information.

Another area of reflection is the effect on contemporary organisations of contextual, social and cultural changes as well as the influences that can dramatically reshape, disrupt or destroy organisations and industries. Working across both public and private industrial sectors, with varying information and knowledge capabilities, I have seen first-hand how organisational members are impacted by these ongoing external and internal pressures. On a more personal level, I came across a book by Nicolas Carr (2010) titled "The Shallows" in which he discusses the influence of technology, in particular the internet; he postulates that it has possibly contributed towards a decline in the function of the brain, subsequently impairing knowledge attention and retention particularly in younger people. Reliance on the internet, the author further suggests, has meant individuals quickly source and skim information without necessarily having a depth of understanding.

As my interests expanded, themes such as 'organisational amnesia' (Hashim & Otham, 2004) emerged. I then turned to the academic literature to further investigate what was written in the knowledge management area around knowledge loss and knowledge decay.

With this type of integrative theme I found myself referring back to previous academic studies in history, philosophy, sociology and ethnography (Berger & Luckmann, 1967; Geertz, 1973; Wright-Mills, 1943) following a more qualitative and interpretivist line whilst mindful of compatibility with the research topic and aims.

The justification for personal interest is laden in grounded and phenomenological or qualitative oriented studies given it is suggested a need for empathy and also less of an armchair objectivist account to better sensitise and assist the researcher in being open to new and emerging insights which if analysed clinically could be bypassed (Glaser, 1978) or ‘downgraded in importance’.

1.3 The Changing Context and Effects on Organisations

There are many major changes affecting organisations and how they operate; many of these influences are directly or indirectly knowledge-related, which strengthens the contextualist nature of this case study- of a single case organisation. It is important to observe how external and internal forces or circumstances can affect knowledge practices. A description of the changing context, in which to make sense of knowledge erosion and degradation, is provided in Chapter 2. But the following paragraphs briefly summarise the major aspects of the situation.

It is important to discuss and examine knowledge in the context of what typifies a post-modernist society and contemporary organisations to enable contextual awareness (Huang, 2004). This raises the aspects of post-industrialism and the evolution of knowledge-based societies. Major aspects of the environment – external to the organisation – include social, demographic and lifestyle changes; examples are the changing of population structures (including the ageing of populations) and changing consumer needs, tastes and preferences ((Kotler, Brown, Adam, Burton & Armstrong, 2013; Solomon, 2014). These socio-economic factors have been intensified by external forces, such as globalisation, brought about through technological advancements (including the Internet and digitalisation) and resulting in an increasingly competitive landscape.

This post-industrial world has also transitioned towards knowledge-intensive industries including insurance, aviation, pharmaceutical, computer and IT (OECD, 1996) and knowledge-intensive firms (Starbuck, 1992). Within this context of a rapidly changing external environment and shrinking borders (Drucker, 1998), there has also been a noticeable blurring of industry boundaries (Weick, 1979). Organisations are doing more business across borders where knowledge is dispersed and more flexible work arrangements are being

undertaken. Being more project-based and responding to changing consumer and customer demands, organisations need to adopt more flexible and agile work practices. Discontinuity and change has become the new norm, with organisational continuity adapting and reshaping itself (Brown & Eisenhardt, 1997). This research addresses knowledge within an environment of discontinuous change and examines the case organisation's experiences, operating in this highly competitive global business context. In this situation retention, preservation and building of knowledge assets can be perplexing for contemporary and multi-business organisations.

Time has become a precious resource and arguably the next source of competitive advantage. Consequently, organisations have had to rapidly respond to 'time-based competition pressures' (Stalk & Hout, 1990) by increasing speed to market and adopting 'dynamic capabilities' (Helfat et al., 2009). These pressures then impact workloads and coupled with information overload, due to work intensification, may have also contributed towards a decline in profound knowledge. This situation compounds the risk of the onset of 'knowledge laziness', arguably a form of learning lethargy which might impair quality decisions. Learning-related challenges also can arise due to these and other types of pressures where employees have to 'learn faster' (Schein, 1993). Learning faster can be problematic, with increased risk of knowledge erosion and degradation through insufficient background knowledge. Lack of reflection and knowledge can have repercussions for organisations. Problems experienced in projects, it is argued, are largely the result of neglect of a quality or reflective post-review process¹ (Disterer, 2002); in addition, knowledge not acted upon can be considered a form of knowledge degradation in knowledge depletion².

Downsizing strategy, a strategic lever for organisational realignment to facilitate performance improvement, can be accompanied by deliberate or accidental downsizing of knowledge. Either way, both knowledge erosion and degradation rather than knowledge infusion are likely with employee departures (often key people) due to redundancies. This loss of key skills and knowledge typologised as a 'deknowledging' of the firm (Littler & Innes, 2003) (discussed in more detail in Chapter 4), results in a dramatic rather than gradual form of knowledge loss. Here, the proposed studies consider the extent to which knowledge erosion

¹ A study into failed projects found that a key criteria is around reviews and lessons learned from projects.

² Within the thesis, there will be discussion of various key terms. Depletion represents a lessening or reduction of knowledge (Thesaurus). Definitions of terms are operationalised and detailed in this thesis including a glossary of terms in the appendices section.

or degradation is the result of conscious or accidental strategies or actions; the extent to which organisational and managerial knowledge and KM paradigms (Wickramasinghe, Bali, Naguib & Dwivedi, 2008) may have acted as inhibitors or enablers towards knowledge building is also explored.

Each of the challenge categories outlined below has some connection with knowledge or knowledge management; they begin to indicate why the theme of this research – knowledge erosion and degradation matters. These challenges are elaborated in Chapter 2.

At the core of the organisation's reason for being, is the necessity to ensure goals, actions and strategies that support longevity. Viability means delivering sustainable financial returns. In the case of larger entities, such as publicly listed organisations, the role is not merely delivering value and remaining relevant in the marketplace, but also ensuring that organisational goals match stakeholder expectations and legitimacy through having a license to operate. Concern regarding triple bottom line performance outcomes, including delivering social and environmental benefits, places increasing expectations upon organisations operating under severe resource constraints.

In addition, 21st century organisations through technological advancements and the changing nature of work requiring higher skill levels, have created greater levels of complexity than in previous decades. With complexity, more complex problem solving, innovative thinking and knowledge is required including KM creativity techniques (Gronau, Ullrich, Weber & Thim, 2012). This study supports the contention that profound rather than surface level or degraded knowledge 'will enhance an organisation's capacity to act successfully in a complex environment' (McKenna, Rooney & Liesch, 2006, p. 283) and attempts to address the problems listed above.

Increased casualisation of the workforce brings with it flexibility and people are moving towards more diversified income streams, rather than relying on the traditional full-time career from cradle to grave. The prospective disadvantages of the changing nature of work are often to do with a less stable work environment and perhaps less engaged temporary employees. Further, reduced lengths of service expose knowledge risks due to more rapid employee migration in and out of job roles in organisations. These changes in working conditions can result in reduced motivation and employee engagement; there is less

propensity for building or sharing knowledge when employees do not have a sense of job security or psychological commitment to an organisation. This is where the risk to an organisation, following a business model of treating employees more like contractors, may have detrimental residual impacts on knowledge quality (Boxall & Purcell, 2015).

1.4 Knowledge Gaps, Problems and Rationale

Several gaps have been identified from the in-depth literature review and verify the need for this research. These are listed below.

First, qualitative case studies on knowledge erosion and degradation or allied topics, are virtually non-existent apart from knowledge erosion and degradation in areas such as villages or the agricultural area. These subjects, and concepts such as profound knowledge, are also limited in definition and coverage apart from reference to procedural degradation (Brannon & Koubek, 2001; Bumblauskas & Meyer, 2015).

Second, there is no available literature relevant to qualitative knowledge-management related cases within the wholesale and grocery-related industry (the subject of this study). Many studies in this sector are quantitative and focused on other themes.

Third, there appears to be an absence of single-case qualitative and more inductive-oriented methodologies that could elucidate the organisational context for knowledge erosion within a non-service environment such as wholesale and grocery businesses in Australia.

Fourth, types of qualitative studies using a case-study methodology focus on areas such as barriers to knowledge sharing; they are often specific to international and cross-cultural contexts or areas such as social-service based or not-for-profit organisations (SSNFPO), or in the healthcare sector.

Fifth, the integration of knowledge management and ecological and sustainability disciplines, is an emerging trend in current research. However, some researchers have noted that, with theories or models within the KM field and 'intraorganisational' environments, there is a 'lacuna' due to 'data unavailability (Liu, Srivastava & Stuart, 2016, p. 4).

Finally, there are major inconsistencies in extant research; these are based on four key areas: (1) definitions of knowledge and knowledge perspectives as an asset or stock within intellectual capital, knowledge and KM concepts are somewhat limited; (2) topic-area focus has been virtually non-existent within the KM field; (3) case-study focus has been skewed to other sectors; and (4) consideration of social change and contextual factors has been associated with quantitative approaches.

Overcoming research gaps

The current study has sought to overcome these gaps by: (1) documenting the various gaps through an extensive literature research (2) developing various conceptual models and frameworks (3) using a hybridised inductive qualitative methods approach.

Being cross-disciplinary, the research includes aspects of sociology, anthropology, learning and development and sociology to differentiate it from conventional KM perspectives.

The capacity of organisations in an era of rapid change to retain key knowledge is not easily quantified. This research is based on a tentative proposition that continuous change and the pace of changes affecting organisations, exposes them to risks of erosion or diminution of key knowledge. Within industries such as wholesale and grocery (the focus of this study) organisations are challenged by eroding price margins, quality goods, global, strategic and trade threats discussed in more detail in Appendix 5.

It is contended that the cumulative effect of these types of organisational challenges, coupled with macro external environmental changes – such as the impact of changing stakeholder needs, acquisitions, mergers and outsourcing – may contribute to varying degrees of knowledge erosion and degradation, both endogenous and exogenous³.

This leads to a central research problem: *Are organisations at risk of knowledge erosion and/or degradation and, if so, what are the likely impacts and where is the locus of such erosion and degradation?*

³ This term used by biologists can be applied to organisations as organisms or systems whereupon different areas can produce a phenomenon or expansion or spread of knowledge or knowledge erosion either shaped by external influences deemed as exogenous such as market deregulation or internal influences such as organisational culture deemed as exogenous.

There is little or no empirical research addressing the comparative experiences of corporate and warehousing functions, around forms of knowledge loss through erosion or degradation. This newer research arena portrays not merely a focus on barriers and enablers to knowledge, but also to make sense of real inner workings of organisational life to elicit meaning behind abstract constructs of knowledge. The situation is often unnecessarily complicated because terminology used in the academic literature varies.

This thesis is positioned within the discourses of knowledge management, organisational behaviour, sustainability, sociology, philosophy as well as management-related disciplines. The research topic, '*Perceptions of Knowledge Erosion and Degradation: A Case Study Analysis within a Multi-Business Context*' fits within the increasingly important field of knowledge management, and contributes to the paucity of previous research in this area. Specifically, knowledge erosion and degradation is positioned within the knowledge preservation and knowledge loss domains.

A comprehensive review of the literature has highlighted some major research gaps. Whilst there is a dearth of research in the area of KM, particular focus is on areas such as systems, knowledge transfer and knowledge as a resource or stock. These studies use financial reporting and quantitative metrics (Sveiby, 2010; Sullivan, 1998). Other examples of KM research, in contrast to this study, are those that investigate what models connote knowledge-management best practice and systems (Ishmail & Abdullah, 2016).

Discussion of knowledge retention and profundity of knowledge is less dominant. A further gap exists in that knowledge is depicted within a static rather than dynamic organisational context, or within organisational forms that have not been impacted by outsourcing. Research to date has seen a virtual absence of discussion of knowledge erosion or knowledge degradation.

This study considers participant perceptions of key terms and concepts of knowledge erosion and degradation, which will be instrumental in the development of new conceptual models and frameworks.

Having more in-depth insight as to what constitutes sustainable knowledge management practices, strategies to understand barriers and enablers to knowledge building, assists organisations to be more equipped to future proof their organisations.

1.5 Purposes, Aims and Research Question

The purpose of this thesis is to ascertain participants' experience and responses towards knowledge, knowledge erosion and where degradation exists, as well as to identify what factors may affect an organisation's ability to build and retain profound or deep knowledge. More specifically, this study aims at building a conceptual framework drawn from common sets of issues and insights of participants.

The aims of this research study are:

- To explore experiences around knowledge in a case organisation and work area context;
- To compare participant experiences to ascertain nuanced similarities and differences concerning knowledge erosion and degradation;
- To analyse the extent to which knowledge and degradation presents real challenges and what strategies or practices are being deployed to alleviate it.

An additional proposition is that profound knowledge is not valued within the context of social change and post-modernism. It is further postulated that pragmatic knowledge has become an underpinning ethos within contemporary organisations. This research aims to elicit perceptions and experiences of organisational and managerial attitudes towards profound knowledge and the value ascribed to knowledge retention. It is acknowledged that variability will exist across work areas or business units within complex organisational forms. The research study will endeavour to highlight contrasts or similarities in relation to knowledge building and retention.

The concept of knowledge, rather than being conterminous, opens up a potentially exhaustive field of research based on a plethora of definitions and theories with which it is associated when considered from a multi-disciplinary perspective. Consequently key terms and concepts are defined within clear boundaries set by the research topic and the research questions.

Specifically this research, being inductive, aims at building a theory around the main challenges and concerns for managers and workers in relation to knowledge erosion and degradation that exist within their work environments or industrial context. The possible link between knowledge erosion and organisational performance or effectiveness is also explored.

The research aim is to investigate perceptions of knowledge, what factors affect organisations and their capacity to build knowledge and those factors or conditions within the control of the organisation that may be contributing towards degrees of erosion and degradation of knowledge.

The study considers what conditions are conducive to knowledge enhancement (Viva-Lopez & Santonja-Gomez, 2008). It seeks to understand the extent to which modern societal views and thinking about knowledge have infiltrated organisational life and how contemporary organisations view and value knowledge in order to determine whether there has been a degradation or devaluation of knowledge from a contextual perspective of knowledge and knowledge management (KM) (Huang, 2004).

The research aims to elevate the importance of knowledge retention strategies and aims to explore similarities and variations across participants' functional roles in their representations of knowledge.

Therefore the study being phenomenologically-oriented explores knowledge erosion and degradation through the lived experiences of organisational participants.

The central question investigated is:

'How do you determine whether there is an erosion and degradation within an organisation?'

This study is interested in the following:

- whether knowledge erosion and degradation resonate as real challenges to organisations such as the case organisation and its context
- examples of what might typologise such forms of erosion and degradation and effects
- whether organisations such as the case organisation recognise and act on the value of knowledge for business continuity and viability

The research assesses cross functional comparisons of manager reflections on work roles and experiences and the analysis is based on a detailed question format explained in Chapter 5.

1.6 Research Design and Methods

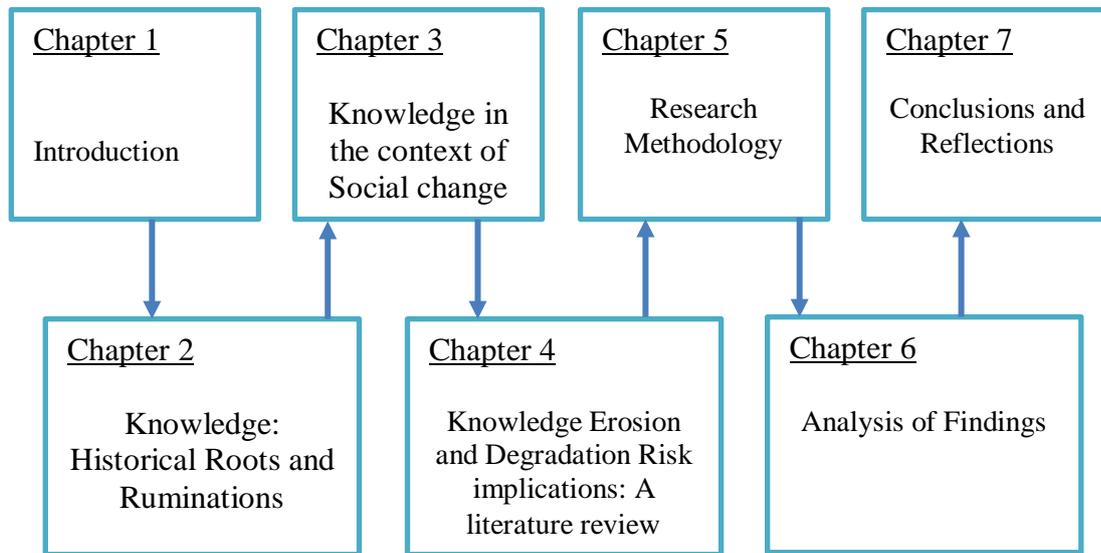
The elected research method is interpretivist and of inductive design. It draws on elements of phenomenological and grounded theory approaches, using a quasi-thematic analysis with a less qualitative single case study. This case study focuses on a multi-business organisation operating within the grocery, hardware, retail and wholesale sectors.

Participants were selected using purposeful sampling. They were categorised as management and supervisor level with a small sample number (total of 18) from corporate and warehousing functions. Semi-structured in-depth face-to-face interviews were the medium used to elicit personal reflections and stories. The interviews were premised on principles of equity and inclusion, with a collaborative style approach adopted at each interview. Limitations to this study (discussed in detail in Chapters 5 and 7) include: a small sample size; a cross-sectional approach, restricting tracking change over time; narrow focus within a particular industry.

1.7 Thesis Structure

This thesis comprises seven chapters. The chapter outline and prime connections are depicted in Figure 1.1 below: This structure follows both a funnelling and telescopic approach, by going from the broad to the specific in relation to the main theme.

Figure 1.1 Summary of thesis chapters – showing the main connecting sequence.



The first four chapters provide a framework and a context in which to understand the evolution of the research topic. The following paragraphs summarises the focus for each chapter.

The first introductory chapter provides an introduction to the background, context and a statement of the overall purpose of this thesis and its research positioning. It also explicates the rationale and significance of the research and identifies the research questions. The second part discusses the research approach followed by the thesis outline and structure. This initial overview leads logically into a consideration of social change and context factors in the next chapter.

Chapter 2 broadly explores knowledge from a social and contextual perspective with reference to social theorists and their constructs linked to knowledge. The second part of this chapter considers how social and contextual change effects are key challenges for contemporary organisations. Following contextual considerations, it is appropriate to describe the historical roots of knowledge as a construct, in the next chapter.

Chapter 3 provides an introduction into the origins of knowledge, including reference to the philosophical notions of knowledge. It also describes key terms and concepts, providing a framework in which to understand how modern societal and organisational cultures and

systems have embraced knowledge. This then is the prelude to focusing on organisational perspectives of knowledge, discussed in the next chapter.

Chapter 4 narrows the focus on knowledge at the organisational context through a review of extant literature. It discusses the field of knowledge management as well as contrasting themes or areas recognised within the field; a review of cross-disciplinary studies relevant to this specific research is also included. In the first part of the chapter, discussion is on organisational terms and models relevant to the knowledge-management area, followed by consideration of discrete areas of knowledge management and practice. The latter part of the review, is restricted to discussion of knowledge erosion and degradation. Having surveyed the many contextual influences and concurrent workplace changes, as well as the challenges of on-going knowledge management within organisations, it is time to consider design of the research and methodology, in the next Chapter.

Chapter 5 commences with explanations of ontological and epistemological paradigms and positions, including the reasoning behind the choice of an epistemological position and its alignment with the research theme and main question. The remainder of the chapter outlines the choice of methodology and provides a research-design framework, with reasons underlying the development of the research questions and methods. This summary of methodology then leads on to the analysis of the case study, results and findings, which are presented in the next chapter and discussed further in Chapter 7.

Chapter 6 introduces the case organisation and industry context, followed by a description of the data-collection stage. It describes the sampling procedure (purposive) followed by elaboration of methods and processes used for data gathering, including, data collection and analysis processes and procedures, including content analysis, thematic coding and other forms, followed by details of the data collection process and sampling methods and procedures. The last part of this chapter details the salient analyses and findings. A conceptual model drawn from analysis of the data and adapted from an existing framework is provided.

The final Chapter 7 is a synthesis, which includes observations about the research aims and purpose, findings and discussion of their implications on knowledge and learning practices to prevent erosion and degradation. Recommendations for future studies complete the chapter.

This chapter introduced the context of the qualitative research study on perceptions of knowledge and degradation within a multi-business organisation. There are numerous challenges businesses are confronting in the 21st century that place greater demands and pressures upon managers and employees. The increased recognition of knowledge and how it is managed can be enacted from different vantage points and perspectives, be it from a resource perspective, where knowledge is depicted as a form of intellectual capital, or from an innovation perspective, where knowledge can be continually discarded to bring in new forms of knowledge.

This chapter introduced the concept of knowledge erosion or degradation and briefly summarised the factors impacting it. The research question and approach are outlined, together with the sequence of successive chapters and overall thesis structure. This overview forms the essential basis on which to build understanding of the context, which is discussed in more detail in Chapter 2.

Chapter 2 Knowledge: Historical Roots and Ruminations

2.1 The Concept, Differing Perspectives and Specific Objectives

In Chapter 1, the context and rationale for this study were briefly explained and broad definitions of knowledge were introduced. This chapter commences with discussion of the background philosophical influences and historiographic depictions of how knowledge has been ascribed, categorised, reshaped and modified over time. This chapter draws upon thinkers including the ancient Greek philosophers, as well as more contemporary philosophers and theorists with contrasting views concerning knowledge, with implications for how knowledge might be susceptible to erosion or degradation. The final section synthesises historical approaches to knowledge and their relevance, when considering possible forms of knowledge erosion and degradation, in current organisational environments.

The discussion in this chapter comes within the specific field of *epistemology*, which involves the study of knowledge and questions around knowledge, such as: how it is acquired; how to ascertain what is true or known, as against false knowledge which constitutes reliability of knowledge; the question about knowledge of right or wrong and how it could be determined; and questions in relation to science.

The prime limitation within this chapter is the focus on *westernised* perspectives of knowledge as well as theories located within philosophical and sociological fields. In addition, there is selectivity in the range of historical constructs of knowledge discussed. Although this study is positioned within the management discourse, this general chapter is a prequel to a more specific review in Chapter 4, where organisational knowledge, and knowledge erosion and degradation are specifically discussed.

Reflecting on the nature of knowledge and historical perspectives can provide a framework by which to understand how knowledge has been shaped by past thinking and in what ways elements and concepts may still prevail, depending on how knowledge is framed in different cultural and societal contexts. Observable elements or strands from past precepts may still apply in contemporary society (discussed in Chapter 3), and enacted or filtered through organisational philosophies and approaches to knowledge and how it is managed (discussed

in Chapter 4). Additional insights from the past can provide another lens through which to analyse the trajectory of contemporary western centred organisational approaches around knowledge, as well as how aspects of knowledge have evolved (Wagener, 1970) consciously or unconsciously to be embedded and adapted within modern societies.

The practical problems of knowledge (recording, accumulating, storing and applying) have broadly existed since the earliest civilisations, but the theory of knowledge largely stems from the Greek philosophers (Jones, 1952; McGee, 1987; Durant, 1988). Historically, from the Greeks through to English empiricists, knowledge has been regarded as both 'philosophical and sacred' and removed from the 'practical' and 'political' arena (Shapin, 1995, p. 299). Furthermore, theories of knowledge are well-documented throughout history (Chisholm, 1966; Davies, 1898; Reyburn, 1927a, 1927b; Ackermann, 1965; Vladiv-Glover, 2006); more recently, questions have prevailed about complexity and confusion within knowledge (Camp, 2002; Merricks, 1995).

For centuries, philosophers and thinkers have debated through different mediums to illuminate the value of knowledge and how it is acquired. Numerous principles and yardsticks by which to ascertain the quality and voracity of knowledge have been proposed, along with proof and reliability grounded through questioning and diverse sources for verification. The relative value of knowledge, however, and whether it is downgraded is open to differing perspectives (Canfield, 1997; Kvanvig, 2003). The acknowledgement that knowledge has value has been strongly and widely asserted (Olson, 2012). However, what value is placed on different types of knowledge can raise questions about knowledge erosion or degradation risks. In addition, the distinction between knowing and knowing well has also been posited in Olson (2012, p. 248), who flags epistemic knowledge qualities.

The overall aim of this review is to outline key conclusions and major views on knowledge, proposed by philosophers and other scholars from ancient Greece to the modern day; specific objectives of the following sections are: (a) to summarise the views of several Greek philosophers and identify forms and states of knowledge; (b) to compare and contrast the rationalist and empiricist views; (c) to briefly outline the analytic tradition and consider various aspects of contemporary approaches to knowledge.

2.2 The Ancient Greek Philosophers and Views on Knowledge

The discussion in this section follows a chronological order but also relates to schools of thought and a thematic perspective. Not all knowledge is totally visible or tangible and this is acknowledged by these early philosophers and thinkers. These early scholars were concerned with all aspects and different types of knowledge, including *ethical knowledge*, in determining moral considerations in relation to right versus wrong decisions and actions.

2.2.1 Doubtful Knowledge and Finitude

The Sophists (in the fifth century BC), questioned a human's ability to discover true knowledge, conceding it was highly feasible to operate in a world of uncertain knowledge. For sophists, including Protagoras (c.480-410 BC), knowledge was perceived as largely unreachable or unattainable and normative; knowledge could be only construed and applied as relative to particular person's needs and the meaning of knowledge and truth varied between individuals. This relativist interpretation has evolved into knowledge, known in contemporary terms as "do in Rome as the Romans do", has been the subject of debate and criticised by ethicists recently for subordinating higher universal ethical and moral stances to local specific cultural settings (Msoroka & Amundsen, 2017).

The Sophists reinforced a view that truth could not be communicated, known or even reported on, and focused attention on training or instruction of individuals to achieve higher goals or success including how to instil virtue in their daily lives. However, Socrates (a contemporary of the Sophists) expressed concerns about the legitimacy of their arguments.

Gorgias (c.485-c.380 BC), another sophist also adopted relativism principles through *On Nature, Or On What-Is-Not*. He also pursued an early version of scepticism denoted as Skepsis meaning "inquiry" (Graham, 2010, p. 725). Gorgias conceived the notion of nothingness, questioning what existed with knowledge being viewed as less tangible or readily known. This view diminishes human capacity to achieve knowledge and knowingness and clearly indicate what could be known. This stance denoted objectivity or objective truth as largely unreachable or unattainable, consequently undermining principles and arguments reflected in *polytheism*.⁴ Gorgias maintained that *aletheia*, or absolute truth, being

⁴ Polytheism reflects a more Universalist and higher level knowledge linked to a single deity.

unattainable meant there was a need for *doxa* or opinion and situated knowledge (Cazacu, 2011).

2.2.2 Scepticism and Truthful Knowledge

Scepticism, arguably as a theory of knowledge (Stone, 2000) has been critiqued where fixed views of knowledge prevail, where sceptics are enamoured by truth or facts being certain (Wright in Bruno & Rutherford, 2018, p. 61). With knowledge open to doubt, as proposed by the Sophists, knowledge became subject to greater scrutiny and two forms of scepticism evolved in the Hellenistic era. The first form of scepticism was defined as *academic scepticism* and the second as *Pyrrhonian scepticism*. Further details of the arguments for both scepticism types are included in Appendix 2.

Socrates (c.470-399 BC) in *Euthyphro*, sought to understand and define knowledge and associated properties. Additionally, in *meno* c385BC he suggested extraction of reliable and truthful knowledge is facilitated via systematic processes to ensure a clear pathway to a state of enlightenment. Within the mind, this philosopher posits, potential exists for self-evident truth. Additionally, such a form of self-knowledge (Rappe, 1995) means knowledge is deep seated, as is demonstrated when seeking to uncover these truths (Hohwy, 2002); an example of this is tacit knowledge discussed in Chapter 4.

In contrast, Plato (c.429-347 BC) reflects on how people might experience knowing at a higher level in his communications with Socrates in *meno*. Socrates argued that in order to learn or acquire knowledge, one must discover some truth or insight about something of which one has had no prior knowledge. Here, the conundrum is that one cannot recognise when one does not possess such knowledge. This sentiment sounds similar to the aphorism noted in Chapter 1, where apparently ‘one doesn’t know what one knows’. Hence, Socrates claimed one could not determine whether a proposition or theory, deemed as true was learned unless one already knew it to be true.

This Platonic supposition claims one cannot learn what one knows if one already knows it. Additionally, one cannot learn what one does not know, because if one does not understand all knowledge, it cannot be recognised as truth. This argument leads to the postulate that learning becomes unreachable, and any knowledge one strives for must already have been in his or her possession. Plato, in postulating further theories around knowledge (Cooper, 1995)

recognised dynamism within individuals; this suggested that dialectical knowledge means imperfections can prevail in knowledge, given the human condition and such human imperfections means we can bypass certain elements of knowledge.

2.2.2.1 Knowledge through recollection and innate or inherent knowledge

Socrates acknowledged that one can remember what one already knows, as this knowledge is inbuilt or implanted within one's mind or as knowledge of forms or universals. Different mechanisms can stimulate recall or bring information to the front and centre of one's mind. It follows, as noted in *meno*, that his theory of knowledge is connected to recollection. This perspective recognises sources of knowledge and the germination of ideas. Socrates, concurring with Plato, suggests that knowledge is intrinsic and derived from conscious or unconscious awareness rather than being primarily sourced from education or direct experience.

These *meno* dialogues with Plato formed a platform for Socrates to clarify and differentiate his position regarding knowledge. Socrates through seeking a theory of knowledge considered how to ascertain available knowledge and access, obtain and, verify such knowledge for truthfulness. In addition, Socrates connected virtue with knowledge (Atkinson, 2015).

Socrates differs from Plato, in proffering a view about knowledge and learning where recollection overrides learning as the locus for higher knowledge, reinforcing knowledge as *cognitive* or constructed from the mind. Socrates maintains individuals and memory operate as faculties to recall all that can be retained as knowledge, although this is inconsistent with his statement that one learns what one knows. This means that by stimulating or triggering unconscious thoughts to a conscious level, one can access information to guide individual insights. This posture also denotes knowledge as innate or inherent.

2.2.3 Monistic Materialism

Parmenides (c.515-450 BC), a pre-Socratic philosopher, was notable for two knowledge themes first 'The way of truth' and second 'The way of seeing' which clearly delineated reason and the senses and prospective gaps across the two modalities. This philosopher embraced a *monistic* materialist position (Philip, 1958), denoting reality largely governed by thought and how thought influences how knowledge of the world is conceived and created

(Philip, 1958). This thinker introduced a priori arguments, the use of logic and deduction also differentiated “better and purer thinking” (Vlastos 1946 p. 66), with the wandering mind reflecting “know nothing” (Vlastos, 1946, p. 69). This thinker saw external senses such as observation and hearing as “witnesses” that, left unsupported by the mind, can downgrade knowledge.

2.2.3.1 Obscure, genuine and vast knowledge

Democritus (c.460-370 BC), also following a form of materialism, distinguished between ‘*obscure knowledge*’ obtained through the senses and ‘*genuine knowledge*’ attained through atomism, representing *vast knowledge*. This perspective is less spiritual and cosmos focussed, and more mechanistic or deterministic in how one makes sense of particular events and possible explanations.

2.2.4 Innate, Eternal and Unchanging Knowledge

Plato (c.427-347 BC) pursued theories of true knowledge. The problem of acquiring knowledge gave rise to “Meno’s Paradox” in Plato’s *Meno*. Elements considered included: availability of knowledge, how knowledge is obtained and analysing why. Plato believed that knowledge is imbibed through altering or unchanging elements of the world. Plato followed an assumption that the nature of the world encompasses ‘ideas’ or ‘forms’.

In the *Euthyphro* dialogue, Plato asserts the importance of assigning meaningful classifications and forms to represent common or universal characteristics. Having classifications assisted in extracting more meaning for knowledge purposes. Plato further asserted that one cannot know universal knowledge forms merely from ordinary sense experience, but rather, knowledge must be sourced through other means.

2.2.4.1 Self-evident truth and knowledge, sense reality and illusion

In agreement with Socrates, Plato maintained that learning is less feasible for knowledge creation and one must already be in possession of knowledge. Moreover, Plato suggested that one cannot learn what one does not know; if one has no such knowledge then he or she will not grasp such knowledge as truth. Furthermore, Plato believed in self-evident knowledge thus nullifying the need for learning. This means that *Platonic ideas* do not emanate from experience or education, as ideas are primarily innate (Cohen, 2014). Accordingly, if one has

never acquired or learned knowledge and such forms, ideas must have been designed from within. Plato imputes belief in the soul or spirit that contains such inbuilt knowledge.

To obtain complete and true knowledge, Plato bypassed reliance upon sense information by turning instead to examining the intelligible world reality through the use of reasoning and forms or universals depicted from one's mental construction; Plato saw these as real knowledge derived from within oneself rather than from external sources.

Plato cautioned about discerning appearances from reality and not being deceived by one's senses or misled by what is illusory, but could be construed as real knowledge. Plato also alludes to forming opinions based on what manifests in the external world and he defaults to garnered knowledge sourced from a spiritual or soul basis. Plato claimed that possessing profound knowledge, in its purest sense, differs from information that is often in and of the common interest.

2.2.4.2 Plato's knowledge forms

Plato's metaphysical concepts embody his notion of *eidos* or "forms" or "ideas." *Eidos* of something is its look, shape, or form. Identifying forms and distinguishing features of objects or items provides a generic set of categories for universal understanding, with forms denoted as unchanging and providing knowledge clarity.

Forms are the most knowable beings one recollects in knowledge. Plato offers another image of knowing in his *Republic*. At a sub-level thought is *dianoia*, where one thinks about things like mathematics. At a sub-level hierarchical order is belief or *pistis*, where individuals use reason from senses about the world. The lowest level in this hierarchy is imagination or *eikasia*, where the mind perceives the physical world (509d-511e).

2.2.5 Deductive or True Knowledge

Aristotle (384-322 BC) viewed knowledge differently to Plato. Aristotle contended that knowledge and what is known needs to be based on '... a certain stability and immunity from change and fluctuation' (Cottingham, 2008 p. 18). In *Posterior Analytics*, Aristotle provides a normative framework for knowledge and a logical premise to conclusion in argument or deductive validity (Barrat, 1998), as exemplified in the theory of syllogism where valid or logical argumentation is a signpost to quality knowledge.

In more recent times, Aristotle's perspective on true knowledge continues to be a subject of discussion, around the notion of 'practical truth' as a nuanced form of truth as distinct from theoretical truth or reason proposed by earlier Greek philosophers (Nielsen, 2019 p. 219). Nonetheless, Aristotle's views of knowledge arguably provide a solid foundation for 'Knowledge Management' ontologies and frameworks, discussed in Chapter 4; through expositions on *Episteme* representing factual or scientific forms of knowledge, *Phronesis* representing wisdom and experience or self and personal knowledge (Polanyi, 1958), *Techne* representing technical or skills based knowledge for application, *nous* representing intuition and *Sophia* representing theoretical knowledge (Schwartz, 2008). Subsequently a distinction is made between theoretical *theoretikes* and practical *pratikes* knowledge.

2.2.5.1 Scientific versus accidental knowing

In *Posterior Analytics*, Aristotle also distinguished between unqualified scientific knowledge and knowing in an accidental way. In addition, Aristotle's views challenge assertions of knowledge as innate or accessed from within individuals. Instead he asserts that knowledge, in an abstract sense, transcends to higher or more universal truths influenced and shaped by the sensory system. Derived terms like *nous and intuition* are aligned with his expositions.

2.2.6 Ethics and Knowledge

The basis of virtue, ethics, is also linked to Aristotle's conception of knowledge and the connection between acts of knowing and notions of reality are depicted in his ethical work titled *Nicomachean Ethics*. This work is an inquiry into the best life human beings can live; where humans flourish with happiness or *eudaimonia* that personifies the best life form. Furthermore, practising virtues and positive acts not only ensures happiness but also ensures effective and quality knowledge. Acts construed through depictions of happiness are construed as activities or standards by which to govern one's life.

2.2.6.1 Knowledge and wisdom: phronesis and narrow intelligence

Profound knowledge is based on the concept of wisdom. The concept of wisdom has its origins in the Greek philosophers and the Greek term *philosophos* meaning "lover of wisdom". The Platonic dialogues contained concepts of wisdom based on different aspects of people's lives including the intellectual moral and ordinary aspects of life. Wisdom, also called *sophia*, involves contemplation or contemplative inquiry in search of truth.

The Platonic dialogues described practical wisdom, or *phronesis*, where individuals undertake actions, without succumbing to mere senses that could be deemed as irrational or deceptive. Episteme, as another wisdom depicted in the Platonic dialogues, is a form of highly developed scientific knowledge where individuals possess knowledge of a specific nature and principles underpinned by behaviours.

Wisdom can also mean understanding of reality and incorporate complementary 'modes of knowing' (Labouvie-Vief, 1990, p. 54). Additionally, wisdom is viewed as (a) accumulated, philosophic or scientific learning knowledge and (b) ability to discern inequalities and relationships - insight, (c) good sense and (d) judgement. Kaufman (2006, p. 130) suggests wisdom is 'a synthesis of intelligence and sound judgement'; in this case conservative wisdom embodies experience and common sense.

Virtues associated with wisdom from the Socratic 'perspective' being transcendental and innate, extend beyond the cognitive realms. In *Republic*, the distinction between 'corrupt' and 'genuine' wisdom sees the former designated as 'narrow intelligence' (*Republic*, 518, in Sternberg, 1990).

2.2.6.2 Knowledge, knowledgeability and knowingness

Knowledge is connected with the state of *knowingness* and such knowing includes a process of two leaps - "a leap from ignorance to knowledge and a leap from knowledge to wisdom which actualizes or personifies a higher level than knowledge". Thus a key distinction is made between being knowledgeable and wise rather than having knowledge (Gibbs & Angelides, 2004, p. 333).

Knowledge is not limited to experience alone, and a knowledge continuum can differentiate degrees of knowingness and *knowledgeability*, when incorporating the knowledge of wisdom with a transition from knowledge management to reflective management. Luminosity represents a state of enlightenment or wisdom, being perspicacious.

St Augustine Hippo (AD. 354-430) is associated with Neo Platonism and the Platonist group. He believed the mind used the senses as instruments for obtaining knowledge. He also believed credible knowledge was based on *substantiation* and *conclusion*, where facts and ideas needed to be incontrovertible through use of deductive reasoning, metaphysical

materialism and adherence to the doctrine of *nominalism* : “*The whole object is known more than any part thereof*”.

2.3 The Rationalist View - Knowledge through the Mind

The rationalist school of knowledge refers to a priori knowledge which is derived outside of experience.

Rene Descartes (1596-1650), a proponent of rationalism or a rational view of knowledge, bases philosophical reasoning around truthful knowledge, encompassing provision for doubt. Descartes was particularly interested in the scientific method and also concurred, in part, with beliefs espoused by Aristotle. In Descartes’s opinion, scientific enquiry did not automatically ensure certainty. He also highlighted a possible schism between philosophy and science (Scruton, 1981).

Descartes flagged the issue of uncertainty around true and accurate knowledge, searching for a method to guide human reason to the truth. The penultimate aim was to discover what was left after rejecting other options summarised as: “*cogito, ergo sum*” or “*I Think therefore I am*” (Hay, 2008). Elimination of options forms part of modern day methodologies used in problem-solving processes for societal, organisational and operational challenges.

The only confidence Descartes acknowledged, given degrees of doubt, was what existed within one’s own mind (Clarke, 1976). He disputed the existence of the material world and how people could be deceived by their own senses. In his *Discourse on Method*, Descartes subscribes to the premise that ‘the first rule is to accept nothing as true’, which extrapolates to a more rational method for understanding knowledge.

Systematic reasoning influenced Descartes to shift position to a more agnostic space. He proposed the idea of man divided between spirit and body, a system of philosophy that later evolved into Cartesian philosophy. Descartes posed a fundamental question about knowledge: How do I know? Descartes believed through rationalism, subjects could be challenged. In contrast with previous philosophers, Descartes did not fully dismiss the idea of knowledge attainability. His views, supported by the Cartesian school of scepticism, were

based on belief in a method for pinpointing truth through well-reasoned argumentation to disprove areas of doubt.

Descartes claimed humans are capable of discovering true knowledge along similar lines to that of Plato with reference to nature as a source and basis upon which knowledge is founded. Descartes searched for information which would be indubitable and certain in order to determine reliability of human knowledge, while qualifying that information such as scientific and mathematical information could also be subject to dispute. This latter observation could be subjected to debate on digital methods and Artificial Intelligence, as observed in Chapters 3 and 4.

Descartes enumerated how experience can be clear and forceful and cannot be avoided. He went on to conclude that the only judgements humans can make, are those communicated with clarity and distinct ideas. Whilst Descartes sought perspicuity when imparting messages and introducing the idea of doubt and questioning, he further sought to differentiate himself from classic sceptics who tended to *doubt for doubts sake*. In contemporary terms, this persona would be referred to as a “devil’s advocate” or one who takes a partisan line.

2.3.1 False or Doubtful Knowledge and Reliable Knowledge

Descartes advocated for more rigorous checking and quality assurance in order to distinguish between solid and murky areas of knowledge, by seeking to eliminate anything that could be deemed as false or doubtful. In the modern world this approach might fit within complex problem-solving processes or seeking to eliminate incorrect input data.

Descartes’ approach also followed ‘calculative rationality’ (Vernberg, 2000, p. 100) with systematic and methodological steps and processes, analogous to how contemporary organisations follow compliance and quality assurance procedures. Or where computer algorithms and computerised tools, such as predictive analytics, are bringing “smart systems” and tools to supplement or replace the mind. See Chapter 1, with further discussion Chapter 4.

This approach requiring more information for knowledge verification formed a baseline to justify an overall architecture of human knowledge. Having also cast doubt on scientific information including mathematics, Descartes continued to seek discovery about precision

and false certainty. Descartes saw clarity and distinctiveness as hallmarks of what constitutes truth (Elzinga, 1971).

These rationalist-oriented theories, espoused by both Plato and Descartes, specify procedures that need to be followed in order to discover knowledge affirming how quality knowledge cannot be possibly false (Elzinga, 1971). Furthermore, the mind with its cognitive input provides a useful barometer to elicit true knowledge. This rationalist approach in modernity has come under scrutiny with strict conviction towards certain held truths as discussed in Chapter 3.

Both Plato and Descartes adopt rationalist theories of knowledge using reason from within or innateness. The writings of Renee Descartes bring into question conventional paradigms of philosophy and a ‘reconstruction of knowledge’ (Cottingham, 2008, p. 21), where doubt prevails in discussion of what constitutes *reliable knowledge*. Here perceptual reality is questioned as well as the limits for *certainty of knowledge*.

2.3.2 Self-Reflection and Self-Review and Certain Knowledge

The view of knowledge procured from within is based on meditation and self-reflection or going into oneself and being somewhat disengaged from external influences to source ideas. Descartes proposed that *certain knowledge* needed to be neither false nor doubtful. Descartes’s test for absolute certainty formed a cornerstone or foundation for knowledge.

These doubt claims or assertions Descartes assigns to what is viewed or known in the form of what people believe or think. Knowledge is entwined with beliefs and a state of knowing rather than knowledge attainment per se. Descartes acknowledges these interrelationships and vulnerabilities of the individual and the pursuit of knowledge. Recognising individuals have minds, Descartes advocated for the adoption of reason as an important lever upon which to formulate or steer impartial thinking, as a quality based approach to knowledge. In contemporary settings it suggests an avenue for rational input and an employee voice to mitigate risk from ill-founded biases or assumptions which might impair organisational effectiveness.

Opinion versus factual information

Knowledge is about determining if people can know or possess information that is not subject to question. But dispute where the distinction is made between ‘obtainable information which is not mere opinion’ (Popkin & Stroll, 1993, p. 219) is still an area of conjecture within the philosophy of knowledge. Opponents of the rationalist approach to knowledge suggest individuals do not have the ability to ensure knowledge certainty and that knowledge is not totally innate, clear or readily discernible when individuals have ideas. The doctrine of certain knowledge is grounded in the development of human knowledge.

2.3.3 Cartesian Scepticism, Truth “Real Knowledge”

Cartesian is the adjective used to indicate the influence of Descartes and the rationalist view. The Cartesian view follows a more pragmatic and *externalist* approach towards knowledge. Real knowledge resides ‘outside of the mind’ (Vernberg, 2000 in Berdayes & Murphy, 2000, p. 101). This perspective also opts for an objective rather than subjective approach to knowledge.

It is argued that one must accept what is probable using supporting information and knowledge, to formulate probabilistic judgements or make the best possible guess. Judgements it is contended are stronger through evidentiary support. It is purported that one needs to make the best possible guess - akin to forecasting or probability analysis.

True beliefs, from a Cartesian perspective, are founded on evidence as a critical form of quality knowledge. An important qualification is when and how one is certain about his or her knowledge. Alfred Ayre (1826-1989), considers the necessary and sufficient conditions for knowing and what one can be sure of, or know to be true, amidst a myriad opinions. Knowledge is designated as Justified True Belief (JTB) and this perspective is critical of metaphysical views around knowledge; it supports logic through observation and import of the empirical evidence.

2.3.4 Lowest Versus Highest Level Knowledge

Benedict De Spinoza (1632-1677) followed a doctrine of *determinism*. De Spinoza, also deemed a rationalist akin to Descartes and Leibniz (1646-1716), drew on heterogeneous sources to shape his views of knowledge; he classified knowledge into three kinds: (1) experience (2) signs and (3) intuitive knowledge. The first kind concerns knowledge based on

inadequate perceptions, which can originate from random experiences. *Experiential vaga*, and is based on singular things emanating through the senses. The second kind of knowledge is based on signs, *ex signis*, or cues which prompt ideas or recollections.

With the first type of knowledge, arguably, there can be a lack of rational structure leading to perceptual distortion, by associating with an object or thing due to one's personal connection or association. The second kind of knowledge is *reason* (ratio) that explains how humans can ascend from an inadequate to an adequate perception of something. This knowledge is founded on common notions and adequate ideas about things and also includes properties incorporating deductive inference. This rational approach to knowledge suggests a superior form of knowledge, when compared to the first kind of knowledge. The third kind of knowledge, viewed as superior to the former two types, is *intuitive knowledge* or *scientia intuitiva*. Intuitive indicates that the connection between the individual essence and the essence of God or understanding is grasped in a single act of apprehension and not arrived at by a simple kind of deductive process.

2.4 The Empiricist View - Knowledge through Experience

In contrast to rationalist theories of knowledge, other philosophers investigate knowledge by examining human behaviour and experience. Rather than seeking true knowledge about the world, interest is focused on where information emanates and the degree of reliability one possesses. This perspective rejects the notion that one acquires supreme or certain knowledge from an abstract realm. By emphasising one's senses or experience this represents a key departure from the rationalist tradition of analytic philosophy.

This philosophical tradition has been linked to the English tradition of knowledge and empiricist philosophers such as Locke and Hume. Although, as Gilmour (1989) reports, Francis Bacon (1561 - 1626) had first suggested this empirical approach to knowledge; he stated that the main epistemological focus is about how one can know about the external world through consciousness and logical intuition. Empiricist thinkers commenced with sense experience as the basis for knowledge and what one knows, and how one endeavours to formulate sensible constructs of what is observed.

2.4.1 Sense Influenced Knowledge and the Empty Cabinet

John Benedict Locke (1632-1704) portended that knowledge can be genuine and secure, legitimising deference towards the individual and his or her experience (Shapin, 1994); it was also implied that knowledge could extend beyond ideas (Rickless, 2008).

Locke, continuing ideas from Francis Bacon, argued that only the senses could furnish real knowledge of the world. His aim was ‘to get rid of some of the rubbish that lies in the way of knowledge’. Locke sought an explanation of knowledge via sense experience, explained in an *Essay Concerning Human Understanding* where he argues that one’s knowledge emanates through one’s senses rather than innate ideas and *sense datum* (Audi, 2003). This doctrine negates innate ideas as a legitimate knowledge source. Where innatists appeal to universal assent and fundamental truths, Locke postulates that the senses allow ideas to furnish what is an ‘*empty cabinet*’.

Locke’s penultimate belief is that all knowledge is derived from sensation. Only through sense experience can individuals learn or acquire knowledge. The example is having the experience of colour for someone with eyesight to make them discern particular colours. From simple sensations come ideas which become formed as more complex ideas and ultimately knowledge of how objects are understood. When considering reason, Locke suggested the best one can do is base knowledge around opinion and sense of experience.

Locke’s proposals saw a departure from *prescriptivism* towards a respect for diverse opinions, rather than subordination to one larger ideal or abstraction. Additionally, fairness and equity are concomitant with approaches to dissipate ignorance through adoption of fairer methods for disseminating information. It is further postulated that knowledge can imitate or mirror experience. Locke views the mind as containing ideas and knowledge through mental occurrences where causes or influences are shaped by extrinsic forces.

2.4.2 Non Dogmatic Knowledge, Group Discourse and Ineffable Knowledge

David Hume (1711-1776), a Scottish philosopher, followed a philosophy supporting Locke and argued that sense and experience is an important basis upon which to found knowledge. Hume proposed concepts of scepticism and made provision for elements of doubt; he also qualified the concept of *mitigated or limited scepticism* to prevent legitimisation of

extremism and influences of stricter dogmatism entering the realms of knowledge. In modern society, these latter concepts may be equivalent to legal and regulatory parameters limiting acceptable debate versus dogma, used in group discourse.

Additionally, in contemporary settings, the justification of ‘unacceptable’ levels of dogmatism follows propositions that permit exclusion of evidence resulting in risks of misconstrued conclusions based on ‘misleadingness’. Ignoring key information can be considered a form of knowledge degradation due to lack of additional verifiable or conclusive evidence (Baumann, 2013, p. 4). This non dogmatic orientation also counters other postulations based on faith or maintaining beliefs to delude knowledge (Harvey, 2013). The ability to think wisely, yet also avoid dogmatism, are both important considerations and Hume suggests safeguards to ensure impartiality.

Hume also raised doubts, similar to those of Plato, concerning terms and constructs used by philosophers in relation to truth, knowledge, belief, action, cause and what is good and right. He suggested that observed or realised truth was unattainable and largely outside one’s grasp (Davidson, 1996, p. 265). Several of Hume’s concerns are echoed by other philosophers such as Moore and Russell; these thinkers concurred with the premise that knowledge and truth are less finite concepts.

This debate also raises the question of what becomes of knowledge. *Ineffable knowledge* denotes ideas that may be too abstract or complex to communicate and may remain tacit and inaccessible (Anderson, 2002; Lowney, 2011). Hume held the view that the world was a realm of reflection and radical contingency with no guarantees; with the dilemma of how claims regarding perceptual knowledge can be rationally or legitimately justified.

2.4.3 Deflationism, Truth and Knowledge

Davidson (1996) concludes that there has been an increased popularity in subscribing to minimalist or deflationary theories of truth. This theorist posits that jettisoning of theories, where truth is perceived as a relatively trivial concept, is somewhat disconnected from concepts such as meaning and reality. Further discussion on these contemporary responses to knowledge and how they have altered with modernity, is included in Chapter 3.

Hume, like Aristotle inclined towards a virtue approach. Where Aristotle considered the truth of things via principles and cognitive virtues, Hume suggested knowledge aligned more with empirically based truths. Simple common sense, Hume asserted, could be augmented with robust science. This perspective is also based on causal inferences and links to perceptual knowledge aided by experience or *post scientia*. Hume maintained that knowledge is conjoined with opinion and contingent environments (Wilson, 2008).

Hume's key premise is that humans only live through words and senses, with a further qualification that *one cannot know what one does not know*. This less than perfect knowledge legitimises a viewpoint 'of the best one can do' to arrive at goals about truths - and Hume suggested one cannot totally avoid or suspend judgement as sometimes one needs to act.

In modern times this sentiment could relate to problems of procrastination and delays in decision-making, yet acting on incomplete information and unknowns also has risks. The implications of working with incomplete or unknown knowledge is discussed further in Chapter 3. This idea of suspending judgement is equated with what Hume denotes as *excessive scepticism*, where nothing gets done. Beliefs are needed in order to precipitate acts, but this implies criticism of the Cartesian approach towards knowledge.

2.4.4 Ideas, Impressions and Knowledge

Hume distinguished between ideas (thoughts) and impressions (sensations and feelings), formulating two central claims about the relationship between them. The first claim advanced Hume's *copy thesis*: that all ideas are ultimately copied from impressions. This means that for any idea selected, one can trace constituent parts of that idea to either some external sensation or internal feeling. Hume challenges anyone who denies it "to shew a simple impression that has not a correspondent idea, or a simple idea, that has not a correspondent impression" (Treatise, 1.1.1). In the *liveliness thesis* Hume emphasises how ideas can enter the mind to stimulate one's thoughts and consciousness, whereas perceptions enter more forcefully and jolt individuals or groups into awareness, resulting in impressions. Impressions, therefore, are a starting point to stimulating consciousness and one can acquire truth and understanding of the world through impressions. Hume argues that everything entering the mind in reality is based on perception, and mental faculties are responsible for producing ideas. Furthermore, ideas are divided into those produced by memory, and those produced by imagination. Memory is considered a faculty that conjures up ideas based on

real life experiences.⁵ By contrast, imagination is a faculty that disassembles and recombines ideas to form new ones. One's imagination can transport basic ideas to form new ones directed by three principles of association: *resemblance*, *contiguity*, and *cause and effect*.⁶

2.4.5 Well-Founded Versus Groundless Ideas and Knowledge

Sound ideas are derived from the faculty of *understanding* or reason comprised of two types: (1) relations of ideas and (2) matters of fact. The association of ideas is a mathematical relationship that is "discoverable by the mere operation of thought, without dependence on what is anywhere existent in the universe," such as the mathematical statement "the square of the hypotenuse is equal to the square of the two sides" (Enquiry, 4).

On the other hand, Hume designated any object or circumstance with a physical existence, such as "the sun will rise tomorrow", as a matter of fact. This split between relations of ideas and matters of fact, is referred to as "Hume's Fork", which Hume adopted as a tool for distinguishing well-founded from groundless ideas.

Contemporary organisations, use varied knowledge and innovative tools to check and determine which new ventures or projects have merit.⁷ Hume maintained knowledge and understanding required precepts around reasoning and facts. Understanding required elements of quantitative analysis to observe or contrast differences by degree, or elucidate contradictory findings.

2.4.6 Reliability and Externalism, True Belief and Conscientious Knowers

Reliability and externalism indicate belief or opinion, based on a reliable process, can be confirmation of true belief, as noted earlier. Whilst beliefs, to some degree, can count as knowledge, it is postulated a reliable process is needed to give them more credence (Goldman, 1985). Knowledge can be reached through use of inductive processes including observation and inference or subjective justification. Hume further emphasises clarification is needed regarding what is meant by observation and whether such observation is relevant. Knowers need to, in his view, be conscientious when accepting certain propositions as

⁵ For example, the memory one might recount in a drive to a store which is a comparatively accurate copy of previous sense impressions of that experience.

⁶ Resemblance, an illustration or sketch, of a person leads one to an idea of that actual person. The idea of one apartment in a building leads one to think of the apartment contiguous to the next.

⁷ Business case templates are one example integrating rational criteria.

credible. It should be noted that both externalism and internalism have been subject to some debate (Butler, 1997).

Human or reflective knowledge arguably operates with a level of sophistication embodying coherence and comprehensiveness at times born out of curiosity (Sosa, 1991). The author points to two kinds of knowledge the first which is minimal and embraces externalist reliabilist components and the second which is at a more rigorous or higher level that is internalist deemed a higher form of knowledge individuals can strive towards.

Critiques of these views counterclaim that knowledge and knowledge produced without reflection is not an inferior form of knowledge. This discussion centres on knowledge being valuable and making a judgement as to whether an internalist epistemological approach to knowledge attributes knowledge the higher-level cognition. It is also noted of knowledge and its purpose such as enquiry-based knowledge and many inquiries such as the Royal commission is to place in contemporary societies that one can consider in the light of the following points.

Knowledge is suggested is one of the goods of enquiry to build bodies of knowledge. An enquiry may not seek merely to find things out but rather to be able to act, organise or undertake further enquiry. Preservation of knowledge it is purported is an intelligent use goods internal to enquiry. Effective knowledge it is suggested does not mean that certain knowledge becomes subsumed or subordinate to an overarching aim of knowledge. Knowledge is purported to influence and shape action as noted by Aristotle. Whilst in other situations in understanding rather than knowledge may be the end.

Knowing and Knowing Well

Olson (2012) posits knowledge from reliabilist perspectives. The author refers to a *reliable knower* who might be accurate yet passive in their role in recording sacks of experience. The author refers to the computer as an example of a reliable knower but not necessarily a *responsible knower* in that it does not have intellectual virtues. The argument is that more systems or technologies do not have the capacity to judge or discern responsible or irresponsible information or judgements due to a lack of human cognitive capabilities. Human knowledge can be evaluated in terms of responsibility.

2.4.7 Synthesis Based Knowledge, Analytic and Synthetic Knowledge

Immanuel Kant (1724-1804) in a Critique of pure Reason critiques Locke's perspective of knowledge and the concept of the 'empty cabinet' coming from within the mind devoid of initial impressions and external influences. A qualification is that although all knowledge might begin with experience, it does not necessarily follow that knowledge fully arises out of experience. The mind interprets and processes information and what is understood in the world, to give some sense of structure or meaning and derive concepts of understanding that can be deemed to be a priori or independent of experience. Kant's position is a synthesis of empiricist and rationalist approaches to knowledge (Dicker, 2004) that also applies within anthropological studies of local knowledge (Giri, 2013).

Knowledge therefore encompasses content or information obtained through both experience and *a priori* categories referred to as *forms*. Forms of perception and understanding can be complementary. Ideas for reason are synthesised from both perception and understanding. Ideas obtained through empiricism, start from the belief that knowledge of the world involves information obtained through the human senses defined as *aphenomena*. Introspection has a part based on observational and practical reasoning.

2.5 Analytic Tradition

2.5.1 Secure Knowledge and Self-Consciousness

The analytic tradition is thought of as confined to the Anglo-Saxon world, although the German influence can be identified with Hegel, Kant and Frege acting as contributors to this stream of thought. The prime question is how to find *secure knowledge*. Having a matrix and logic provides a starting point for formalisation of logic including tighter language with elimination of meaningless statements and, the need to effectively anchor procedures to empirical based reality.⁸

Georg Hegel (1770-1831) developed theories fitting within the analytic tradition regarding knowledge. His major principles are defined under the "Phenomenology of Spirit" (Coombs, 2015). Hegel considers the world from a progressive movement of mind or spirit (*Geist*),

⁸ Systematic approaches were also endorsed by advocates such as the Vienna Circle and philosophers such as Schlick. These advocates provided a precursor to what has become known as *logical positivism*. Schlick arguably disassociates perception from knowledge and intuition and knowledge is arguably a more eroded or degraded form of knowledge (Shelton 1989).

towards full realisation and self-conscious awareness. Hegel rejected the notion of knowledge constructed from timeless and valid propositions, emphasising that knowledge more likely occurs from a gradual process of knowing and knowingness. Subsequently truth, for Hegel, is the eventual and distant culmination of various processes that one will have navigated, perhaps involving a dialectical struggle where natural tensions and paradoxes might generate anti-theses.

2.5.2 Conservative Knowledge- a Critique

John Stuart Mill (1806-1873) followed an *a posteriori* school, critiquing the view of universalist truths of the world evidenced by the mind alone, in lieu of nature and lack of independent empirical audit of knowledge. This critique supported social reforms and a departure from conservatism or *conservative knowledge*. His essay 'On Liberty' also questions absolutes and emphasises how the human mind can be fallible. Mill also emphasises the importance of freedom for discussion and the need for refutation methods (Jacobs, 1986).

2.5.3 Certain Knowledge and Truisms

George Edward Moore (1873-1958) a pre-eminent founder of the analytical philosophy in "Defence of Common Sense", critiques previous philosophies of knowledge and views of *genuine knowledge* and discusses *truisms*. Moore argues that knowledge is reflected under certain conditions; he adopts a common-sense approach towards beliefs, truth and knowledge disputing notions of scepticism. This thinker proposes how individuals can be in possession of knowledge, whilst unaware of how they have come into such knowledge. Moore was interested in not only what one knows, but also how one knows it - so following a form of criteriology.

2.6 Contemporary Approaches to Knowledge

This section includes a large number of topics which, although all relevant, are difficult to prioritise or sequence. There is a general progression from long-standing traditional knowledge questions to more recent emerging issues.

2.6.1 Knowledge Shaped by Paradigms

Thomas Kuhn (1922-1996) in the Structure of Scientific Revolutions, argues that theories and intellectual frameworks (defined as paradigms) shape the way one perceives the world. The

implications of the nature of paradigms can extend to paradigmatic thinking, where forms of knowledge can be potentially restricted or biased due to the paradigms conceived in the minds of individuals or groups in particular organisational roles and contexts. This suggests inherent biases within underpinning concepts used to build knowledge.

Kuhn supports the view of a 'dynamic process of scientific knowledge' (Kuhn in Lakatos & Musgrave, 1970, p. 1) where theories can be challenged or replaced and not comply with classical positivism. Conjecture based on guesses is also considered, including 'puzzle solving' and the abandonment of critical discourse (Kuhn, 1973, p. 6).

Kuhn's perspective also covers precepts around how incremental change is needed as well as disruptive shifts in paradigms, but he also cautions that this does not act as a precursor for closer proximity to better quality knowledge or truth, due to speed of change. Paradigm shifts can help shape knowledge and act as a release valve by which to discover new forms of knowledge.

2.6.2 Knowledge as Justified True Belief and Plausible Knowledge

Edmund Gettier (1927-to present) considered whether justified true belief is knowledge and what distinguishes knowledge from belief or opinion. He surmises that beliefs can be proven to be true or false, and there are three key elements to determine knowledge: (1) having a belief, (2) holding the belief to be true, and (3) having a reasonable justification for the belief viewed as Justified True Belief (JTB) (Gettier, 1963). Gettier questions *plausible knowledge* and the necessary conditions for determining what constitutes plausible or valid knowledge. This approach of how knowledge is considered, is framed from a *justificationist* perspective which aligns true knowledge with justification and reasoning, using set criteria in preference to intuition or inference (Lisagor, 1976, p. 434).

However, Gettier contends that not all forms of knowledge can fulfil these three conditions and individuals vary in knowledge cognisance ability. The 'no false premises' proved to be problematic, with more general Gettier-style problems constructed (Besson, 2009) in which the justified true belief does not seem to be the sole result of a chain of reasoning. This reaffirms another view that fallible knowledge can be a 'puzzle' (Vahid, 2008). A perspective on fallibility relates to knowledge from belief, and concerns 'defeasibility conditions' (Levy,

1977), where conditions ensure there is no strong counterevidence to undermine a knowledge formed by beliefs.

2.6.3 Epistemic Failure, Unfounded or Misapprehended Knowledge and ‘Easy Knowledge’

The issue of epistemic failure as a signpost of knowledge degradation cannot be assumed when considering the Gettier perspective. One author suggests that lack of knowledge, as an example of a type of ‘epistemic failure’, does not automatically correspond with an individual demonstrating insufficient or lack of knowledge; although it does reflect a gap in information or possibly being deceived perceptually. Consequently, the idea of actually knowing something comes into question (Hetherington, 1998). Another view extends discussion of problems of contextualism as an epistemic choice (Brown, 2005) and also mooted as a degraded form of knowledge, due to rather disparate and unstructured nature of information (Tarasov, 2013).

Alvan Goldman (1938-) provides another perspective on knowledge and whether knowledge can be fully recognised. This thinker proposes that individuals can be susceptible to misapprehension of knowledge as reality, where perception of an alleged reality such as a shape or form⁹ that can be taken at face value as fact only to be determined as unfounded knowledge based on erroneous assumptions. This perspective is known as Goldman’s *discrimination theory*.

2.6.4 Historical Knowledge

There are different ways one can gather information and knowledge about the past. Sometimes mundane and uninteresting historical facts are sourced from what one can selectively remember (Pollock, 1974). Justifying or verifying historical knowledge includes sourcing reports and other documents. However, the checking process can also be completed through one’s individual experience. Sometimes one needs to verify or check whether another person’s report about the past as historical knowledge is accurate. One calls on the reliability of different or multiple sources of knowledge.

⁹ Goldman (1967) uses the example of the ‘barn façade’ where a person driving along the countryside not unlike that of an eyewitness account views what he perceives to be a barn but due to lack of knowledge of the local environs calibrates in his mind he has viewed a barn based on a gap in his understanding of the fact the particular design of the environs features numerous ‘barn façades’.

As it is based on memory, the effect of memory can influence judgements about historical knowledge and events that have taken place. There are two kinds of memory (Pollock, 1974): (1) propositional memory, and (2) personal memory. Propositional memory is not merely about the past; one can remember events that have occurred or recall facts about events yet to take place. The second or personal memory is a kind of memory which is more intimate, such as recalling experiences and events from an individual's past.

However, not all past memories are sourced solely from individual memory. Personal memory can be reactivated by catalysts, triggered by other persons where long-term memories or recollections serve as reminders about particular incidents or events that have remained forgotten or pushed into the unconscious mind.

2.6.5 Sociology of Knowledge, Errors and Blind Alleys

The *sociology of knowledge* has historical roots and traditions linked to scientific knowledge. Additionally, the sociology theory of knowledge is noted by early 20th century thinkers such as Schaub (1920). However, a reported founder of the sociology of science is Robert K Merton (1910-2003), who supported structural functionalist sociology in the late 1930s to equate the field of sociology more closely with that of science and encourage it to be more scientific in management. Merton was concerned with 'insiderism' and how a doctrine can influence 'group methodological solipsism', where solipsism as a social phenomenon can see a 'monopoly of knowledge' (Merton, 1972, p. 14). This type of situation is also relevant to a discussion about knowledge and groups in Chapter 3. Sociology of knowledge also considers social organisation and ordering of knowledge, including categories and systems of knowledge (Swidler & Ardit, 1994, p. 305).

The field of social science and social knowledge has been a subject of much criticism, in the past, for scientific errors and "blind alleys" (Shapin, 1995, p. 291), with concerns relating to the seemingly relativist approach towards knowledge. The field of sociology of knowledge further evolved in the 1970s and 1980s and has progressed throughout western developed countries.

2.6.6 Observable Knowledge and Persistence

Max Weber (1864-1920) developed a theory of knowledge from an understanding of external factors and considerations, such as rational and irrational motivations, driving behaviour and

emotional responses rather than by logic. Weber considers understanding through observational or direct understanding or *aktuelles verstehen* and *erklärendes verstehen*. Observational knowledge is obtained by describing external behaviours or activities, whereas explanatory understanding concerns knowledge about motives linked to an activity. This perspective depicts knowledge as subjective where human judgement and action guides knowledge acquisition.

Mannheim perceives how knowledge engineering is linked to social location of individuals and groups as well as institutionalised and formalised forms of knowledge and ideas. Sociology of knowledge includes ideas, cultural and organisational discourses, informal knowledge sharing and, renewal practices (Mannheim, 1991, p. 306). Mannheim (1991, p. 3) in further enunciating knowledge through a sociological lens, sees knowledge and thinking not merely as isolated phenomena but as reflections of social practices, where individuals through groups, ‘participate in thinking’. This sociologist iterates how predetermined societal factors to an extent prefabricate thought processes and the nature of how knowledge is formulated. This conception of knowledge is based on a ‘...social or existential determination of actual thinking’ (Mannheim, 1991, p. 239). This deterministic perspective depicts a causal relationship between one’s ‘life situation’ and how this governs everyday thought processes and knowledge.

Mannheim (2013, p. 296) in *Essays on the Sociology of Knowledge*, cautions about how knowledge is obtained, citing risks of ‘...ways of possession and acquisition’ being likely to inhibit or obstruct ‘new acquisition of knowledge’. This social thinker further emphasises the credence of individual memories or individual markers as “intellectual possessions”. Mannheim also purported how generations reshape consciousness, which can influence approaches to knowledge.

2.6.7 Standpoint Epistemology and Paradigmatic Driven Knowledge

Another perspective of the sociology of knowledge is the construct posited by Harding in Smith (1987) of ‘stand point epistemology’; this is a theory where knowledge production is influenced strongly by social location political considerations and *aetiological* stances.

2.6.8 Foundationalism, Knowledge and Pragmatism – Useable Knowledge

Modernist approaches based on foundationalism (set values) include: Marxism, liberalism, functionalism, structuralism to name a few (Smith & Riley, 2001, p. 239). Arguably, organisations through corporate mission and values statements, to an extent adhere to these foundationalist bases to guide organisational strategy, culture and behaviours. Following this premise, foundationalism can also shape knowledge (Smith & Riley, 2001).

Modernist approaches departing from foundationalist philosophy are more pragmatic and elect methods for knowledge and its construction through use of trial and error, or ‘what works’ (Smith & Riley, 2001, p. 239). Organisations seeking greater innovation and operating under conditions of continuous change are more likely to follow a more pragmatic and less foundationalist approach. Subsequently, the concept of knowledge can have different representations and connotations given contrasting philosophies including organisational philosophies.

Pragmatism philosophies are also grounded in ideas pioneered by Peirce, William James and John Dewey. John Dewey (1859-1952) stated that experience based from within is viewed as an agent for shaping knowledge where knowledge is accessed through guided introspection. Dewey conceived a counter rationalist orientation towards knowledge through pragmatic instrumentalist depictions, including a pluralist perspective, and reifying conditions of uncertainty (Bogusz, 2014). This thinker believed that one cannot be detached or a mere spectator (MacPartland, 1945) and a knower needs to solve problems under *indeterminate situations* (Biensthal, 2014, p. 9), grappling with a knowing versus the unknown (Dewey & Bentley, 1949). Knowledge using this frame of reference is viewed as contextual and, when contrasted against scientific or rational knowledge, deemed *provisional*.

Another perspective on the pragmatism doctrine is that knowledge has a temporary flavour and ideas tested may eventually be ‘discarded’; this asserts a limitation or hint of degradation in eroding more permanent forms and philosophical leadership underpinning this knowledge ethos, which has arguably ‘weeded out a great many mistakes and confusions’ and supported more depth of knowledge (Ryn, 1982, p. 402).

2.6.9 Relative, Contingent, Fallible Knowledge and, Knowledge Certainty

Pragmatists also view knowledge as relative, contingent and fallible following an anti-Cartesian view of truth and knowledge. Mental constructs of knowledge are in the form of experiential knowledge offloading the burden of seeking knowledge certainty. This perspective views knowledge as *incorrigible*.

2.6.10 Common Sense Knowledge and Doubt, Verification and Useable Information

Learning by doing is a template for pragmatic approaches (Johansson & Lindhult, 2008). This concept of learning by doing, observed with principles to guide work practices, rather than just applying universal principles aligns with pragmatism and the notion of *common sense* as a recognised form of knowledge. The focus is on true belief questions, traditional scientific or rational beliefs; expert knowledge, as a higher level knowledge domain, can be challenged and is not immune from doubt.

Truth and meaning can lead to knowledge and knowledge evaluation for future ends, whilst upholding the rights to beliefs. In Chapter 3 there is brief reference to some commentators who suggest that knowledge needs to be used for a useful purpose for society.

Ferdinand Schiller (1864-1937) a European pragmatist, advocated intellectual freedoms and experimentation; he also portrayed reality as plastic and culture as dynamic. This pragmatic maxim supports *verification* as an approach to deciphering and uncovering meaning, and sees facts as *unknowable*, or knowledge with no direct relevance or context of experience. Inaccessible things hidden behind phenomena in the general world, render ideas or knowledge useless or unusable, whereas pragmatism focuses on useable knowledge.

2.6.11 Working Knowledge, Given Knowledge and Challenging the Status Quo

Results or consequences reflect the efficiency of knowledge. This form of knowledge needs to add value and demonstrate utility. Given this usage-oriented view of knowledge, information can be superseded by a later version deemed as more relevant or efficient. This process of *upgrading* highlights the fallible or transient nature of knowledge, where truth is founded on what works. This type of practical working knowledge, can be associated with

‘common sense’, which extends to the ways in which individuals behave and function in situations outside work.

There is a risk of over conceptualising or analysing obvious or *given knowledge*. Immediate or non-inferential knowledge can lead to confusion, however, pragmatists argue that knowledge aligns with a coherent rather than a layered or hierarchical structure. For pragmatists the contextual experience of a simple fact means seeing or beholding, with the knower as void and somewhat detached (Kulp, 1986).

Pragmatists further differ in their approach in that knowledge is seen as a product of enquiry and problem-solving, which warrants the need for experimentation for innovation. This can mean challenging status quo knowledge. In social terms, leaders are now deemed as agents and there is no longer a strict bifurcation between experience and knowledge. Observation from the grandstand is not viewed as a proactive form for knowledge building; however, observation can contribute discernment and impartiality.

2.6.12 Coherentism and Background Knowledge

A coherence theory of knowledge or coherentism (Lehrer, 1986) is another perspective on how knowledge might or might not be meaningful or complete. The main contention is coherence is based on solid logic or rigour and justification (Lehrer, 1990). Another perspective extends a ‘gradational’ mode towards knowledge by putting it through stages of assessment, supported by processes and sequences which could lead to reasonable but not definitive justification (Brendel, 1999, p. 302). Certain forms of knowledge are required to assist for clarity and justification. An example here is having background information or knowledge that is deemed reliable from another party, to help clarify meaning and understanding for information imparted, such as with handover processes between nursing or shift workers.

There are circumstances that elucidate the value of applying coherence to knowledge and truths. In these circumstances background knowledge may assist in checking a theory or a hunch that one might have supported by reliance on a reliable source. This leads to a chain of inference, following Gettier (1963) that fits with using a whole body of diverse information to come to a particular theory and reject alternatives. Having this additional information strengthens the conclusion.

However, there are concerns raised as to justification, coherentism and knowledge, leading to the suggestion that an ordinary level of justification (a degraded form) is inadequate and not the 'right kind for knowledge' (Kavanvig, 2012, p. 17); further verification is recommended to eliminate possible inaccuracies.

2.6.13 Knowledge by Acquaintance, Indeterminable Knowledge and Knowledge by Description

Bertrand Russell (1872-1970) conceived *first-hand knowledge* and knowledge by acquaintance, which both relate to personal experience (Koehler, 1972). Two types of knowledge are included here: the first type is *knowledge by acquaintance* and the second type is *knowledge by description*. Knowledge by acquaintance, later to be modified (Pears in Savage, Anderson & Feigl, 1989), typifies a direct route to knowledge through a person's close or firsthand knowledge and experience. This form of knowledge involves a direct cognitive relation to the object of the known, ascertained as a fact or truth. By contrast, knowledge by description comes to be known or ascertained via a less direct route.

Specifically, knowledge by acquaintance occurs through direct interaction with sourced facts and information. Furthermore, a distinction is made between knowing an actual fact as a kind of knowledge associated with knowing a thing, rather than knowing about that thing. Here, knowledge by acquaintance can reflect a case in which an individual's knowledge differs from having knowledge of something. The latter form of knowledge normally requires a person to have some form of belief. Someone can have direct experience with or awareness of an event, yet in another situation, might have a lessened sense of knowledge as an indicator of a more foundationalist epistemology.

Knowledge by acquaintance is arguably positioned at a basic level of knowledge, whereas knowledge by description is inferential. Knowledge by acquaintance means direct knowledge is tested by *dubitability*. *Dubitability* means one cannot know a particular object or thing by direct acquaintance such as a mobile phone. Knowledge by description is a method where the object relies on knowledge by acquaintance. Breoner (2011) suggests there can be knowledge by direct acquaintance with physical objects not needing to have knowledge to form theories.

Specialist job roles such as in IT means one might have more direct experience, such as with computers.

Bonjour (2001) refers to direct apprehension as an ability to apprehend or have conscious awareness. Fallibility, introduced earlier, can arguably create disconnect between what the person apprehends and his or her held beliefs. This author uses the example of the speckled hen that challenges the idea of direct knowledge by acquaintance, and subjects such as experts having full knowledge.¹⁰ What this example highlights is how situations can occur where indeterminable knowledge brings into question expert knowledge and how even experts might misapprehend. This topic of expert knowledge is discussed further in Chapter 3.

In contrast to knowledge by acquaintance, knowledge by description refers to the process by which to gain knowledge about someone or something where one does not have direct experience or familiarisation with, in order to formulate descriptions. Subsequently, access to and use of information extends beyond the bounds of immediate or direct experience to elicit knowledge.

2.6.14 Kinds of Contrastivist Knowledge

Contrastivist knowledge focuses on *knowing this* versus *knowing that*. It is a form of explicit knowledge and articulates alternatives and reflects characteristics of the alternatives. Gilbert Ryle (1971) highlighted the distinction between *knowing that* and *knowing how* or techné-knowledge (Allen, 2004). Knowing how, is a skill needed to be able to perform an activity deemed more as practical knowledge (Guzman, 2008). This form of practical knowledge is also depicted as *knowing how to* by using a competency angle. Snowdon (2003, p.2) cautions that one cannot oversimplify *know how* and simply relegate it to *practical knowledge*. The practicality of actions is merited to enhance security and provide other value-based outcomes (Pouliot, 2008).

¹⁰ An example here is when one can make an observation about the number of speckles on a hen due to experience but there needs to be higher level discernment and differentiation. There might be insufficient skills to differentiate the number of speckles on certain hens. Whilst visual or observational experience might be reliable to conduct such a calibration, there may not a surety that in each case the calculation will be correct thus acknowledging there can be degrees of inaccuracy or uncertainty with judgement which raises the issue of indubitable nature of knowledge and that direct acquaintance such as privileged or expert state of knowledge or professional knowledge can be open to question.

Challenges exist in transferring knowledge based on know how (Poston, 2015), and where presumptions of knowledge attribution are based on observation and imitation requiring additional capabilities supported by cognition not merely practicum (Stanley & Williamson, 2001). Erroneous assumptions about attributions made to persons in possession of know-how are also potential knowledge risks (Bengson, Moffett & Wright, 2009). Additionally, know how has connotations of complexity, from a cross cultural and linguistic perspective, which cautions about an oversimplified reference to practical knowledge (Ditter, 2016).

2.6.14.1 Knowledge that

Knowledge that, presents as factual or descriptive (Azizov, 2017) rather than ‘perceptual knowledge’ (Stroud, 2009), in the form of declared information in organisations is a general example of this category of knowledge. Instructions on how a particular machine operates would be a common specific example. Knowledge that is a kind of knowledge when facts or truths are unequivocal. Some sources critique the limitation of knowing that in conveying understanding and rich content through social actor ‘representational practice’ such as dialogue (Azizov, 2017, p. 123).

2.6.14.2 Knowing what

If an organisation instils a culture that values one form of knowledge over others, this could be viewed as a form of degradation. Other versions of what it means to know what knowledge entails include knowing what: whether, knowing who, knowing why, knowing what and knowing how.

2.6.14.3 Know-how, working knowledge and material knowledge

Knowing how is a form of knowledge focused on adapting methods to the ideal method or outcome. Know how has also been construed as a ‘species of knowledge’ (Baird, 2004, p. 32); this author is critical of conventional subjective and objective knowledge definitions and exemplifies how *working knowledge* is less ensconced in theory and dialogue. He suggests how what one learns can through ‘cognitive autonomy’ and a materialist view of knowledge that is connoted as ‘thing knowledge’, such as smart systems and advancements, can be artefacts which behold knowledge outside of humans (Baird, 2003, 2004, p. 39). Adams (2009) suggests that empirical evidence assists in differentiating knowledge that and knowledge how.

2.6.15 Knowledge, Scrutiny and Armchair Knowledge

Knowledge credence is construed as a form of scrutiny (Moss, 2013). This questioning of the legitimacy and quality of empirical knowledge also hints at risks of knowledge degradation with questions around the extent to which empirical dominant knowledge can remain uncontaminated (Pickel, 2015, p. 563). *Armchair knowledge* is another form of information that has been queried in terms of its credence given, it is not an *a priori* based knowledge. *Conditional scrutability* allows for justification of traditional belief which can depend on subjects, existing empirical evidence and beliefs.

Redpath (2014) contends the need for a common sense approach towards knowledge leadership and excellence. This author suggests leaders cannot be effective if they focus solely on adopting an absolute sceptic or “devil’s advocate” position. This stance is consistent with an earlier supposition that absolute sceptics cannot be philosophers, which parallels the importance of thought leadership where leaders need to embrace thinking and theorising. In contrast, sceptics are not viewed as having holistic competencies, or well-rounded knowledge; this reflects Socrates concerns about the dangers of ignorance, in part, born from lack of thought and robust discourse.

2.6.16 A Contingency Perspective and Common-Sense Knowledge

Harold Garfinkel (1917-2011) acknowledged the centrality of social action and intelligent actors for the maintenance of social order. But he deviates from Parson’s approach, that values and norms are key influences for social integration, suggesting that world context and insight guide specific actions. Garfinkel (1967) also believed understanding from others can influence actions and behaviours and that individuals, as social actors, are influenced by cognitive factors.

Furthermore, Garfinkel with Wittgenstein and Bourdieu, challenged the premise that society needed to be governed by sets of rules to address social order and social control. These authors considered that there were natural conditions or circumstances where rules do not apply and cannot cover every possible contingency or situation. This perspective refers to the ‘*etc. clause*’ and corroborates the need for adoption of *common-sense knowledge* to apply to differing contexts - extending to forms of anthropological knowledge where knowledge is, and embedded in, and reflected through the prism of social life and experience (Kempny &

Burszta, 2005). Garfinkel (1967) also suggests how social member methods can guide practical actions through *common-sense knowledge* and discovering properties of commonplace, practical common sense actions from within.

2.6.17 Claude Levi-Strauss - Structuralism ‘Higher Order Knowledge’ Versus ‘Primitive Knowledge’

Structuralist anthropologists such as Claude Levi Strauss criticised existentialist philosophers such as John Paul Sartre, by proposing that society and culture following an existentialist world view may lead to self-indulgence and *introspective thinking*.

Levi Strauss (1908-2009) in placing value on knowledge, distinguishes between ‘*primitive knowledge*’ and a term construed by Russell (1914, p. 592) ‘*higher order knowledge*’. A structuralist’s view of ‘higher order knowledge’ is based on scientific exploration of systems and ideas, rather than internal thoughts or experiences of individuals. A structuralist world legitimises displacement of individual thought and knowledge known as ‘decentering the subject’ (Smith, 1988, p. 98). Orthodox structuralism focuses on the role of detached observers and scientific thought, whereas, post-structuralist perspectives diverge into areas such as social location of the observer.

2.6.18 Post Structuralism, Factual Knowledge and Discourse

Post-structuralist thinking challenges humanistic traditions where the individual may have been diminished and repressed. This perspective supports observations of some types of larger and complex organisations that may tend to adhere more to a structuralist management style, such as some large corporations, but not multinationals where individual freedoms are limited. Whilst free will is acknowledged coinciding with rational thought in large organisational cultures, encouragement of discourse by organisational members may vary across sectors and functionally disparate and culturally ascribed boundaries known as silos.

Paul Michel Foucault (1926-1984) suggests there are issues of power and knowledge within social structures following a more relativist epistemology¹¹. A structuralist is interested in exploring the social conditions of knowledge production and impacts of knowledge and truth in particular social settings.

¹¹ Relativism and epistemology is discussed further in Chapter 5 Research Design.

Truth or known *factual knowledge* appears more elusive than it is perceived by a structuralist and the application of *rigorous knowledge* does not clarify the situation (Lewis, 1996). This situation resonates with contemporary society, including organisations grappling with and solving difficult or complex problems. Foucault considered systems of thought and themes as *discourse*, with different elements associated with knowledge or abstraction.

2.6.19 Accidental and Rules Based Knowledge

Tanney (2013) criticises the view that rules-based explanations are a meaningful form of knowledge - using learning the game of baseball as a case example. The author suggests that having no knowledge of the game of baseball, one might acquire knowledge in an accidental manner whilst, conversely, someone who is familiar with the game might make incorrect moves or judgements.

There is a level of complexity in taking *rules based knowledge*, then internalising and making connections with it from an individual self-knowledge perspective. There is also a distinction between citing, by rote, the rules of baseball as distinct from actually knowing or fully understanding the game. Rule conforming behaviour, it is contended, does not automatically translate into full understanding and knowledge.

2.6.20 Knowledge and Performativity

Challenging traditional epistemologies of knowledge another thinker conceives quality knowledge as performative (Allen, 2004). Knowledge quality reflects production of artefacts or works, distinct from traditional forms of cognition of objectivist or subjectivist theory of the perspective of knowledge.

Michael Polanyi (1891-1976) critiqued positivism or theory supported by proof to ensure a state of knowing. He went on to portray modernism as creating an ‘open-ended relativism’ between epistemological domains, which can impair one’s capacity to gain knowledge (Clark, 2008). Polanyi criticises modern forms of objectivism for knowledge, where theories take a backseat to facts. Factual knowledge embodies review and discovery, but also has a tacit dimension and ‘antecedent focal knowledge’ or prerequisite knowledge to prevent focal ignorance (Clark, 2008, p. 920). Additionally, contrasting perspectives around rationality and knowledge indicate an arguably less linear and more holistic approach to knowledge, where

scientific discovery is not solely bounded by explicit or codified knowledge and rules that can potentially limit creativity for knowledge building (Miller, 2008).

2.6.21 Other Knowledge Classifications

Other classifications of knowledge have been noted including basic and applied knowledge in research contexts (Machlup, 1980). This author further differentiates between: general-abstract versus particular-concrete knowledge; analytical versus empirical knowledge; knowledge of enduring interest versus knowledge of transitory or ephemeral interest; knowledge for many versus knowledge for only a few; and instrumental versus intellectual versus spiritual knowledge' (Machlup, 1980, p. 102). Observing how society produces and consumes information, depicted as transitory knowledge pre internet, suggests a reduced focus on knowledge where knowledge is at risk of 'obsolescence' or being rendered 'perishable'(Machlup, 1980, p. 102).

Another cognitive related view of knowledge suggests that humans, from an early age, possess core systems where knowledge, as separate from theory and science, is shaped by maturation processes that can affect or impair knowledge quality and other capabilities and, where knowledge presides in domain specific areas (Carey & Spelke, 1996).

2.7 Implications for Contemporary Society of Knowledge

Degradation and Erosion

2.7.1 Evidence, Changed Technologies and Priorities, Degradation Pressures

Scientific evidence and logic are now the dominant domains on which to define knowledge, but common sense or ordinary knowledge is acknowledged as having a place in contemporary societies. Know-how has been augmented by the emergence of the Internet and web, resulting in knowledge proliferation through various communication devices, where information sources with contrasting viewpoints can lead to debate and confusion associated with knowledge and information flows.

Information technology is a social change where representation of knowledge is not necessarily regulated. There can be chunks of knowledge or information, scattered in highly dynamic formats and, it is argued, this has led to a form of degradation in the sense that 'trivial practices' are emerging around practical knowledge with an explosion of *everyday*

knowledge deemed to be of lesser intellectual value (Gottschalk-Mazouz, 2007, p. 224; Setiya, 2008).

Information distribution is varied with shifts towards downloads, uploads and files. Knowledge is more networked internally and externally and information is promoted widely, rather than as conceptualised by early philosophers being restricted within certain social and intellectual enclaves. Furthermore, knowledge in contemporary society is more dynamic, and is considered as normative where acknowledged claims provide likely, rather than conclusive problem solutions; this corresponds with categorical, traditional and truth paradigms (Gottschak-Mazouz, 2007, p. 219).

Additionally Justified True Belief maxims are still relevant, although with adjustments over time, where one considers the relationship between truth and demonstrable knowledge (Zardini, 2015). The debate around the idea of justification and argument for multiple or holistic versions of truths also raises questions, such as: whether degraded or eroded knowledge is prevalent, if some forms of knowledge do not fit the justification and truth paradigm such as pragmatism; if know-how and utility approaches to knowledge will be superseded or ignored through technological and logic based systems also raised in Chapters 3 and 4.

In contemporary settings, knowledge extends beyond individuals to external representation where it has a utility function and goes beyond truth claims. The facts and presentation can be via numerous mediums, including use of algorithms. Specific implications for knowledge erosion and degradation, related to particular concepts or traditions, are listed below.

2.7.2 Implications from the Greek Philosophies

The implication of the Sophist concept of knowledge being less than ideal or attainable through subjective and contextual factors, suggests that knowledge might always manifest in a degraded form, or that there is ongoing indeterminacy where the human condition creates knowledge. There is also a proposition that subjectivity is, to an extent, subsumed within a “post human reality”. This is seen by some as decentering of subjectivism or fragmentation of consciousness, due to increasing demands of fast paced lifestyles and people being “seized by information technology” (Chertkova, 2018, p. 46). This is discussed further in Chapter 3.

Scepticism invokes the idea of knowledge being diminished, given the inability of knowledge holders to present compelling argument to legitimise acquired knowledge to sceptics. From a contemporary perspective, the risk is that knowledge could still be eroded or degraded due to scepticism inhibiting new knowledge for innovation.

Plato in recognising dynamism within individuals and suggesting *dialectical knowledge*, was proposing a type of knowledge that, arguably, does not fit within everyday human knowledge but operates at a higher level (Cooper, 1995). Cognitive capabilities and reliance on recollection can colour opinions and knowledge, with risk of erosion or degradation if such knowledge is not captured or codified (see Chapters 4 and 6).

Socrates articulates two types of knowledge: the first type, being visible or sensible is acquired through the senses and therefore largely discernible; the second type of information is depicted through images, shadows or opinions. The lower-level of the second category of information, can be vague and incoherent and disorganised or non-classified as a system¹² - but not constituted as knowledge per se and susceptible to being *indubitable*. This implies that what one reports is based primarily on appearances or perceptions of what seems to be real or known.

Intelligible information deals with Platonic ideas and, in this context, knowledge is possible or even plausible. Use of Platonic ideas, in the form of hypotheses, may lead to drawing certain conclusions and therefore introducing causal theory around knowledge (Steiner, 1973) and forms of knowledge. Certain assumptions are made where there may still be incomplete knowledge. Additionally, concerns about profound ignorance, derived from Socrates, suggest serious consequences from poor or misaligned judgement. Additionally, concerns about profound ignorance, derived from Socrates, suggest serious consequences from poor or misaligned judgement.

In *Euthyphro*, Socrates sought to understand and define knowledge and associated properties; however, there are marked differences between Socrates and Plato, relating to knowledge, enlightenment and communication. Davidson (1996, p. 264) highlights these different approaches to knowledge by pointing out that Plato, in his work *Thaetetus*, defines empirical

¹² In modern organisations the analogy here is with big data and also the concept of data that is not transformed into information or knowledge which is not value added information.

knowledge and deduces knowledge as true belief and something extra. Knowledge degradation could possibly be viewed as a consequence of an individual's lack of competence to make informed judgements from sourced information to enhance the quality of knowledge.

The notion behind better or purer thinking suggests higher quality, rather than downgraded or degraded, forms of knowledge require strong reasoning that emanates from a focussed, non-distracted mind. This implies that time for reflection and minimal distractions are necessary to ensure the thinker can better apply the senses to arrive at knowledge. In the modern world, as noted in Chapters 1 and 3, time pressures and other demands are impacting individual's day-to-day work and are lessening opportunities for dedicated thought.

The distinction (by Democritus) between obscure knowledge and genuine knowledge clearly differentiates what could be deemed as quality versus degraded knowledge. The notion of genuine knowledge as more credible and acceptable is also consistent with more quantifiable and tangible views of knowledge. However, knowledge within modernity is linked to information, both internally and externally, connected and networked rather than emanating from a single 'atomic representation' (Gottschalk-Mazouz ,2007) as Democritus proposed. Plato held strong beliefs regarding standards for demonstrating virtue, which reflect his perspective of humans in relation to culture (Wild, 1948). He believed goodness is derived from true knowledge and wisdom, portending risks and negative consequences when one remains ignorant. This ignorance risk suggests a form of degraded knowledge which, to some, brings into question how contemporary organisations might value knowledge including standards.

Plato's concerns about knowledge integrity and risks of being deceived by external information resonate in the context of current discussions about "fake news" as well as the credence of judgements based on information accessed through the internet.

In Aristotle's terms, pursuit of knowledge is often considered as achieving truths, whereas other approaches use opinion or reasoning with claims there are no absolute truths and conceding that degrees of uncertainty exist. Aristotle's intuition can play a pivotal role in pursuit of knowledge; however, intuitive knowledge can be less objective and a possible form of eroded or degraded information.

Knowledge that is created or generated may be viewed as more or less degraded when reviewed through an ethical lens. This is because knowledge production for production's sake might be susceptible to ethical risks in terms of intentions, motives or proposed use. The ethics of leaders is an example.

The narrow intelligence concept may also be a factor influencing whether knowledge is at risk of being degraded, even in contemporary settings, depending on which social actors adopt such forms of narrow intelligence and their possible impacts on decision-making in organisations (see Chapter 4). In modern organisations multiple intelligences such as social and emotional intelligence are touted as appropriate means to address challenges. Parallels could be drawn with boards of directors or management and the perceived quality or variances in governance. There are potential risks where a key governing body or citizen 'resists the counsel of wisdom'.

The idea of degraded forms of knowledge is closely linked to the spiritual and intellectual dimensions or attributes of persons, such as with multiple intelligences a term used in modern leadership. Wisdom and the moral elements about how individuals behave can either enable or taint the process of how one builds knowledge.

Wisdom as a theory of knowledge and judgement, sets higher standards for excellence from both the mind and one's virtues (Baltes & Kunzmann, 2004). These guiding principles have application within professions and how specialist such as accountants approaches towards knowledge and ethics (Gill, 2009) drawn from wisdom given the Global Financial Crisis (GFC) impacts and more recent scrutiny from the Australian Royal Commission into Banks and Financial Institutions coupled with other alleged corporate and franchise alleged legislative and regulatory breaches.

Hippo's notion of knowledge being incontrovertible suggests a higher quality of knowledge that is rational through cognitive processing, in order to be conclusive; this is another underlying premise supporting the idea that rational objective thought stimulates more valuable knowledge.

2.7.3 Implications from the Rationalists

From a contemporary point of view, advances in scientific knowledge and technology as well as evolving theories over centuries make it hard to accept that anything is absolutely certain or permanent. Additionally, the application of rational and smart technologies signals a direction of knowledge and how rational driven systems with increasing levels of sophistication are consistent with earlier philosophical standpoints that question human ability for logic and rational thought. This incapacity might reflect a form of knowledge erosion or degradation, as noted in Chapter 3.

Knowledge that does not seem tangible or able to be proven from a justificationist perspective, is more likely to be downgraded or eroded. Furthermore, real knowledge is based on substantiation from external sources. In contemporary settings, evidentiary support still counts in organisational and legal contexts. However, depending on sources and influences, including selectivity to justify beliefs, evidence can still be biased and susceptible to contamination (Hyman, 2006). See Chapter 3 for further discussion of this.

Knowledge from De Spinoza's perspective is devalued if shaped merely by sense perception. The second level constituted what were deemed as *adequate or general ideas*. (Collinson & Plant, 2007 p.87). The highest level embodied the realm of 'intuitive knowledge' and knowledge of the essence of things including various connections and interrelationships. The human mind is viewed as the dominant carrier to transport and grasp valuable knowledge. In contemporary settings and organisational contexts, the delineation between the respective types of knowledge may become less discernible with possible risks of knowledge erosion and degradation, due to discarding or weighting of certain types of knowledge.

The history and theory of knowledge can be viewed from two contrasting groups of philosophers; the empiricists' view who believe sensory experience is the basis of knowledge perspective contrasted against the rationalists from the Latin word 'ratio' or reason who believe that reason enables one to acquire knowledge independent of knowledge. It is argued that empiricist elements are contained within Aristotle and Locke's theories and elements of the rationalists' outlook reflected in Plato and Descartes writings. This anti-rationalist position depicts reality and the observable world understood from experience. This *empiria* shaped view of knowledge is discussed next.

2.7.4 Implications from the Empiricists

Locke's underlying premise of the nature and limitations of human knowledge, suggests that knowledge degradation could be a natural part of the human condition and indicates how knowledge quality can be perceived differently. This precept of most knowledge being derived from experience promotes the possibility of ideas emanating from prime sources of sensations or perception of internal senses.

Following Hume's reasoning, whether the mind works either from imagination or memory may affect what knowledge is produced, which can influence how one perceives or judges the quality of the information. Hume's idea of sound ideas and the use of tools to delineate between quality knowledge and other information is still pertinent. The question of how robust the tools and methodologies underpinning such verifications are may also be a risk factor, where certain information is discarded due to group influences. This is discussed further in Chapter 3.

Whether one needs to rely on the external environment for higher quality knowledge is open to interpretation; whereas introspective knowledge is deemed as self-knowledge, which can be questioned by different thoughts.

In *Critique of Pure Reason*, Kant proposed that objects of human experience are phenomena through empirically observable objects that influence and shape one's perceptions of the world, whereas *sensibility* and *understanding* is shaped by both objects and thought (McQuillan, 2016, p. 91). Kant asserts that the receptivity of one's mind can influence and shape representations and sensibilities. This idea of receptivity has implications for open-mindedness and how individuals might consciously or unconsciously discard what is deemed irrelevant.

In contrast to Hume, Kant sees the mind as a critical vehicle for knowledge acquisition that includes integrating external or observable phenomena and also distinguishing between *analytic* and *synthetic knowledge*, where facts are drawn from the mind not merely empirical reality. The blended elements of use of information from the mind, augmented by experience and the external world, could lessen the likelihood of narrower forms of knowledge.

2.7.5 Implications from the Analytic Approach

Knowledge using Hegel's paradigm is founded on self-awareness, where individuals need a higher state of self-consciousness to facilitate and attain knowledge. This perspective implicates quality forms of knowledge premised on self-awareness or consciousness as well as personal development of individuals.

Mill's questioning of conservative knowledge and need for greater freedom of expression may challenge what knowledge has been downgraded, if not adhering to Universalist truths. However, a counterview on degradation might be that the degree of freedom exercised through discourse does not necessarily mean knowledge is less eroded or degraded. This is discussed in Chapter 3, with relation to the emergence of social media platforms.

Moore accepted that some forms of knowledge, such as truisms and genuine knowledge, may be less open to scrutiny or less disputable and the question of how one knows becomes more pertinent, as to whether such knowledge is more or less degraded.

2.7.6 Implications for Contemporary Issues

The challenge of stepping outside prevailing paradigms surrounding knowledge as noted by Kuhn means that differing perspectives can shape how knowledge is acquired and valued. Furthermore, differentiating which knowledge is of value and what is more degraded may be clouded by episodic bias.

The discussion of Hetherington (1998) and Tarasov (2013) raises questions regarding epistemic standards used to ascertain whether knowledge is well-founded (Brogaard, 2004), and promotes plausible knowledge as a less degraded form of knowledge. Goldman's concerns about knowledge quality, where justification can be diluted due to false perceptions and weak justifications, raises questions of reliability of knowledge typified as *perceptual knowledge* (Brewer, 1997). Extending this questioning of knowledge, based on beliefs, coincides with another concern about how sources need to be reliable with quality knowledge. Furthermore, the risk of "easy knowledge" (Vogel, 2000; Cohen, 2002) is another possible complication concerning how one determines whether information is well founded or eroded or degraded.

Moreover, challenges can exist where belief held truth and supported by evidence is not automatically axiomatic with knowledge and alleged or assumed infallibilism occurs regardless of maximal confidence which also can come under question (Howard-Snyder, Howard-Snyder & Feit, 2003; Dutant, 2007a). This could affect decisions and the extent to which knowledge and ideas are accepted or discarded. Dutant (2007b) espouses that knowledge can be inexact and there is margin for error.

The risk of key past knowledge not resurfacing, to assist in the present, can be related to employees and organisations – often in association with negative or traumatic situations. This kind of knowledge loss or degradation is discussed further in Chapters 4 and 6.

Relating to the sociology of knowledge, the problems of scientific error are well documented with assertions about ‘methodological propriety’ (Shapin, 1995 p. 292), which raises possibilities of degraded knowledge due to differences in opinions and flawed methods. In Weber’s view the idea of a rational mind remains idealised even though he recognises subjective elements including human psychological factors, such as motives, can influence knowledge. Concern about the risk of degraded knowledge could be raised here, where irrational factors dominate and lessen the quality of decision-making.

Karl Mannheim (1893-1947) follows a sociological perspective of knowledge and elevates the role of the individual in relation to the development of ideas and thoughts. The existentialist and governing forces identified by Mannheim as influences, suggest that knowledge is a by-product of pre-existing conditions that might be predisposing factors affecting knowledge quality. Harding’s and the other perspectives above could imply knowledge erosion and degradation risk within organisations when organisational *epistemological* practices transmute organisational cultures, subsequently influencing how knowledge is valued and altering preferences for certain forms of knowledge.

Pragmatism emphasises principles such as utility, usefulness, practicality of thoughts, ideas and policies. This *teleological* or *consequential* basis behind knowledge, focusses on outcomes, evaluation and verification of results to reflect truths. Being pragmatic follows a maxim for adopting types of knowledge determined as of more value than alternative information. Pragmatic knowledge has practical, functional features that enable delivery of social and other benefits. Pragmatism arguably gives primacy of empirical or experiential

over the conceptual and abstract or universalistic bound principles. When the mind functions, one is either receptive towards or denying certain information. The pragmatist approach engenders legitimate knowledge built and framed around practical consequences or outcomes.

Redpath (2014) also maintains that leaders know how to build and preserve organisations and need to be investigators or discoverers as well as good teachers. This infusion of philosophical, scientific and other competencies arguably liberates leaders from intellectual weaknesses which could be a form of knowledge erosion and degradation (Pickel, 2015, p. 615).

There are implications around how individuals may seek knowledge and information, if susceptible to the existential and self-indulgent perspective denoted by Levi-Strauss. If the emphasis is on immediate needs this legitimises a scientific and systems focus, which could degrade the value of individual ideas and self-knowledge. Additionally, the post-structuralist view elevates the individual and social factors, where knowledge may be eroded or degraded for members of disaffected groups.

Rules-based knowledge can be interpreted as a narrow form of knowledge and that other valuable knowledge might be acquired in a less structured and accidental or emergent manner. The possible risk of erosion or degradation is where such knowledge might be bypassed or devalued or remain tacit. Additionally, this reinforces the idea that it can be difficult at times to clearly articulate or define knowledge (Blome-Tillmann, 2007). Furthermore, this brings into question that one needs to be mindful that assuming one is in full knowledge of one's thought processes (Charlton, 1986).

The performative perspective of knowledge is teleological in that outputs from knowledge act as testament to how knowledge is valued, rather than the introspective, mental processing surrounding knowledge development or acquisition which could raise issues where reflection and mindfulness are inhibited. Conversely, for an expert, the quality of artefacts and works may reflect the degree of investment in knowledge building and sharing. The idea of fact-based knowledge in the context of modernism suggests risks for knowledge building. The other aspect relating to possible erosion or degradation is where tacit or antecedent

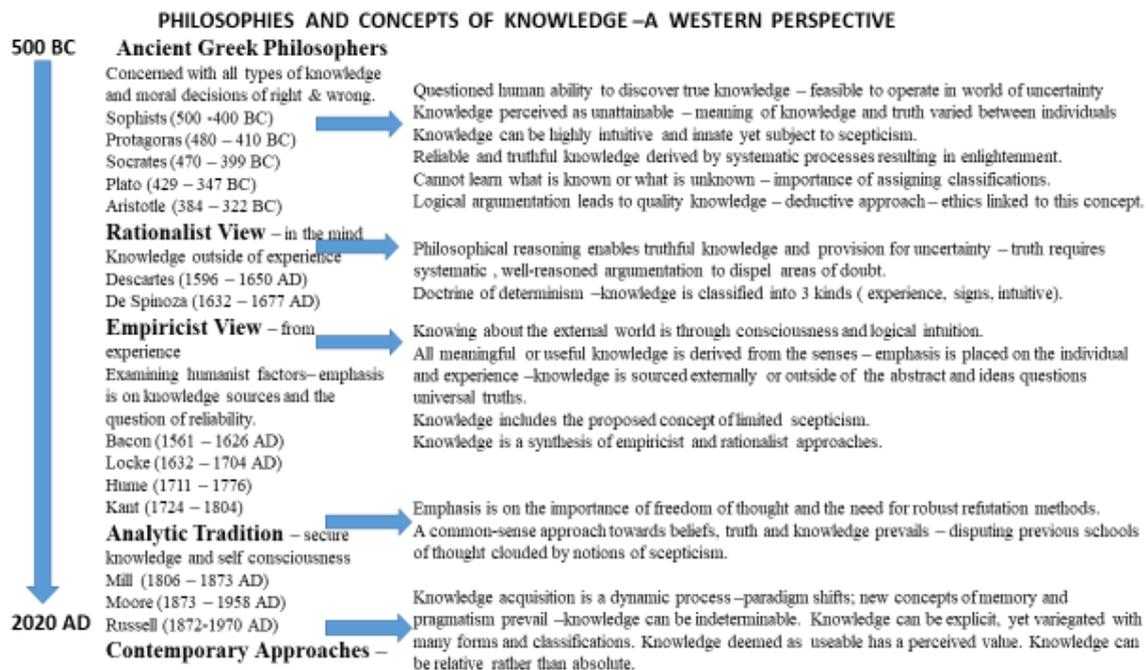
knowledge are not addressed and there is less time for this type of introspective sourced knowledge (Sawyer, 1999).

The notion of contextualism and invariantism (DeRose, 2005) highlights arguably how what one connotes as knowledge in particular valuable knowledge and what one knows, does not necessarily translate across other contexts and knowledge in this regard might be discounted or be interpreted as a lesser or more degraded form of knowledge.

2.8 Philosophies and Concepts of Knowledge Synthesis

Figure 2.1 below provides a broad synthesis of key philosophies and concepts of knowledge from a westernised perspective. The figure provides a broad timeline to differentiate differing views about knowledge and is an indicative guide only given that epochs can evolve and overlap and not all thinkers are included due to the depth of analyses and perspectives over time.

Figure 2.1 Philosophies and concepts of knowledge synthesis



Source: (Author, 2020)

2.8 Summary

This chapter has reviewed key historical and contemporary perspectives of knowledge and implications in relation to possible forms of knowledge erosion and or degradation. The

discussion has focused on westernised social contexts because it leads into consideration of the relatively recent western technologies that have influenced and now dominate the management of knowledge.

Early Greek traditions questioned knowledge actualisation through the emergence of sceptics and cynics. Two traditions that have prevailed and nuanced include the rationalist and analytic traditions incorporating logic and reasoning; these contrast with the empiricist tradition which countenances the value of experience to formulate theories and actualise knowledge. More contemporary approaches to knowledge have embraced the value of common sense knowledge and pragmatic views, where knowledge is useful in a practical way or survival sense. Organisations depending on contexts and philosophies can vary in approaches to knowledge many of which are shaped by evolving forms or strands from within Western thinking traditions.

Having broadly considered origins, definitions, various knowledge categories and types of knowledge processes, it is logical to move on to investigate social contextual influences on human knowledge in the next chapter.

Chapter 3 – Knowledge in the Context of Social Change

3.1 Introduction

The purpose of this chapter is to explore the changing social context in which organisations operate. Chapter 2 featured a sketch of philosophical and historical roots to knowledge and how thinkers view the increasing use of knowledge.

The first section describes what constitutes modernity and contemporary society including different social theorists' views about how the world is changing. It also examines social change forces such as the evolution of technology and computers and their potential effects, then discusses social changes and influences on knowledge and social and macro changes and organisational challenges.

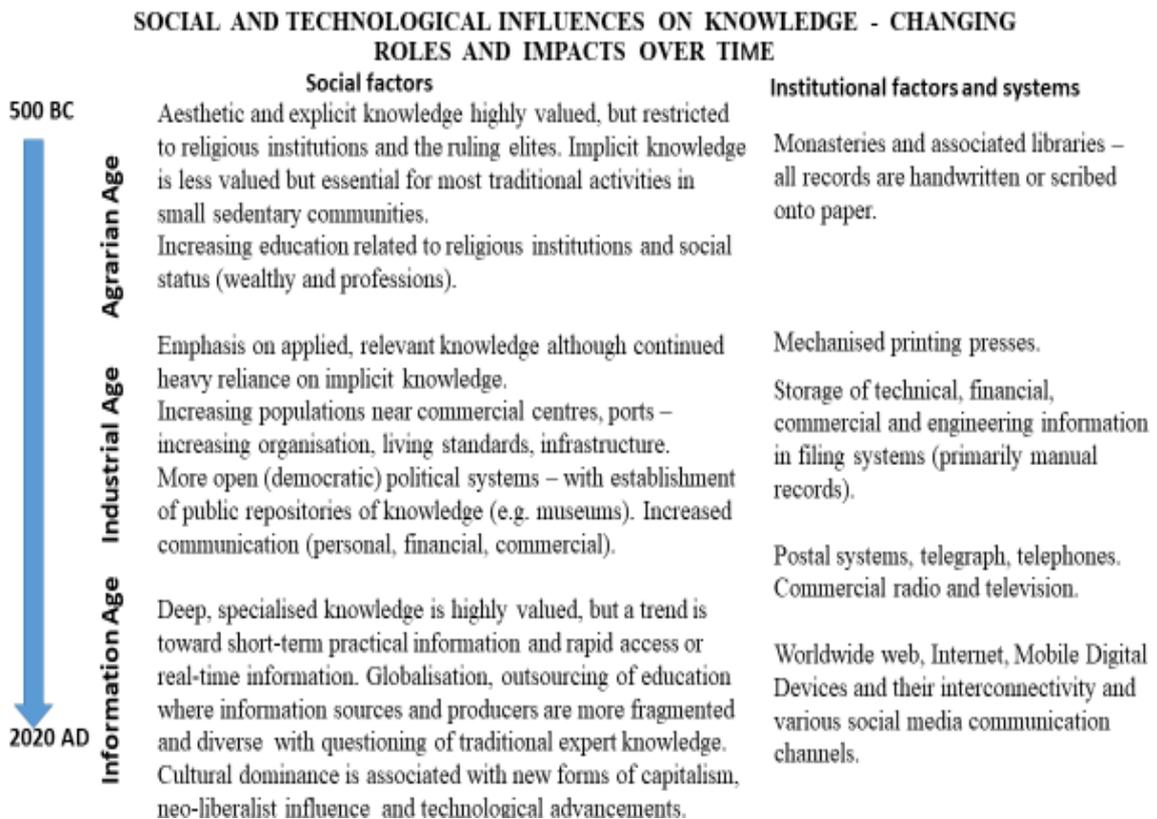
How society is changing provides insights into how knowledge may be understood, valued and applied in modern westernised societies which, in turn, influences contemporary organisations. The sociology of knowledge and sociology of scientific knowledge has shaped and influenced sociology and the sociology of scientific knowledge prevailed and evolved during the 1970s and 80s particularly in western developed countries (Shapin, 2016).

In the discussion of knowledge erosion and degradation within organisations, it is important to discuss and examine knowledge in the context of what typifies a post-modernist society. This also raises the aspect of post-industrialism and the evolution of the knowledge-based society and contemporary organisations to enable contextual awareness (Huang, 2004).

3.2 Modernity

The modern world has its historical roots in the 16th century (Wallerstein, 1997) and it is argued that the evolution of modern societies has not occurred from a single point in history (Hall, 1992) but rather from episodes of discontinuity and disequilibrium throughout the last five centuries (Turner, 1990). Figure 3.1 below provides a backdrop to illustrate the context of knowledge and social and technological influences shaping knowledge over time. Aspects of these social and insititutional factors are intimated throughout this Chapter.

Figure 3.1 Social evolution and impacts on knowledge



Source: (Author, 2020)

Perspectives differ as to what modernism represents and there is no clear delineation between modernity and post modernity as concepts (Malpas, 2001). Modernity includes social and industrial changes¹³ defined as industrialisation, urbanisation, democratisation that might not necessarily follow in a logical sequence (Wagner, 1994). Cahoone (1988, p.13) connotes modernity by depicting groundswells of technological, social and knowledge related changes that reshape and disturb prevailing world orders.

Modernity presents challenges to the changing global culture and forces of nationalism amidst global change (Appadurai 1990) and threats to erosion of cultural identity (Friedman 1994; Featherstone 1995); it also presents prospective risks to organisations adapting to trends (Gephart, Van Maanen & Oberlechner 2009), as well as societies due to post-industrial

¹³ Social, demographic and lifestyle changes; examples are the changing of population structures (including the ageing of populations) and changing consumer needs, tastes and preferences (Kotler et al., 2013; Solomon, 2014).

or natural hazards, such as increased droughts and the spread of diseases (Mythen 2007 p.794) aside from rising market uncertainties.

The concept of modernity also questions the nature of the self and identity (Giddens 1991; Lunt & Livingstone 1992) and late modernity raises questions around how emotions entwine with modern society (Barbalet, 2019; Patulny, Bellocchi, Olson & Khorana, 2019).

3.3 Post Modernism

Post modernists challenges underpin ontological and epistemological foundations of scientists. Distinctions between logic and emotion, or objective versus subjective knowledge versus personal experience, are subject to debate and are more nuanced. Knowledge is produced more as a consequence of ‘identity and social location’ (Smith, 2001, p. 235).

Modern society is also typologised as a ‘regulationist’ environment to counter forms of neo-liberalism, within a capitalistic economy, and the effects of deregulation or privatisation. This current period is defined as a post-Fordist period and as ‘an interregnum’¹⁴ (Wright in James et al., p. 16) where industrial and neo capitalist society in a state of turmoil needs tighter social and government controls.

Lash (1990) postulates that modernism and post modernism can be delineated. Modernism represents differentiation and ‘automization’, whereas post-modernism skews towards ‘de-differentiation’ and how this manifests in terms of ‘production, consumption, commodification’ and automatised social restructuring. Lash (1990 p. 4) strongly asserts that post modernism signifies a ‘cultural paradigm’ push, but another author’s contrasting perspective connects culture and knowledge with fundamentalist views promoting religious rather than secular influenced knowledge and a call for ‘de-westernisation’(Tibi 1995, p. 1). This is an example of how ideology can shape culture and knowledge (Thompson, 1990).

¹⁴ The concept of interregnum, Gramsci designates transitional periods of the crisis in which “the ruling class has lost its consensus, i.e. is no longer leading but only dominant, exercising coercive force alone”. In this phase, according to Gramsci, “great masses have become detached from the traditional ideologies and no longer believe what they used to” (Soly, 2013, p. 90).

In summary, the above suggest that in modern society, knowledge and ethics are influenced more by social forces and interests which can have implications for knowledge erosion and degradation (Lash, 1990. p.10).

3.3.1 Social Degradation, Inauthentic Culture, Cultural Erosion

Jameson (1995) believes the post modernised and consumer shaped world characterises an erosion of culture distinguishing between high culture and mass or popular culture. Here, postmodernism is denoted as a cultural logic and by product of late capitalism, with popular culture superseded by commercial culture portrayed as a form of degradation. A more recent perspective emphasises the post-modernist trend towards depersonalisation (Lauter, 2009) whilst acknowledging the condition of continuous transformation.

Earlier depictions of risk of ‘atrophy of the mental organs’ (Marcuse, 1966 p.79), suggests of a form of lost cognitive or critical thinking capability arising from one dimensional and institutionalised thinking.

Numerous social thinkers believe modern society is being influenced by forces that may suppress or degrade knowledge reflective of what is conceptualised as *inauthentic culture* and the need for greater education and engagement amidst concerns around focus on ‘economicism’ or economic reductionism and *anotropic culture* (see details in Appendix 3) and market forces (Sommer & Sacco, 2019 p.16).

This view of modernity as an ‘inauthentic culture’ (Newman, 1997, p. 5), on the basis that progressive societies and cultures are susceptible to ‘spiritual corruption’ with shifts in values and displays of hedonism could be construed as forms of social degradation with implications for knowledge degradation elaborated in Appendix 3.

3.3.3 The Post-Modern Condition Related to Knowledge

Lyotard (1979) flags questions about the nature of knowledge and its state within societies and social systems such as organisations. This author highlights societal and cultural factors shaping epistemological stances as well as methods in highly developed societies, and goes on to question the breadth of knowledge in the western world in the post-modern context.

Habermas (1987) is concerned where consensus, rather than heterogeneity in decision-making, either within government bodies or organisations, is analogous to a form of knowledge degradation. Knowledge and ideas from this outlook means individual knowledge is being surpassed by the collective or generalised schema of governance and other bodies. There is a movement the author asserts, towards more local determinism with knowledge.

It is suggested that, in this post-modernist world, there is little room for history and reflection or learning key lessons from the past (Kimura, 2012), an ‘ecological decline’ (Weiskel, 1989) a much vexed issue in contemporary settings through use of an anthropological lens.

Additionally, work intensification, work overload and other pressures, as part of a broader social phenomena including excessive volumes of emails, also means quiet time for reflection and judgement is being reduced (Fagan, Lyonette, Smith & Saldaña-Tejeda, 2012). These pressures can also contribute towards risk of a decline in profound or valuable knowledge.

Hargeaves (2007) postulates, organisations are not immune from a broader societal malaise and are more interested in the immediate or present and where past knowledge has been devalued strongly endorsed by others such Tyson (2008, p. 245) who believes the ‘neo-capitalist organisation’ has embraced a post-modernist ethos of ‘epistemological nihilism’. These perspectives also manifest in an existential or short term focus (Gonzalvez 2016).

Such concerns are flagged as areas paralleling risks around indigenous knowledge (IK) retention and erosion (Athayde, Silva-Lugo, Schmink & Heckenberger, 2017)¹⁵ which highlights crucial elements of how traditional (Bruyere & Trimarco & Lemungesi, 2016) and indigenous knowledge is retained for knowledge preservation (Nduka & Oyelude, 2019) and challenges around collaborative transmission of knowledge. Chapter 4 expands on discussion of local and indigenous knowledge.

An example of a key change within the ‘post-modern world’ (Clegg, 1990) is the increased pace of life styles, including increased workload demands and the speed of information diffusion. Byrne (2000 in Ancona et al., 2005, p. 39) suggests that “...everything from product cycles to employee turnover”, is on ‘fast-forward’ and that there is minimal scope for

¹⁵ The case example of knowledge of basketry and weaving and forms of artistic knowledge is explored across geographically dispersed areas in a Brazilian context (Athayde et.al 2017).

reflection or ‘deliberation’, and that this has implications for knowledge retention and enhancement.

These types of pressures highlighted above can affect attitudes to learning and possibly devalue the importance of knowledge, with employees only sourcing sufficient or minimum and easily-accessible information given time constraints. The criticality of knowledge renewal and development of manager competency levels in meeting these pressures and demands is also emphasised (Aram & Noble, 1999; McKenzie & Winkelen, 2004).

Moreover, learning-related challenges in responding to competitive and other pressures mean that organisations (including individual employees), are required to ‘learn faster’ (Schein, 1993). This can be problematic and increase knowledge risks such as erosion and degradation.

3.4. Forms of Capitalism, Late and New Capitalism

Earlier thinkers question modernity and capitalism and how it shapes culture Fromm (1979). Refer Appendix 3 for further details. Capitalism is a business system that is also tied with modernity and has evolved to move from more monopoly forms to late capitalism with late capitalism view following supporting bureaucratic social controls leading to internationalisation following dependency and *world system theory* perspective (Jameson, 1995). This coincides with the rise of transnational business operations progressing and additional features altered international labour structures, alternative international banking and interrelated capital markets augmented through digital systems and relocation of production facilities to developing countries.

New capitalism is characterised by increased international competition, continuing industry deregulation, and publicly listed companies trending towards institutional ownership accompanied by rapid technological change and simpler organisational forms (Budros (1997).

The construct of ‘contemporary capitalism’ raises rises questions around the normalisation of non-standard forms of employment and how ‘precarious work’ and how this social phenomenon may construe workers from a lesser status when not operating within standard

employment arrangements and leaving them as potentially disenfranchised (Betti,2016).This observation has implications for flow on effect of possible precarious knowledge where knowledge erosion and degradation is associative with less access to rights such as inclusion diametrically in contrast with knowledge workers discussed later in this chapter and Chapter 4. An additional observation is the connection with casual and seasonal employees that might also identify with the precarious nature of their work such as noted by case organisation participants in Chapter 6 Analysis and Findings.

Another sociological analysis from a centring lens, contextualises this new capitalism in a negative light as ‘cheap capitalism’¹⁶ (Cheng, 2011), where producers and traders in seeking to deliver low prices whilst maximising profits, compromise quality and standards delivering commodities, goods and services using of cheap labour, and hazardous materials, maintaining unethical relationships with regulators and conducting suspect business practices transnationally. This imputed degraded form of commercial operations is arguably an extension of competitive pressures arising from globalisation as a by- product of capitalism and changing capital market structures.

3.4.2 Cultural dominance, Massification and Knowledge Risk

Post modernism is the culturally dominant view consistent with late or multi-national capitalism. A culturally dominant state is where one particular cultural approach, such as Westernisation, is more influential. A culturally dominant state can underpin knowledge and influence how knowledge is viewed or valued within society and (Adorno and Horkheimer, 1997). Refer Appendix 3 for more details.

Massification relates to increased volumes of students attending higher education such as a universities, adoption of standardised rather than more personalised learning practices to manage costs, and the idea of output focussed and factory like delivery systems. This shift

¹⁶ An empirical study, focused on the food sector in China (Cheng, 2011) is used as an example of this issue of cheap capitalism that is typical of a broader and globalised world where social and business morality has been ‘degraded’. This view fits within a framework of social and structural anomie (Atteslander 1995) suggesting certain contexts more than others can contribute to a weakened moral condition. A more macro view is *institutional anomie theory* raising social problems including unethical (such as lending practices in banks) and crime related issues (such as fraud) in organisations and societies is, in part, due to an ‘overemphasis’ on material goals and weakened governance systems. The melamite tainted milk scandal¹⁶ is one example and other studies have highlighted breaches and food crimes. This relates to economic globalisation and the ease or ability multinational companies have to transact operations and businesses in low-cost countries with less regulation, like China.

reflects a commercial driven approach to education. Additionally, is coupled with a trend towards knowledge autonomy and depersonalisation amidst a changing university landscape (Tierney 2001). This leaves education philosophically, at odds with pedagogical paradigms that lurch across post modernism and ‘anti-modernism’ as an earlier author notes (Blake 1996) having knowledge implications.

3.4.4 Post-Industrialisation, Neoliberalism and Knowledge Capitalism Perspectives on Knowledge

When considering the context of knowledge and conceptualisation of knowledge being at risk of erosion or degradation, there are those thinkers and researchers who posit the connection between post industrialisation factors such as the influence of neoliberalism as potentially stultifying in directing how societies including organisations approach knowledge as discussed below.

3.4.4.1 Neoliberalism, knowledge production

Neoliberalism is a rational form of social order is shaped by capitalist business systems and relies strongly on market forces and mechanisms (Thorsen, 2009). Knowledge for technological and scientific innovations from neoliberalism forces, contain ‘specific economic discourse’ (Olssen & Peters, 2005, p. 314).

Neoliberalism arguably has epistemological assertions, on the reliance or credence of information and knowledge, founded on market principles used for information processes. ‘Neoliberal science’ tentacles reach citizen science level knowledge and operate outside conventional academic or scientific domains (Lave, 2012). This author further postulates that knowledge is constructed through privatisation and commercialisation interests, which brings potential problems such as limited public access to knowledge, due to private or corporate interests (Lave, 2012).

Neoliberal governance has also been subject to scrutiny with the question of ‘epistemological dissonance’ (Di Giorgio & Habbis, 2018, p.45), where knowledge for policies, such as on indigenous populations, is based on particular knowledge paradigms and has been criticised for a westernised primary reference being imposed, influenced by flawed epistemological and ontological misjudgements.

‘Metis knowledge’ (Di Giorgio and Habbis, 2018) espouse as a neoliberal tenet applied to pedagogy and how people learn and acquire knowledge in modern society. Naturally the link between how one learns in a modern society and how one acquires and uses such knowledge arguably has implications around the type of knowledge in the context of a neoliberalism era.

Di Giorgio and Habbis (2018) contend that in a neoliberalist social world, assumptions are made that people are rational social actors and the emphasis in learning is practical know-how, where models or self-learning assume learners can follow rules to build knowledge. In Chapter 2 the example was noted of the possible limitations surrounding rules based knowledge. The potentially false premise is that social actors come from a similar baseline and, as learners, can build knowledge if provided with appropriate information. This neoliberal infusion into pedagogy and the determination of pedagogic frameworks and paths has possible risks of knowledge degradation.

3.4.2.2 Knowledge capitalism

Modernity has exposed public sector institutions to ‘market forces’ and positioned education as a form of knowledge capitalism; this flags debate surrounding knowledge and research quality tainted by exposure to market, political and global influences. Brunila and Hannukainen (2017, p. 5) develop the argument, from the construct of knowledge capitalism, that education is specifically academic capitalism.

Knowledge capitalism arguably facilitates research and knowledge production and has been depicted as ‘capitalism with a brain’ (Thrift, 2005 in Brunila & Hannukainen, 2007, p. 6). Other authors (Moulier-Boutanf, 2011; Alvesson & Kärreman, 2001) refer to cognitive capitalism where from a knowledge degradation frame, knowledge building is potentially subject to misuse or, knowledge expectations are driven by a primary focus on economic gain. Similarly, the capture of scientific knowledge can also be subject to a ‘techno science’ paradigm within knowledge capitalism, where humans are ‘knowledge being’ who produce knowledge that fits within a predictable schema (Vahamaki, 2005; Naskali, 2010 in Brunila & Hannukainen, 2017, p. 909).

The shift towards projectisation (Brunila, 2009; 2012 in Brunila & Hannukainen, 2017) is designed to reinforce a knowledge capitalism ethos, through market generated and co-creating ecosystems or networks with pluralist practices (Brunila & Hannukainen, 2017, p.

909). The dominant ideology (Brunila & Hannukainen, 2017, p. 970) is, arguably, a form of knowledge erosion or degradation where alternative ways of knowing, in a project funded context, can be erased.

St. Pierre 2002 (in Brunila & Hannukaiein, 2017, p. 911), observes ‘significant silences and absences in project forms’ and pocket areas of repressed knowledge. The idea of continued pressures on funding of projects and deliverables raises concerns from researchers as to the rapidity with which research projects are terminated to be replaced by new project ideas that supersede previous ideas or knowledge¹⁷. When academic research and knowledge creation is orchestrated in a project market environment, the nature of that education and knowledge are necessarily consistent with operating within a neoliberal framework (Brunila, 2015).

Neoliberalism has transcended the educational space with the notion of rational individuals making judgements. Neoliberalism having a strong footprint in education fields is the subject of critique (McCulloch, 1997; Klaf & Kwan, 2010). Market mechanisms and deregulation facilitate the structure and drivers of education and largely abide by laissez-faire principles within a broad infrastructural and regulatory context where governments set standards. This neoliberalism and marketisation shaping education has led to a commodification of teaching and research Barnett, 2000 (in Olssen & Peters, 2005, p. 316) in an environment with increasing competition.

The notion of the new public management exemplifies flexibility such as with contractual relations and the stronger results-based performance driven agenda. The focus on empirical research shows how research income has become a key driver and that there is stronger emphasis on practitioner research and work-related learning. The dearth of educational providers outside the bounds of traditional universities results in a marked shift towards ‘vocationalism’ and professionalism as a more important or ‘dominant ethos in higher education’ (Olssen & Peters, 2005). This shift in focus and changing educational model also

¹⁷ An example of this situation is research from a sample of researchers highlighting how funding can dictate the direction and focus of knowledge. The idea of ‘do away with the frills’ is seen as endemic to a risk of degraded or stripped down knowledge through predefined boundaries of what is deemed as quintessential knowledge. Here, the authors pose argument supported by empirical findings that knowledge is subject to alteration where areas of research findings are sidelined (Brunila & Hannukainen, 2017). Furthermore, it is suggested that findings might not align with stakeholders’ objectives and important knowledge is therefore viewed as more rational and predictable with certain types of truth, and the right kind of knowledge at the helm of the project (Brunila & Hannukainen, 2017, p. 914).

legitimises preference for particular forms of knowledge that for some might constitute degraded forms of knowledge.

Gibbons et al. (1994) distinguish between Model 1 and Model 2 knowledge with the former produced in academic spheres and the latter driven more by functional imperatives of the world of work. Model 2 knowledge focuses on issues or problems in work place contexts, rather than knowledge gained through separate learning environments. Arguably the major material change in neoliberalism in the 21st century is the elevation of the importance of knowledge that is symbiotic with economics as a capital resource to drive business performance, which Stiglitz (2002) refers to as 'economics of information'. The author suggests asymmetries in information, in that one does not have a pure set of markets conditions. Knowledge capitalism (Burton-Jones, 2001) and the knowledge economy recognises the increased value of people (OECD, 2007) and requires new forms of relationships to connect education, learning and work. This knowledge based economy has also been described as a 'learning economy' (Olssen & Peters, 2005, p. 333).

Professionalisation also characterises neoliberalism and education and increased control models for setting standards around performance. This has resulted in concerns that there has been an 'erosion' of 'professional autonomy' within the education sector (Olssen & Peters, 2005, p. 325). Here, the term erosion relates to more rules and governance that may have implications for forms of knowledge being eroded arising from managerial and stricter control methods. Additional concerns result from how funded research expectations are shaping the research and knowledge building direction including 'logic in use', where research approaches are susceptible to institutional practices that influence compliance to a preferred methodology. In this way research and knowledge can be steered in a particular direction to accommodate needs of a scholarly based marketplace (Bort, 2010), which has implications as a form of knowledge erosion and degradation in the research arena.

The above authors posited that the university, as a separate and independent facility devoid of external or political influences, is being altered and that is subsequently impacting knowledge. The changing competitive global landscape has made significant inroads into higher education to force reform, where fiscal constraints in part impacted by allocations of government funding, is encouraging increased reliance on forming industry or business partnerships. In turn, it is suggested that there is increased risk of institutions being under

pressure to ‘dumb’ down ‘courses’, and show stronger relevance to labour market dynamics and market needs (Olssen & Peters, 2005, p. 326).

This shift is also reflected in universities adopting corporatised principles (Marginson & Considine, 2000). There is evidence that Australian higher education providers are condensing traditional 12 week courses into an intensive week. That has major implications for time to reflect and in-depth learning and knowledge building. The pedagogy and teaching mode of operation highlights a shift from thinking of knowledge for its own sake as a mode where deep learning occurs through a full or lengthier course, to that of a delivery mode characterised by ‘semesterisation’ and slenderisation’, where courses offered use block and learning mediums designed to emphasise vocational framed knowledge (Olssen & Peters, 2005, p. 329).

3.4.4.2 Evidence based research and use of artefacts and systems

Within this neoliberal framework, the era of standardised healthcare and evidence-based research, in recent times, is subject to new forms of knowledge and research that step outside standardised and structured boundaries to deliver more personalised healthcare. This situation challenges rational and conventional evidence based practices and decision-making heuristics (Chorev, 2019).

The complexity of managing personalised data in a modern society, such as patient data, highlights challenges and limits to conventional rational analysis or analytic tools. Problems are further exacerbated by the nature of temporary social interactions in healthcare workplaces coupled with tensions and a level of disconnect between humans and technical systems creating ‘ontological vagueness’ (Chorev, 2019 p. 3). This is a phenomenon that Chorev demonstrates in the medical environment, where the limitations of information and knowledge portals to support knowledge for decision-making by oncologists and health specialists can affect patient lives. This is where knowledge degradation (as restricted or insufficient information) can affect quality decisions by medical experts due to restricted results and inability to defer to the wisdom or experience (Kitchener & Brenner 1993) of the medical specialists. The frustration of these trained medical professionals is expressed in a previous quote (section 3.10.2.5).

Concerns about the credence of information and results generated from such systems and mandated and standardised decision methods also raises issues around 'knowledge malleability' (Chorev, 2019, p. 8). This area opens debate around polarisation of technology, expert knowledge and organisational systems in modern society and organisational settings (Orlikowski & Scott, 2008).

3.4.2.3 Feminist humanist and post-structuralist perspectives on knowledge

A feminist perspective of knowledge production views modern society within a patriarchal framework, where there is an embedded nurture of institutions that would inhibit contributions and knowledge from women. Following Foucault's critique the author considers the way to construct reason - and how such reason may not be a solid foundation for what constitutes 'true knowledge' (Adams St Pierre, 2000, p. 488). Trinh (1989) in Adams St Pierre (2000) considers truth determinants, where truth conditions are strongly embodied within power structures (Foucault, 1976, 1978) that suppress or marginalise certain social groups such as women that has implications for knowledge erosion and degradation where discourse from marginalised or disempowered groups is suppressed. See Appendix 3 for additional details.

Although, in a post-modern world, added complexity exists where there is a continuous set of conditions for doubt and acceptance. One doesn't need to testify to full knowledge and the reality is that partial knowledge is more normalised. This view of post-modernism and the realisation that partial knowledge is more likely to prevail, could impute another perspective - that knowledge erosion and degradation coincides with incomplete or substituted knowledge.

3.5 Social Theories and Social Change

Various social theorists have perspectives on modernity and the social world and elements of these approaches are still relevant to the 21st century. A sketch of key social theories related to modern society and possible links to knowledge is discussed below. Further details are provided in Appendix 3.

3.5.2 Bureaucracy

Max Weber advocated a *protestant work ethic* (Weber, 1958) that stipulated methodical and disciplined work practices and routinisation, typified as bureaucracies, with strong compartmentalisation of work roles (Weber, 2003). The term '*zweckrational*' represents work

methods defined by a strict economic order and ‘pure utilitarianism’¹⁸ (Smith, 2001, p. 15). Contemporary organisations including healthcare organisations and the public sector still adopt variegated forms of bureaucracy¹⁹ (Boxall & Purcell, 2015). Contrasted with Gramsci introduced earlier, who criticised such ‘instrumental rationality’ for stymying one’s capacity to optimise learning opportunities and acquire knowledge as a form of ‘cultural’ and knowledge ‘impoverishment’ (Sommer & Sacco, 2019)) or degradation with ‘decoupling’ of thinking and mental agility with workers or employees in manual or less managerial roles.

Administeria (Author, 2019) denotes a state of over governance or bureaucracy, where an employee’s core work is being overtaken by compliance and administrative functions and demands; this can lead to excessive demands by managers and executives and regulators.

3.5.3 Alienation and Ignorance and Non-Knowledge

George Simmel (in Nisbet, 1976) argued that societal modernisation had created new found individual freedoms, but that contemporary life also brought a form of *alienation* in human lives - in part due to influences of ‘science, technology and commodities’. This theorist further argued that as money underlay the modern human condition and that human interactions had increasing emphasis on the economic *exchange relationship*, this was becoming a dominant focus in people’s lives. Furthermore, Simmel alludes to a technicised culture and a phenomenon of ‘nonknowledge’ (*Nichtwissen*) as endemic and normalised with modern society (Gross, 2012, p. 424). This premise reinforces other views around modern society and the risk of ignorance.

¹⁸ Pure utilitarianism is an organisational ethos that values profit and capital which translated into 21st century meaning representing returns to shareholders, maximisation of margins and pursuit of production outputs within a capitalism. Maximisation utility principles, focus on the outcomes and weighing up of costs and benefits. Systemic biases can also be endemic in complex social systems and institutions, affecting knowledge degradation on the basis of principles of utilitarianism (Hill & Hill 2017) or a teleological influence (Ranghieri & Ishiwatari (2014). This type of influence can be quantitative and outcome driven and ignore other qualitative data or useful information to obtain a broader perspective.

¹⁹ An industrial and modernist era is characterised by an institutionalisation of bureaucracy that places a higher order value on the efficiency and rationality. Individuals are viewed as largely socially controlled by bureaucracy and rationalism through legal rational authority. Those organisations previously established during industrialisation, such as banks and airlines, are structured according to Adam Smith’s model of the division of labour and specialised roles. The management system within industrialised organisations was based on a controlled management system with organisational structures including elaborate procedures. When considering how performance driven both private and public sector organisations have become, adoption of more robust controls performance measurement and control systems and control systems reinforce that mechanistic and bureaucratic management elements in 21st-century corporations, with Taylorism principles of standardisation and technological service delivery in areas, such as call centres driven by strong performance goals.

3.5.4 Social Control Theory and Knowledge Erosion and Degradation

Talcott Parsons²⁰ (1977) following another rational schema, established links between culture (Rawls & Turowetz, 2019), personality and social structure and social interaction using principles of *functionalism*. Parson's depiction of the rational model of the individual and the model of 'economic man' and exchange relationships, fits closely with neo-classicist economics particularly utilitarian elements. Parson's principles articulate social control and society as a system as a dominant element. Contemporary organisations to varying degrees have adopted Parson's system' and process driven approaches such as in operations (Ormerod, 2019). Learning and knowledge is framed around processes and restorative elements to counter disequilibrium challenge in dynamic environments. This social theory context assists in framing how knowledge may be viewed and whether there has been a subsequent erosion of knowledge based on concepts of *social control theory*.

Parson's theory of culture is based on a limited perspective of culture, of fulfilling a maintenance role and function rather than renewal or development, possibly over-emphasising the degree in which individuals are socialised subjected to the controls of systems. In contemporary terms, governance and surveillance systems mirror such structuration. Social complexity and uncertainty create conditions where knowledge becomes increasingly difficult to access.

3.5.5 Structuralism, Structuration and Human Behaviour

Structuralists²¹ are perceived as detached, scientific observers seeking to discover truths. Critics of structuralist approaches say this approach can downgrade the significant

²⁰ A Parsonian perspective is where maintenance of a social system is engineered through culture building and reinforcement to enable stabilisation of a social system such as an organisation. Culture represented signals, symbols, standards, norms and values fit that is not dissimilar to how contemporary organisations create and build cultures through institutionalisation of fairness and just cultures and the setting of visions of values and behaviour codes within organisations. Various motivational strategies are also used similar to those applied within contemporary organisations including goal attainment and goal expectancy theory. Talcott Parsons following Comte and Durkheim developed the concept of social order applicable within modern organisations known as the structural functionalist approach to social order whereupon organisational members are bound by particular goals and objectives imposed through socialisation similar to strategic planning vision and values setting within or organisations to guide to control and modify individual and group behaviours. This is also viewed as an integrative mechanism for organisational members. This mechanisation approach is supported by an infrastructure of clearly defined roles assigned to organisational members.

²¹ Shils (1975, p. 23) supporting Durkheim's views, valued the place of 'the sacred in society'. The author suggested there was a sacred centre that operated as a focus of collective identity for society through core symbols, values and beliefs constructed as *Structuralism*. Structuralism is another perspective of culture and

contribution of human subjects. Structuralists on the other hand, criticise both existentialist and phenomenological based perspectives as being too individualistic and unscientific. The structuralist orientation resonates with trends in Evidence Based Management (EVM) practices applied in organisations where information needs to be substantiated and justified with solid or hard and quantifiable data.

3.6 Globalisation

Globalisation is an outcome of post industrialism (Tester, 1993) and a natural corollary of modernist society and culture. Globalisation is also viewed as the ‘Global Age’ (Albrow, 1997) that has arguably superseded the ‘Modern Age’. Some scholars argue that globalisation is a long-term process (Mennell, 1990; Robertson, 1992); however, the phenomenon of globalisation is not seen as a clear cut transition from pre modernity to post modernity.

Globalisation has been viewed as a condition based on ‘complex connectivity’ (Waters 1995; Tomlinson, 1999, p. 2), where interconnectedness between people, capital, and knowledge has transcended societal boundaries enabled through technological advancements.²² Globalisation also reflects a ‘shrinking world’ (McLuhan in Tomlinson, 1999, p. 3), or a compression of the world (Robertson, 1992), turbulent environments and accelerating rates or pace of change with accentuating levels of complexity (Emery & Trist, 1965; Coffey, 1983; Newman 1980 in Ackoff, 1994). Such complex styles, systems and conditions of disorder and

social theory and when interpreting social change and its potential effects on knowledge in organisations. Post structuralist thinking challenges the humanistic traditions where the individual has diminished and constrained. This perspective supports observations of some types of larger and complex organisations that may tend to adhere more to a structuralist management style such as some of the large corporations and not multinationals where individual freedoms are limited. Whilst free will is acknowledged coinciding with rational thought in large organisational cultures, encouragement of discourse by organisational members may vary across sectors and functionally disparate and culturally ascribed boundaries known as silos.

²² The competitive landscape is changing largely due to external forces such as globalisation, brought about Technological advancements have also contributed to: the growth of hyper-competitive markets; the cost advantages experienced in developing countries (Ancona, Kochan, Scully, Van Maanen and Westney, 2005); mass customisation; the shortening of product life cycles; advanced digitalisation and increased connectivity via the newer information technologies (Fletcher & Brown, 2013). However, some authors suggest technology has also been a factor in creating more ‘decontextualised’ and dehumanised work environments (Tyre & Von Hippel, 1997, p. 81); it is viewed as a reflection of a more ‘depersonalised world’ (Lawler, Thye & Yoon 2009) earmarked by and human ‘automaticity’ (Bargh & Chartrand 1999), emblematic of an emergent ‘technoculture’ (Shaw, 2008).

uncertainty are depicted as entropy (Allen & Thomas, 2006) with implications for knowledge.

Globalisation through the rise of ‘McDonaldisation’ (Ritzer, 1993, p. 157) of the world, commodification and trans-national capitalism arguably for homogenisation and monoculture orientation (Tomlinson 1999, p. 6) follows scientific or evidence based principles and promotes efficiency, standardisation, measurement and control. Such observations parallel earlier discussions around concerns of cultural dominance.

This cultural phenomenon has potentially shaped and influenced how knowledge is perceived and valued, with potential limitations imposed on knowledge building and retention due to standardisation, and how social relationships have been redefined and cultural identity reshaped to social uniformity. The social and cultural aspects of globalisation have impacted on how people make sense of their lives, understand and have meaning, as well as transference of ideas and knowledge amongst societal and organisational members (Luhmann 1997; Reuter 2015).

Globalisation is subject to debate (Hirst & Thompson 1996) particularly with the recent finalisation of Brexit and other forms of protectionist policies. Those critical of globalisation associate the process with ‘westernisation’ of the world (LaRouche, 2005), in the form of a ‘global spread and cultural phenomenon of enlightenment universalism’ (Gray in Newman, 1997). This process has resulted in deculturation accompanying industrialism, and urbanisation including threats to local identity and of diminished culture (Karim, 2004) that implicates local and cultural knowledge risk. Bowler (2017) reports that globalisation has also brought a loss of job security, but that through global communication systems new markets and international job prospects have emerged across borders. Giddens (1994) also perceived the social effects of globalisation as ‘disembedding of practices and institutions from contexts of local to global control’ (Tomlinson, 1999, p. 95).

Both modernity and globalisation have reportedly promoted the concept of universalism and ‘universalising discourse’ as well as efforts for harmonisation or homogeneity of work policies and practices. This has been expressed in different models and forms such as the control of the informational apparatus (Schiller, 1973). Globalisation has also been associated with crises a catalyst for a ‘brain drain’ (Mihaita 2010).

3.6.1 Blurred Industry Boundaries, Shrinking Borders, Discontinuity and Change

Globalisation is also characterised by rapidly changing external environment and shrinking borders (Drucker, 1998;); Allen & Hamnett 1995; Atluri, Dietz & Henke 2017). There has also been a noticeable blurring of industry boundaries (Weick, 1979) and transition towards horizontal integration and experiences of fragmentation (De Wit & Meyer, 2005). This has resulted in a continuous reconfiguration of organisational boundaries at an ‘extra-organisational’ and ‘intra-organisational level’ (Galvin, 2007, p. 8). This blurring of industry boundaries is due largely to the uptake of the Internet and technological advancements resulting in a focus shift from being product centric to service centric (Porter & Heppleman, 2014).

The shrinking of borders within this changing global and social landscape is also coupled by organisations and industries continually facing rapid, disruptive and at times tumultuous, episodic or discontinuous change amidst increased complexity (Klein, 2009), while operating in unstable conditions (Cohen, Kolke & Senge 2006 in Allen & Cohen; Graetz, Rimmer, Lawrence & Smith, 2010). Discontinuity and change is the new norm for organisational continuity (Brown & Eisenhardt, 1997). Contemporary organisations continue to experience rapidly changing social milieus with new organisational forms and structures (Mintzberg, 1979; Aothi, 1988; Mintzberg & Lam, 2000), particularly, when operating in hyper-competitive environments in an ‘age of artificial intelligence’ discussed later (Gerbert & Hecker 2017) where quick response to change is essential.

Increasingly knowledge is taking place across borders and the nature of ‘dispersed knowledge’ creates additional challenges and opportunities when managing knowledge. The ‘closed innovation process’ (Lichenthaler & Lichenthaler, 2010, p. 54), suggests that knowledge and innovation occurs within organisations but, changing boundaries with enhanced external collaboration has shifted the focus, to that of open innovation (sourcing knowledge and ideas from outside).

Excluded knowledge is where there are conditions where an organisation might have a monopoly and hence a monopoly of knowledge occurs. However, as Burton-Jones (1999) explains, how lines are becoming more blurred across functional and managerial roles with

respect to owners of some forms of intellectual capital. Furthermore, knowledge supply instead of labour supply, is becoming a key denomination, coinciding with a decline in traditional forms of employment Olssen & Peters (2005) also comment on the increasing drive towards privatisation of knowledge production.

3.6.2 Market Reform and Offshoring

There are increasing trends towards off-shoring and outsourcing and reliance on strategic partnerships (Tester, 1993) indicative of continuing market reform. Outsourcing of non-core activities²³, for cost minimisation and other reasons, includes back office functions provided by third parties rather than performing administrative work or record-keeping in-house. There are knowledge erosion risks where knowledge is transitioned to other parties across borders and this may result in diminution or depletion effects. To circumvent these problems of quality knowledge transfer some organisations have chosen captive offshoring, where by the company opens its own offshore subsidiary rather than outsources an offshore operation.

3.6.3 Deindustrialisation and Displacement of Labour

Deindustrialisation is another aspect of social change, within Western developed countries, that has seen the transfer of skills of white-collar workers to foreign countries by relocating roles to lower labour cost countries.

With globalisation and post industrialism there has been a considerable shift in reliance and value placed on human knowledge and labour requirements leading to a displacement of human labour (Rifkin, 1995). A contemporary example is evidenced in supermarkets with installation of self-service machines in lieu of check out staff and tasks are delegated to machines or to customers. As history shows this significant displacement of human labour will almost certainly have profound social effects, as well as for knowledge (Miegel, 1997, p.129). This author goes on to explain how organisations are able to implement standards

²³ Cost pressures continue to be challenges facing both public and private sector organisations with major effects, leading to outsourcing of manufacturing or transactional service functions from high-wage to low-wage countries (Mankiw & Swagel, 2006). Countries such as India have become an epicentre for service delivery (Mankiw & Swagel, 2006); however, this presents challenges in terms of cross cultural perspectives of service functions, expectations and knowledge sharing between host countries and head office (Jyrämä, Kauppila & Rajala, 2009)also discussed further in Chapter 4.

across work practices and systems, to streamline production processes and contends that there is a continuing need for human labour and human knowledge.

3.6.4 Downsizing and Industry Rationalisation

One consequence of this new capitalist social order and globalisation, with potentially adverse human and organisational effects, is downsizing. The social and organisational changes attributed to the era of new capitalism have coincided with major socio-economic crises and dramatic environmental issues (Budros, 1997, p. 230). Among the consequences of the Global Financial Crisis (GFC) were global and cross industry impacts, with increased downsizing trends across organisations, due to demands of stakeholders and shareholders seeking to mitigate risk and improve performance.

Downsizing has become normalised in contemporary organisations and is particularly relevant in the current economic climate and industry stage. A good example of this rationalisation is with automotive companies with the recent demise of the Australian automotive manufacturing industry as further evidence of the major global and social changes enveloping the western world (Swinburne, 2016). Acceleration of redundancies, can contribute to exodus of key knowledge - although downsizing can elicit short-term cost savings. Downsizing and knowledge loss is discussed further in Chapter 4.

3.6.5 Knowledge Economy

The post-industrial world has transitioned towards a knowledge economy (Felin, Zenger & Tomisk 2009; Tuli & Hu, 2018) and knowledge-intensive industries including insurance, aviation, pharmaceutical, computer and IT (OECD, 1996) and knowledge-intensive firms (Starbuck, 1992). Organisations are placing an increased emphasis on knowledge work (Stewart, 1998) and a shift in how organisations might value and manage knowledge (Davenport & Prusak, 1998). Concomitant with these new developing industries, there is a need for knowledgeable workers and their value (Stewart, 1998; Braunertyem, 2004) and, overlapping knowledge domains (Hahn & Lee, 2011).

The World Bank has recognised the importance of knowledge in a knowledge economy and repositioned from being ‘a bank for infrastructure finance to that of a ‘knowledge bank’ (Olssen & Peters, 2005, p. 335). The World Development Report highlights knowledge problems as key challenges to developing countries including ‘knowledge about technology’

and 'know-how' and other major knowledge gaps; however, knowledge gaps and challenges are also prevalent in advanced countries (Olssen & Peters, 2005, p. 335).

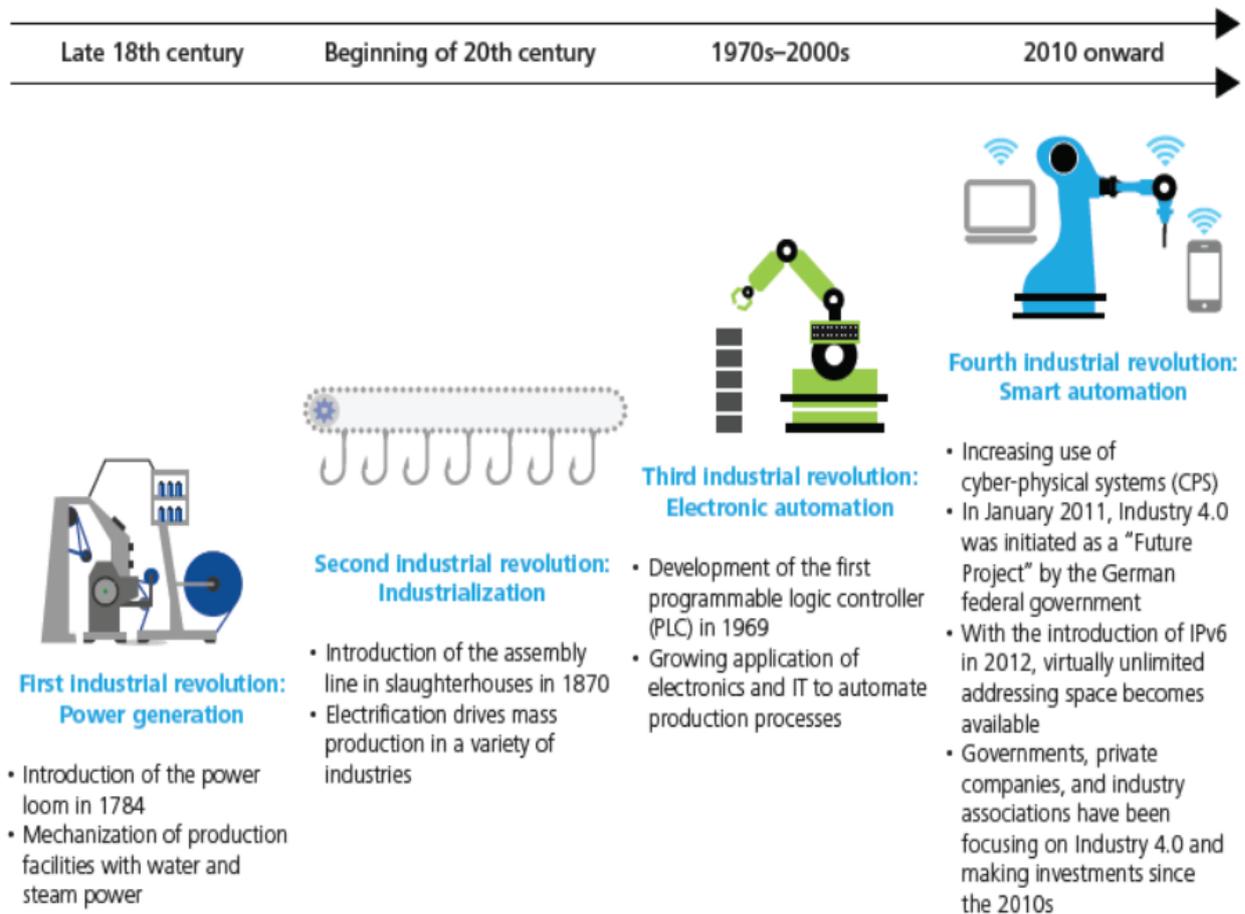
Perceived barriers towards knowledge use have include: lack of accessibility to research information; lack of professional norms; and time constraints for practitioners or key stakeholders to effectively interpret research information. The decline in the ratio of educational practitioners undertaking research for knowledge purposes, as well as insufficient social infrastructure are also problems for eliciting knowledge sharing and collaboration across groups.

3.7 Technological Advancement and the 4th Industrial Revolution

Technological advancements as forces of change continue to augment shifts in globalisation and most notable are those advancements from the first industrial revolution that kick started automation in late 18th century²⁴ (Hobsbawn, 1977) and how with modernity, shifts in production and systems of working have progressed to more adoption of more sophisticated technologies and systems through the emergence of the fourth industrial revolution depicted in Figure 3.2 and discussed below.

²⁴ First industrial revolution: Introduction of the power loom in 1784. Mechanisation of production facilities with water and steam power. Second industrial revolution: Industrialisation: Introduction of the assembly line in slaughterhouses in 1870. Electrification drives mass production in a variety of industries. Third Industrial revolution: Electronic automation: Development of the first programmable logic controller (PLC) in 1969. Growing application of electronics and IT to automate production processes. Fourth Industrial revolution: Smart automation, increasing use of cyber-physical system (CPS) and AI and analytics (Manyika,Chui, Madgavakar & Lund 2017).

Figure 3.2 Stages of industrial revolutions



Sources: Germany Trade & Invest, "INDUSTRIE 4.0—Smart manufacturing for the future," July 1, 2014; National Academy of Science and Engineering, "Securing the future of German manufacturing industry: Recommendations for implementing the strategic initiative Industry 4.0," April 2013; Deloitte analysis.

3.7.1 Fourth Industrial Revolution

Modernity reflects Contemporary societies and organisations continue to be modified as the fourth Industrial Revolution unfolds, in terms of digitalisation and automation and the shift from the industrial to the digital age. This revolution has redefined and upgraded and superseded the traditional production systems. Production management has expanded to a broader operations management systems approach which transfuses across all functional areas within and outside organisations. This fourth Industrial Revolution has been characterised by development of smart manufacturing and smart systems (De Propis, 2016) with digitalised tools and systems that can deliver information quicker than the human mind (McKinsey & Company, 2017) which raises questions as to the value of human knowledge..

The nature of the digital connected factory is, conceivably, far removed from earlier industrialised systems of manufacturing.

The digital economy (Australian Government, 2017) is where information can be enabled and more accessible across different platforms and connected devices thereby ensuring organisations can be more responsive in developing and deploying digital strategies to transform organisations and the value chain for value creation. (Gartner, 2017).

The new world of big data, through convergence and use of the Internet and analytics, can provide more tailored offerings to customers reshaping relationships and interactions with customer consumers and Business to Business (B2B) (Lancry, Morrissey, Bankert & Cummings (2017). Additionally the digital economy through changing models and systems concerns sustainable supply chains (Khatri & Srivastava, 2016).

Organisations, to varying degrees, are developing and applying digital operating models (Capgemini, 2017) with varying levels of capability and digital maturity and digital novices at the lesser end of scale and digital champions as innovators at the other end (Alvarez Strom, Kinder & Pillsbury, 2016, 2016). Additionally, this revolution is not without challenges in how systems integrate machines into work practices to effectively engineer and optimise intelligent operations (Agostini & Filippini, 2019). Implementing practices based on the Internet, Big Data and other analytics requires skilled workers and has knowledge implications²⁵.

There are obvious implications for possible forms of knowledge modification, either upgradation or degradation. This new digital and automated world of advanced technologies comprises smart systems and automation. The use of the Web for knowledge exchange (Matsche, Moskaliuk & Cress 2012) is diffused across both public and private sector domains (Rosenbaum, Van Buren & Mennel, 2013), impacting and reconfiguring the social fabric including relationships at work (Orlikowski 2007) and, interfaces between employees and

²⁵ The need for highly skilled and digitally savvy workforce requires strategy (Kagermann et al., 2013 in Agostini & Filippini, 2019, p. 408). The knowledge management aspects surround the need for 'deep knowledge of processes' and robust systems such as ERP for effective data exchange across ecosystems (Agostini & Filippini, 2019, p. 417). Industry 4.0 requires shifts in skills and knowledge (OECD, 2017) as jobs are redesigned and transitioned to meet digital requirements (Karacay, 2018).

customers (Lavriviere, Bowen, Andreassen, Kunz, Sirianni, Voss, Wunderlich & De Keysey (2017).

Knowledge challenges prevail with effective integration of systems and processes across value chain partners (BCG, 2015). Industry 4.0 includes applications of advanced technologies such as robotics, data analytics and Artificial Intelligence (AI)²⁶ (including cognitive capabilities for problem solving) (Alvarez et al., 2016; Wang, 2016; Ustundag, 2016; Levikcan, 2017; Davenport & Ronanki, 2018) and framing the organisation as a ‘cognitive company’ (Davenport & Ronanki, 2018). However, with the emergence of smart factories, the challenge to manage ‘dark data’ as a plethora of untapped data depicted as highly unstructured or not captured brings new levels of sophistication and challenges amidst machines becoming more autonomous (Sundarraaj & Natrajan, 2019).

3.7.2 Digital Age

The shift from the industrial to the digital age represents a shift from the rational orderly command control systems, which were introspective, to an extrospective perspective where information from external sources becomes increasingly important as a barometer of what is changing and how an organisation needs to respond. This shift also reflects moves to innovation in product and service delivery. Additionally, in a different vein, the emergence of ‘digital governance’ and big data analysis further exemplifies new rational control forms.

As supply chains become more integrated and connected this can be an enabler to support knowledge sharing (Deloitte, 2017; Hill & Hill, 2017). The competitive landscape is changing largely due to external forces such as globalisation, brought about through technological advancements (including the Internet and clean technologies).

Technological advancements have also contributed to: the growth of hyper-competitive markets; the cost advantages experienced in developing countries (Ancona, Kochan, Scully, Van Maanen and Westney, 2005); mass customisation; the shortening of product life cycles; advanced digitalisation and increased connectivity via the newer information technologies

²⁶ Examples include sense or all radio frequency technologies, systems and communicating autonomously throughout the value chain and smart cities (Gartner, 2017). There has also been a shift from B2B to B2C with greater emphasis on interviews or customer needs and experiences through provision of superior quality customer data and light and lean solutions in distribution and manufacturing methods.

(Fletcher & Brown, 2013). However, some authors suggest technology has also been a factor in creating more ‘decontextualised’ and dehumanised work environments (Tyre & Von Hippel, 1997, p. 81); it is viewed as a reflection of a more ‘depersonalised world’(Lawler, Thye & Yoon 2009) earmarked by and human ‘automaticity’(Bargh & Chartrand 1999), emblematic of an emergent ‘technoculture’ (Shaw,2008) .

Whilst various technologies and systems have been introduced as an alternative to people performing certain roles and functions, some forms of human knowledge are still required; however, technology advancements require higher knowledge skills from workers to manage and operate new systems.

The exponential increase in exposure to advertising is further compounded by the vast reach to consumers through ‘text messaging’ and other realtime means (Braun-La-Tour, Puccinelli & Must, 2007, p. 1).

3.7.2.1 Internet of Things (IOT)

Enabling Industry 4.0 is The Internet of Things (IOT) that provides a means for communicating remotely and through interoperable devices (Morgan, 2015; Muzumdar, 2015; Brandt, 2017). Robotics and computers are becoming increasingly relied upon to complete routine activities quicker and cheaper than human employees. The internet and Internet of People, Things and Service (IoPTS) is deeply embedded in social and organisational lives (Karakas 2009; Cavanagh 2007; Rajah & Lim 2018 in Simmers & Anandarajan 2018).

This trend will increase as technological enhancements enable machines with cognitive capabilities (BCG, 2015). Examples of such advancements include aids to support medical services and intelligent tools including Clinical Decision Support Systems (CDSS) through the conglomeration of medical and patient information and risk detection (Moghimi, Schaffer & Wickramasinghe, 2014 p.171). In summary, organisations are continuing to face digital transformation and forces of change calling on more rapid responses and agile systems.

3.7.3 Digital Transformation and Agile Practices

Digital transformation is permeating all organisations that are now required to demonstrate greater flexibility or more rapid responses in all spheres of operations to maintain relevance

and adjust to changing market conditions²⁷. Such challenges and the need for rapid responses also creates challenges to maintain or update relevant knowledge. To counteract such challenges and need for rapid responses, incorporation of agile systems of working are essential. This explains faster processes and includes time for reflection (Perkin & Abraham, 2017) including adopting digitalised tools and systems that can deliver information quicker than the human mind (McKinsey & Company, 2017).

3.7.3.1 Agile product development and firm ecosystems

Approaches to accommodate change include adoption of agile thinking and regenerative structures as well as cultures to assist product development²⁸ and rapid transfer to market, including learning from failures to accelerate rapid innovation. Clearly, becoming agile assists organisations to be more adaptive and efficient (Dyer & Shafer, 1999). Following on from the above points about technology advancements and businesses' pursuit of innovation, there is an emerging view which is a marked shift from the resource based view of the firm (Barney, 1998). This new view portrays a business as an ecosystem (Moore, 2006; Hutchins, 2014). Activities embodied in business ecosystems, it is suggested, support a progression away from competitive efficiency and effectiveness, reshaping markets and structures, with a paradigm shift towards symbiotic relationships and 'continuous innovation' (Moore, 2006, p. 32).

²⁷ Maintaining or creating competitive advantages require less hierarchical or linear organisational designs and structures, facilitating greater interaction and empowerment to support flexible and agile methods to ensure organisations are more responsive to changing business environments. This form of design reflects 'increased needs' for organisations to operate under conditions of velocity (Perkin & Abraham, 2017). This need for constant and rapid change (Fullin 2003) also represents a major departure from the model of the 'rational' and bureaucratic organisational form originally posited by Weber as a model of a formal organisation (Weber, 1958). This organisational design typifies a large organisation as highly structured and mechanistic, having standardised rules and practices and clearly defined roles and boundaries. The old organisational form represents functions under conditions of certainty and simplicity, rather than complexity, unpredictability and instability. In contrast, current organisations face continuous organisational realignment to thrive or survive, where market conditions are changing to drive improved efficiencies or increased effectiveness.

²⁸ An example of another tool supporting constantly changing products or services is rapid prototyping which is a method of constantly changing product or service or activities in delivering goods or services. This approach involves numerous changes and modifications to deliver effective outcomes including levels of innovation and risk-taking more entrepreneurial in nature.). Deinstitutionalisation involves fragmentation or atrophy and deconstruction of large bureaucratic structures, where practices and systems are modified for organisational renewal suggestive of agile principles.

The nature of connected ecosystems again supports the idea of value creation and value adding through ongoing operational improvements and continuous product service information driven through more customer centric and personalised service delivery (Cognisant, 2016). More details on Agile are provided in Appendix 3 and Chapter 4.

3.7.4 Machine Learning

Recently, disciplines such as the social sciences have focused on ‘scientific uncertainty’ as a contemporary phenomenon and possible knowledge risks or mechanisms for addressing such uncertain knowledge (Rona-Tas, et al., 2017, p. 1).

Within the digitalised environment, generation of digitalised and unstructured text or information presents substantial challenges for social scientists; this indicates a need for ways to categorise complex and voluminous data. These authors argue how ML is an enhanced tool, whereby machines process classified texts following algorithms that categorise meetings from discipline data finding frequency of words for clustering purposes.

These authors seek to conceptualise scientific uncertainty using ontology, by application of Machine Learning (ML). This reliance on ML is depicted as a form of ‘unsupervised learning’ that implicates the machine as the learner or knowledge builder. However, a varied form of learning involves interaction between humans and machines (Grimmer & Stewart, 2013; Jain, Duin & Mao, 2000). Human input is still needed for interpretation and more supervised methods for in-depth analysis when differentiating and sorting data (Rona-Tas et al., 2017).

The authors emphasise on the importance of articulating gaps or areas where knowledge is less certain to identify where further research needs to be done. Rona-Tas et al. (2017) position the problem of scientific uncertainty in the context of food safety also flagged in Chapter 6 and the case organisation and regulatory decisions and policy-making by seeking to measure the construct of uncertainty.

Certainty and scientific knowledge, it is argued, is inconsistent in meaning and criticisms historically have been levelled at the scientific community questioning credible scientific decisions or judgements. Questions around legitimacy of scientific knowledge, especially in relation to health safety concerns, have resulted in greater scrutiny by international bodies

such as the World Health Organisation and other regulators seeking more rigorous risk analysis of judgements in this area.

Rona-Tas et al. (2017) investigated approaches used for assessing food risks. Focusing in particular on hazards using machine learning methods, to explore scientists' knowledge and conclusions, in relation to the state of knowledge on food hazard types and how the experts assessed evidence. The use of 'judgement typology' is categorisation of how experts weigh up evidence and the ontological forms. These authors use hedging and precaution to link to the concept of uncertainty. In contrast, they use competence and expert assumptions where knowledge certainty prevails (Rona-Tas et al., 2017, p. 8).

Hedging relates to uncertainty about truth, founded on a proposition, whereas confidence means 'absence of doubt' that leads to conclusiveness. Rona-Tas et al. (2017) addressing 'epistemic uncertainty', observe how this uncertainty reflects a modern societal conundrum and the vagaries around 'missing or incomplete information' resulting in likely imperfect data. These authors on reading reports from experts impute degraded forms of knowledge where good quality data are 'absent', and assert that evidence exists where 'surrogate data is substituted to compensate for missing information and resulting in degraded effects of such data. Surrogate data represents that taken from other contexts, on other food hazards than those of from the immediate area and data sourced from population samples which may be potentially contaminated (Rona-Tas et al., 2017, p. 8).

3.7.4.1 Human versus machine knowledge and elimination of human error

Fromm (1979) conceived the concept of new '*automatic brains*', as a form of intelligence that can potentially substitute human knowledge with technology. This also introduces the possibility for potential dehumanisation of knowledge in modern society. These sentiments are supported by other thinkers who critique technological rational systems where big data as an example reflects 'technological solutionism' (Morozov, 2013).

The use of robots versus humans raises questions about the direction of modern society and the extent to which human knowledge is perceived to still have value. Projected elimination of jobs, due to automation arising from digital transformation, is emphasised in numerous studies that indicate increasing levels of mechanisation have clear risks for erosion or loss of knowledge (Greenhouse, 2010). The assumed productivity and efficiencies is not clearly

proven as noted by Camina, Chao and Sellens (2020, p.1) in empirical studies who also pronounce longer term job opportunities may ensue through a ‘complementarity’ of deployment of human capital and automation.

Well-publicised examples of this issue include: the increasing adoption rates of manufacturing using robots (Ford, 2015; Cameron, 2017); and the move to driverless trains (Edwards, 2011) or pilotless planes (Scott, 2017). The possible fallout from smart technologies centres on the value proposition of human knowledge and intellectual capital (Davenport & Kirby, 2016).

Several authors see a clash between technology and humanity (Leonhard, 2016). Kahlberg (2011) represents these socio-economic changes in the context of changing employment structures and environments that are becoming less stable and more discontinuous. However, compounding the changing situation is the digital transformation permeating all organisations and society. For example, the adoption of lean practices (Womack, Jones & Roos (1990) is also evidenced in public sector spheres and automation supported by lean systems (Hitchcock et al., 2017) is seeing a rise in ‘roboticisation’ in lieu of work traditionally performed by humans (Hitchcock et al., 2017). The notion that humans can be substituted by robots is no longer countenanced on principles around manual or non-skilled functions, but through artificial intelligence and smart machines. Certain human knowledge and capabilities are being supplemented or replaced by advanced robotics and humanoids (Fleming, 2019, p. 26).

Arguably there is still a role for specialists including those who are digitally savvy working with technologies, as distinct from de-skilled personnel who will be sought on the basis of short-term economic imperatives. Key roles in knowledge will be premised using a neoliberalism perspective, are based on the demand supply equation and the value of expertise and an educational concept of ‘credentialism’ - where credentialed knowledge is viewed as preferable higher order knowledge for humans (Fleming, 2019, p. 2011).

Other authors point out that AI does not contribute to the many missions of human knowledge, given that highly complex work requires complex problem-solving capabilities as well as the heterogeneous nature of functions (Pettersen, 2018). Dreyfus (1972) also emphasises the limits of machines, given that logic is a rational form of knowledge restricted by the nature of the parameters and designed by programmers.

The argument for technology, instead of human knowledge, is where AI can outperform humans in relation to computing and producing ‘factual knowledge’ (Pettersson, 2018). However, much knowledge work still requires degrees of collaboration, cognitive and complex processing requiring time and experience as well as social interaction (Brinkley, 2009). Pettersson (2019, p. 3) cites an example of how Facebook invested substantial funding in AI Chatbots for call centre jobs; to later close this platform, due to the issue of complexity.

This perspective echoes earlier insights around the difficulty of having a clear bifurcation between tasks and work being conducted completely separately from others (Barley & Kunda Barley, 1990, 2001) and the need for social interaction embedded in work practices (Trygg, 2014 in Pettersson, 2019). Similar concerns apply with dispersed work or remote working as contemporary work forms, where ‘knowledge work requires collaboration to solve problems and facilitate improvements’ (Brinkley et al., 2009).

The factor of work and possible system where labour is provided by machines or robots, has many implications both for the value society places on humans and conventional work practices that embed knowledge. The era of digital automation is seeing the ‘low growth and low demand’ phenomenon denoted as the ‘compensation principal’ (Fleming, 2019, p. 24). This concept sees destruction of traditional types of jobs and development of new jobs in new arenas. For some people, this form of deconstruction may be perceived as a corollary with knowledge deconstruction. Although, some roboticists do not share alarmist views on erosion of human knowledge but do assert risks and education challenges to raise people to propel into higher level jobs.

The question of job displacement and vaporisation whilst earmarking characteristic side-effects is also in response to the emergence of the second machine age (Fleming, 2019, p. 24). However, as this author explains, this does not mean that work is declining, but that a new era of specialised human work is flourishing within the Artificial Intelligence (AI) and digitalisation areas.

However, digital enabled operations it is contended, act as enablers for real-time and accurate data to drive better quality decision-making supporting lean manufacturing and quality outcomes. The thesis here is that digital solutions can circumvent and eliminate human errors

and anomalies created from existing human driven inputs such as processes and methods shaped by human knowledge (Alvarez et al., 2016) as evidenced within healthcare contexts and use of electronic information systems. Although, such systems arguably are not devoid of challenges to safeguard such information and knowledge calling upon the need for viable knowledge and IT infrastructure solutions (Baskaran, Davis, Bali, Naguib & Wickramasinghe, 2013).

3.7.5 The Second Machine Age

The Second Machine Age provides a roadmap to digital maturity through various technologies, including the use of 'machine learning'. The differentiating factors between past applications and automation is that in the new age, there are robotic capabilities that can perform cognitive and other functions (Ford, 2015). Highly advanced systems are enabled by well-designed algorithms, to demonstrate capabilities that replicate human functions and deploy degrees of judgement akin to forms of knowledge ability. McKinsey Global Institute (2015) predict major changes to society portending routinised and semi-routinised roles and elements of cognitive jobs being performed more by robots. (McKinsey, 2017).

An example of this change is the IBM Watson System, where hospital personnel were replaced or substituted by systems to perform tasks for forecasting traffic and visiting levels of patients; the system demonstrated a more efficient knowledge than that of human analysts (Fleming, 2019, p. 26). Additionally, androids such as humanoid priests and robotic monks also feature as illustrations of work that can be performed, but does not rely on humans (Sherwood, 2017, p. 26)²⁹.

The idea of bounded automation relates to work that is determined to rely on humans who are deemed irreplaceable or by driven often by market forces and economic drivers although recognising that performance in the workplace is seeing a convergence of cognition and technology where automation has role(Smith,Gray.Atherton,Pirie & Jepson,(2014).

²⁹ Whilst various technologies and systems have been introduced as an alternative to people performing certain roles and functions, some forms of human knowledge are still required; however, technology advancements require higher knowledge skills from workers to manage and operate new systems.

3.7.6 Objective Culture and Non-Knowledge

In Chapter 2, various philosophical perspectives around knowledge were considered in terms of what is attainable realised knowledge. Similarly within social contexts, links between knowledge knowing are considered surrounding whether knowledge is being degraded in the form of increased ignorance. The concept of ignorance is now conceptualised and discussed further as a form of non-knowledge as the ‘reverse side of knowledge’ (Gross, 2012, p. 422). This potential paradox exists despite the emergence of the ‘knowledge society’.

For example, in debates about current phenomena, such as global warming, it is contended heightened awareness of the unknown and uncertainty prevails; this is anti-theoretical to ‘accepted knowledge’ (Gross, 2012). This perspective argues that knowledge derived from science and experts in contrast with the previous case example is being eroded or downgraded as changing discourses emerge. Major natural disasters, such as floods, can lead to rapid flawed decisions that could possibly be managed through rational analysis to counteract knowledge of the unknown.

Simmel (1997) considered symmetry between knowledge and what is unknown. Although knowledge about what is unknown can mean there is insufficient knowledge and has a different connotation than pure ignorance. Gross (2012, p. 424) qualifies how conditions can yield what is ‘as yet unknown’ in an ‘unknowable world as a by-product of post modernity’ (Weick 2010).

An increased prevalence of ignorance can be explained by the fact that non-knowledge and ‘nescience’ or what is unknown only recognised in hindsight (Gross, 2019), is arguably a flow on effect from knowledge proliferation; where knowledge solves some problems but others remain. This situation results where ignorance and lack of knowledge exceeds the rate of knowledge gathered.

Types of implicit knowledge are arguably features within modern society (Collius, 2010). However knowledge work is outside conventional science work, although boundaries are blurred between society and non-scientific forms of knowledge, such as between multiple constituencies where collaboration exists between government agencies, businesses and research organisations (Porcher et al., 2010).

Decision makers are being altered or replaced by more experimental practices, rather than merely ‘tried and tested’ knowledge alone. Decision-making is now made under conditions of uncertainty that can lead to incomplete or ‘sketchy knowledge’ (Gross, 2012, p. 428).

The concept of objective culture also relates to society and knowledge. Simmel (1997) conceives modern society through the bifurcation of subjective and objective culture. He raises issues around secrecy and social relationships and cites examples of individuals becoming more like strangers amplifying the argument that in modern society people can avoid dialogue. More recently, Hirshauer (2005) cites the use of earphones and other devices as forms of ‘civil inattentiveness’ that normalise non-relations between individuals and groups, to lessen the need to know others and impart knowledge. This heightened form of ‘inattentiveness’ could have implications for knowledge quality and whether knowledge is being eroded. The erosion of social relations is reinforced by the nature of fast paced lifestyles and work methods supported by technologies.

Technical devices may be seen as an extension of such normalised social practices. Normalisation of non-knowledge in its various forms can be viewed as a ‘knowledge deficit’ (Gross, 2012, p. 433), a form of knowledge erosion or degradation, and contributor to why things are unknown. This author proposes that something that is unknown provides opportunities to address knowledge gaps and limits to quell risk of loss of public confidence or trust and to discourage people from seeking alternative sources that may be more degraded forms of knowledge based on incorrect or unverified information or false claims (Gorman & Gorman, 2018). Conversely, Gross (2012) also posits that in the modern world people have rights to not know rather than being forced to ‘acquire knowledge’.³⁰

New knowledge can identify unknowns. Modern society is considered to be dealing with knowledge gaps through capitalism and technology with ‘big data’ to assist better decision-making; but this still may lead to uncertainty. Unknowns can be viewed as degraded forms of knowledge, or fake, or absence of knowledge. The author proposes discernment around non-

³⁰ An example of this is the case of knowledge of one’s possible genetic health risks, which somewhat contradicts the notion that modern society is able to equip individuals with more information and data in this fourth Industrial Revolution era. Non-knowledge is more pronounced in modern society, where new knowledge often is unexpected and transcends accepted knowledge (Gross, 2019, p. 20).

knowns and the broader realms of media, everyday life and policy-making. In this situation the absence of knowledge is not interpreted as a degraded form of knowledge and decisions can be made in lieu of gaps as a type of ignorance that is not deliberate, or when information is intentionally bypassed (Gross, 2019, p. 23). These diametrically differing approaches to non-knowledge or the unknown reflect the degree of knowledge degradation.

3.8 Technology, Computerisation and Homogenisation- Knowledge Impacts

Technology and computerisation is shaping and influencing modern society and organisations including thought styles and logical practices. (Berdayes & Murphy, 2000, p. 4). These authors state: ‘Computerisation is a particular approach to conceptualising knowledge, and thus represents a commitment to somewhat esoteric renditions of fact, reason, and decision-making.

The advent of technology and computerisation has arguably contributed towards a ‘cultural homogenisation’ of knowledge, a possible form of knowledge degradation. Computers it is further argued, ‘eschew the social sensitivity required for persons to approach one another with sincerity and honesty... computers demand stability and recall that is an anathema to intimacy’ (Berdayes & Murphy, 2000, p. 8). These authors contend that depth of knowledge is derived through realms of social meaning and intimacy needed are lost. The modern world is also interlaced with multiple scientific and technical discourses and practices. These discourses and practices overlie some primordial understanding of the world (Berdayes & Murphy, 2000, p. 16). However, the proposition can be made that as systems configuration is highly rational and formalised, this scientific or objective design has created homogenisation³¹ of knowledge.

³¹ Institutional theory concepts of homogenisation (DiMaggio, 1988; DiMaggio & Powell 1991, p. 40) could extend to homogenised knowledge and compliance related to organisational systems and processes. Furthermore, institutionalisation and culture can be connected via Oliver, (1992).prescriptive behaviours and role expectations (DiMaggio, 1988; DiMaggio & Powell, 1991, p. 46.

3.8.1 Technology- “Cognitive Economy”, Minimalism and “Being Able to do Without Knowing”

Another perspective on modernism, knowledge and technology relates to an underlying ‘cultural prejudice’ that has steered the direction of knowledge and ideas in modern society. Kramer (2000, p.33) discusses the mathematical condensation of knowledge, citing how some researchers have reduced the evolution of the universe to a single algorithm and explains the concept of minimalism’, driven by lack of time, the need for efficient productivity and interest in personal accumulation.

And we hurriedly retrieved from the wilderness of flux into standardised, sequential machine time. History becomes Absolute Logic. The time moves through places with” iron necessity” like this sequential processing of functions in a mathematical equation. In this regard, Hegel anticipated writers like John Holland and David Dennett... Expert systems continue the utopian dream of minimal anxiety and maximal slumber, of being able to do without knowing. This is what fans of cognitive economy call minimalism, the hypervaluation of parsimonious heuristics, a modern cultural prejudice driven by a lack of time, a need for it efficient productivity in the interest of personal accumulation (Kramer, 2000, p. 33).

Kramer goes on to suggest that knowledge is predisposed to prejudice. He points out that expert systems attempt to stop interpretation and dialogue, settling on one preferred version of reality. But patterns and their structures are synthetic results of perspectiveism, with all its various prejudices’. (Kramer, 2000, p. 36)

Kramer (2000, p. 42) continues his argument by suggesting there are limitations to technology with ‘disembodied intellect’, where computerisation has manufactured an environment of “transduction” with a strict logic and positivist approach built into systems. Artificial intelligence (AI) and expert systems are seen as ‘semantically impoverished’ (Kramer, 2000, p. 50) devoid of the ‘thick reality adopted by humans.’

3.8.2 Technological Impacts and Knowledge Erosion and Degradation

Technology and computerisation is shaping and disrupting (Shuelke-Leech, 2018) modern society and organisations including thought styles and logical practices. (Berdayes & Murphy, 2000, p. 4). These authors state: ‘Computerisation is a particular approach to conceptualising knowledge, and thus represents a commitment to somewhat esoteric renditions of fact, reason, and decision-making that has knowledge degradation implications.

An extension of ‘cultural homogenisation’ introduced earlier in the chapter, Computers it is further argued, ‘eschew the social sensitivity required for persons to approach one another with sincerity and honesty... computers demand stability and recall that is an anathema to intimacy’ (Berdayes & Murphy, 2000, p. 8). These authors contend that depth of knowledge derived through realms of social meaning and intimacy are diminishing or eroding.³² The modern world is also interlaced with multiple scientific and technical discourses and practices. These discourses and practices overlies some primordial understanding of the world (Berdayes & Murphy, 2000, p. 16). The proposition is made that systems configuration being highly rational and formalised, are creating a homogenised form of knowledge.

Whether technology is reshaping society and organisational settings directly raises the questions of whether human knowledge is being eroded or downgraded, but also superseded by smart intelligence systems (Chui, Manyika & Miremadi, 2016). This concern about replacing people with machines has not gone unnoticed in commentary from various sources (Statt, 2015). Concerns about technological advancements and machines with collective powers include the possibility that as technology advances, machines will develop higher mental powers than those of humans through artificial intelligence (Kurzweil, 2005). There is an observed risk of increased reliance on ‘technology dominance’ for decision-making, particularly when operating within areas of complexity (Jenson, Lowry, Burgoon & Nunamaker 2010) and the ‘technophile digital mindset’ that legitimises argument for governance via algorithms (Peterka (2017)). This threat of human knowledge decline is echoed by prominent personalities who worry that the degree of sophistication and advances being too extensive and threaten human knowledge extinction.

A major influence is the role of media (Thompson 1995) which, with the advent of the internet and social media platforms, are permeating and shaping individual lives and behaviours. This social phenomenon includes behaviours at work such as ‘cyberloafing’ where people waste productive time when using the internet that can have negative repercussions (Blanchard & Henle 2008; Zoghbi-Manrique-de-Lara 2009).

³² An example is the substitution of people with automated answering systems may be considered more efficient but has led to a dilution of personal contact with customers.

Other research findings demonstrate a rise in smartphone addictions that have counterproductive outcomes, where individuals in younger populations are spending less time socialising with implications for knowledge erosion and degradation (Gokcearslan, Uluyol & Sahin 2018). Additional concerns are that younger generations are, as a consequence of post modernity and attachment to devices as well as reliance on the internet or being tech savvy (Becker, Fleming & Keijsers (2012), are at risk of being less knowledgeable than older peers (Bauerlein & Walesh 2008) a concern raised by case organisation participants discussed in Chapter 6.

Even before Industry 4.0 and digitalisation, Marcuse (1966) was critical of organisations and industrialisation that had led mechanisation. Where the social processes associated with automation had he argued led to ‘transubstantiation of labour power’ (Marcuse, 1966, p. 36).

It is argued that with the advent of computerisation and advancements, knowledge has altered in form and information incompatible with systems is becoming ‘marginalised’, imputing a degraded form of knowledge (Plant in Brown, Collinson & Wilkinson, 1998, p. 230). As this author points out the priorities are not truth or objective observation, but minimal input for maximal output.

3.8.2.1 Computerisation and knowledge effects

With modernisation it is posited that there has been an element of dislocation and fragmentation within advanced capitalist societies (Brown et al., 1998). These authors explain how computerisation has changed the nature of, and form of knowledge. This implies a form of knowledge degradation with the advent of computerisation. The author in acknowledging historical perspectives of organisational knowledge also views knowledge as stock.

3.8.2.2 Influence of the internet and knowledge degradation

Since the establishment of the Internet, certain benefits have become apparent and various challenges have arisen. From a knowledge erosion or degradation perspective, some commentators note a propensity for people to quickly use skimming methods, being time poor, to create a “pastiche of knowledge”. This projects a sense of intelligence when less informed, which can be considered a form of knowledge degradation denoted as “cultural” (Greenfield, 2014).

The above author is suggesting that the impact of the Internet and technology is diminishing the capacity for engaged and interactive communication, which can contribute towards distorting perceptions of knowledge ability where knowledge fusion exists between an individual and what he or she knows and what the Internet knows. This has implications for organisations and how organisational members do research and go about their daily work functions. Nichols (2017) further suggests that Google is affecting brainpower and knowledge³³. One author made the following comment on the impact of the internet and how people think:

Although the internet could be making all of us smarter, it makes many of us stupider, because it's not just a magnet for the curious. It's a sinkhole of the gullible. It renders everyone an instant expert...³⁴ (Bruni in Nichols, 2017, p. 105).

There are many other critics of how technology platforms may have eroded people's ability to build solid knowledge. The author notes a trend towards less reliance on expert or scientific knowledge. However, the counterpoint is how knowledge is consumed and misinterpreted forms of knowledge can create false illusions (Sloman & Fernbach, 2017).

3.8.2.3 Technology and exteriorisation of knowledge

The evolution of an 'exteriorisation of reason and knowledge from the mundane activities of citizens' (Choi, 2000, p. 137) characterises an increasing importance placed on computers and systems to maintain internal governance and conformity to rules and standardised practices as part of a social control system. This author further espouses that there has also been an increased trend to externalise knowledge and create greater dependence upon computer knowledge to reflect reality.

3.8.2.4 Technological derived knowledge

Modern society and contemporary organisations have adopted 'technological derived knowledge' and that '... within this framework, any knowledge that exhibits multi-valency is a threat in organising a rational society'. (Choi, 2000, p. 138). Another view suggests that

³³ With knowledge and information centred on immediacy, there is an added risk of the onset of 'knowledge laziness' - a form of learning lethargy which might impair decisions. 'Knowledge laziness' can be interpreted as an organisation's or individual's reliance upon quick and easily accessible information for expedient purposes that might be extracted from less credible sources.

³⁴ The example of the anti-vaccination campaign drawing links between autism and vaccination is an example of strong opinion leader influences taking selected information to form a knowledge base that medical experts challenge as empirically valid (Gorman & Gorman, 2017).

technocrats as proponents of functionalism now potentially control and influence the direction of society and organisations.

Murphy (2000, p. 126-127) explained that technology including computerisation can reflect sentiments of a select community, so care is needed when integrating technology into an organisation given how organisations as social constructions, reflect idiosyncratic philosophies and operations. This point is also observed by participants from the case organisation in Chapter 6 and how views can perceive technology solutions as misaligned or incompatible with the workplace context work demands. In this way computerisation and technologies can may be seen as intrusive or repressive, instead of encouraging efficiency and flexibility.

3.8.2.5 Impact of technology on individuals and knowledge hegemony

As noted in Chapter 1, Carr (2010) argues that reliance on the internet for sourcing and accessing information has substantive effects on brain function and information processing. Building and retaining knowledge may have a level of transience and there may be longer-term consequences associated with an individual's abilities to think and analyse supporting an earlier author's critique of post modernity and modern developed societies challenging the 'capacity of individuals to think (Jameson, 1995, p.ix).

Reliance on search engines (e.g. Google) arguably has seen a decline in individual memory and a shift towards reliance on external tools or platforms for knowledge retention (Carr, 2016; Gorman & Gorman, 2017; Nichols, 2017). However, holding knowledge and knowledge manipulation are topical because of concerns about the security of people's personal information through tools such as Facebook. There is also concern about knowledge hegemony (Stoddart, 2007), where common models and methodologies for big data are preferred over more specific tailored information. This can be construed as one aspect of knowledge degradation or decline of diversity of perspectives.

3.9 Knowledge and Modern Society

The following section outlines how social forces such as modernism and neoliberalism have influenced and reshaped knowledge at a policy and governance level. With the internet and changing policy setting frameworks, new players or social actors are generating knowledge and implementing their own knowledge practices.

3.9.1 Era of Informationalism

The concept of the 'semiotic society' (Wexler 1987 in Turner, 1990, p. 173) suggests a new social organisation is emerging from post industrialism defined as the era of 'informationalism' (Luke, 1998 in Turner, 1990, p. 167).

3.9.1.1 Just-In-Time Knowledge

The fast-paced nature of organisational work environments has also seen the emergence not only of Just-In-Time (JIT) production methods, but demand for Just-In-Time knowledge (Hanika & Fuka, 2000). This results in knowledge accumulation being limited to accessing and managing key relevant information in real time, with minimal time for introspection and knowledge sharing happening on a selective or voluntary basis (Snowden, 2000).

Whereas past philosophers and philosophies have shaped and influenced contemporary knowledge throughout the 19th and 20th centuries, there is an arguable rise of professionalisation and warehousing of knowledge through specialist functions and roles.

Another feature of post-modern knowledge, is the notion that knowledge has become more speculative (Judkowitz in Lyotard, 2018). The former author explains how Lyotard's view of speculative knowledge challenges the legitimacy of knowledge and its origins or sources as well as the possible risks concerning the extent to which knowledge may become contaminated.

3.9.2 Information Overload, Time Pressures and Overlooked Knowledge

Information overload impacts on consumers as a reflection of broad societal phenomena; it also impacts individual lives where there are additional complexities in how individuals process information. Braun-La-Tour et al. (2007, p. 2) raise two questions about the psychological state of individuals and responsiveness to information of the individual when in an overload situation.

Past knowledge and experience can influence action and decision making as well as seamless understanding and cognitive processing with less mental agility required (Mendler, 1982 in Braun-La-Tour et al., 2007, p. 2). The question of imputed knowledge degradation resides in how these authors discuss how consumers synthesise information and knowledge with alignment to individual expectations. Whilst some research such as with response - latency

analysis Fitzsimons et al. (2002) show how individuals have to an extent become more efficient or faster in making informed judgements and acting on knowledge this does not automatically correlate with knowledge quality.

However, supporting or key information can be deliberately overlooked or ignored as information becomes increasingly more cluttered (Lee, 2000). It is further suggested that with individuals responding more quickly to decisions due to time pressures creates possible risks around time for depth of knowledge interpretation and information processing. Subsequently, actions and decisions arising from time pressure constraints, might reflect a form of knowledge degradation.

With the internet and other technologies and communications platforms, information generated in the last three decades is estimated to be greater than 'the previous five millennia' (White & Dorman, 2000 in Girard, 2006, p. 27). However, a viral effect of information can also precipitate information overload or 'information bombardment' (Girard, 2006, p. 27).

It is recognised that this bombardment phenomenon continuously challenges individuals, not merely in making sense of a plethora of data and information, but by also requiring the capability to transform data and information into usable knowledge (Girard, 2006). Moreover, operating in rapidly changing environments, further exacerbates problems around overload and burnout (Abrahamson, 2004).

3.9.2 Knowledge Stagnation, and Knowledge for Societal Good

Explicit discussion of knowledge and its value to society commenced with early twentieth century writers (Hayek, 1945) and more recent contributions from Kitchner (1993) and Pritchard, Millar & Haddock (2010); however, this question of knowledge advancement for the public good is also very much a 21st-century challenge including addressing risks of knowledge stagnation³⁵ and, to reduce the divide between knowledge building and

³⁵ A related issue is knowledge stagnation where individuals and organisations fail to make a valuable contribution and so social or community problems remain unresolved. The zone of generativity (Ball, 2012, p. 287) provides a framework to enhance the quality of knowledge and moving through progressive stages. The model used by the author supports researcher's growth towards generativity. The distinction here is the distance between what is currently known as determined by text and research information and what education research is for example of others have the potential to know. Combinative approaches imbuing

knowledge application. From an educationalist's perspective one commentator depicts a global challenge in how knowledge gaps exist due to information accessibility issues, insufficient professional norms and protocols for release of information as well as problems involved in more consultation and collaboration.

This educationalist asserts that it is important do more than 'just know' and that 'to know is not enough' (Ball, 2012).³⁶ This is exemplified by business intelligence. This activity should not be confined to researching, absorbing and reflecting on key problems or challenges. Successful organisations, need to extend from research to better apply the diverse information available, to provide a legacy or assist in promoting or serving the public good.

Ball (2012) further argues that having knowledge and not acting on such knowledge or being responsive, downgrades the value of knowledge as an instrument for social change and reform in educational arenas. It is also emphasised the importance of using knowledge to improve education and serve the public good as distinct from use of knowledge for unethical or self-interest purposes.³⁷ The question of what is deemed sufficient knowledge is also raised. This application of knowledge, is also evidenced in practices of companies including whole foods, Starbucks and Nike who use researching business practices and methodologies (Pfeffer & Sutton, 2000). Acknowledging the need to act on knowledge closes the knowing and doing gap.

research knowledge, personal knowledge and other forms of knowledge can become generative to apply knowledge to improve educational outcomes.

³⁶ AERA is a national educational body that has a mission to advance knowledge about education and effective promotion research to improve education and provide societal benefits. The commentator highlights the knowing doing gap that she perceives as existing within the educational research arena. This phenomenon the commentator asserts is supported through other researches and not confined to the United States but across the globe as a general phenomenon.

³⁷ Extending the critique of modern society with individuals striving for self-interest and a focus on outcomes, where ignorance and common sense may falter, another aspect of possible knowledge degradation concerns possession of information that is deemed as unethical or a moral hazard. Having knowledge does not mean that it is useful or ethical when used. An example of this kind of situation is that of the Australian cricket team and players identified for alleged breaches of international cricket codes and ball tampering. The application of this knowledge may be interpreted as degraded when used to cause harm or for self-interest. One commentator believes this example reflects a form of moral decline endemic within Australian modern society where 'winning at all costs' (Gatt, 2018) and material gain are instrumental to the game.

Bridging the knowing and practice gap is also demonstrated in the medical and legal professions. An examination with scholars reinforcing that knowledge becomes powerful when used to influence and impact practice and policy and serve a greater public good. Mobile (1992), observes that data obtained from community members involves an obligation to use that knowledge for the greater benefit of the community. Knowledge based on research therefore has a higher purpose and an important role to ensure that information is applied and not lost or under-utilised.

3.9.3 Diffuse, Evidence Based and Incomplete Knowledge

There is discussion of how evidence-based research does not always feature as a key driver for market reforms, such as noted in education, and the role of other significant influences such as advocacy networks (Lubienski, 2018) as well as the shift towards “privatised public policy-making” (Layton, 2014; Lubienski, 2016) diffuse nature of information and knowledge raising problems of ‘knowledge translation’ where research findings require processes of interpretation to convert data into useful information and then meaningful policy has been recognised for some years (Lavis, 2006; Curran, Grimshaw, Hayden & Campbell 2011).

Another concern about knowledge risks and erosion or degradation is the degree of infiltration of political influences in policy making (Daviter, 2015). This reinforces an opinion that policy formulation and knowledge has often been shaped by political influences and ideologies.

Furthermore, trends indicate contractors or Intermediary bodies (IOs) are being used as non-state actors for knowledge production to influence policy another by-product from neoliberalised education (Lubienski, 2018). The author observes possible risks that have knowledge erosion or degradation implications such as evidence being ignored by policy makers and gaps in knowledge quality if information does not fit within a cultural or paradigmatic schema³⁸ contributing to incompleteness of knowledge which surrounds

³⁸ Intermediary organisations (IOs), interpret and relay information to policymakers. The rise of these intermediary organisations includes a myriad of players, from formally structured to other organisational settings such as ‘think tanks’ (Lubienski, 2018, p. 160). This author, in examining the composition and dynamics around such IOs, asserts that policymakers ‘report little evidence of using research and display diverted conceptions of research evidence’ (Lubienski, 2018, p. 161). One factor reflecting a less consistent picture of evidence, is how ‘local’ and ‘meso-level’ networks have less capability or capacity to undertake more comprehensive research to generate evidence. Additionally, this problem of perceived gaps in quality evidence is attributed to a ‘non-partisan’ position by research entities. Where types of research and knowledge do not fit neatly within university-based research frameworks (Lubienski, 2018, p. 161), the

absence of evidence arguably a modern society created phenomenon adding to a form of eroded or degraded knowledge (Knaapen, 2013, p. 681). This author goes on to question how one determines what is evidence and points out that stakeholders might seek to ‘mobilise’ other forms of knowledge (Knaapen, 2013, p. 681).

In modern society two of the main challenges concern seeking full evidence, which may not be feasible in a complex or uncertain situation, and managing the absence of such evidence ‘incompleteness of knowledge’, need not be ‘negative knowledge’ (Knorr-Cetina, 1999, p. 164). Moreover, such knowledge gaps arguably can prove insightful and assist in ‘identifying errors’ and uncertainties. An example is a failed experiment that eventually delivers positive outcomes or success (Timmermans, 2011).

The concept of a ‘marketplace of ideas’ in modern society reflects another neoliberal influence in education, where (a) knowledge resides clearly in the marketplace and (b) where there are both ‘producers’ and ‘consumers’ of information (Lubienski, 2018, p. 162). With greater connectivity between knowledge creators and knowledge users, other participant groups can include knowledge brokers (Bergenholtz, 2011). The levels and filtering of information and differ with higher and lower order ends of providers in the market place along with how information is packaged and disseminated. Evidence research from prestigious sources increases knowledge quality.

In this supply/demand model context, with buyers or users, information and knowledge becomes commodified equating to a purchasable product. In this situation there exist organisations that have insufficient resources or capabilities to evaluate research quality, however, the end user places trust on the brand name of the knowledge source or broker. Clearly there is risk of unreliable or incorrect information being distributed (Williams, 2014, p. 164) that supports broader modernity perspectives around knowledge quality risks given voluminous data sources to process³⁹.

source authors concerned refer to IOs as reifying ‘echo chambers’ (Goldie et al., 2014).elaborated in the forthcoming section.

³⁹ Concerns about ‘data inflation’, relate to the phenomenon of conspiracy theories (Rudolph, Harris & Zhiwei, 2018). These authors acknowledge that the modern world increasing in complexity and knowledge is also paradoxically see an expansion of increasing ignorance where gaps exist between questions and answers (Rudolph et al., 2018, p. 4).

New knowledge in the educational context is also generating ‘new knowledge structures’ and forms through which knowledge is produced and disseminated. Means now exist for altering knowledge and the emergence of ‘invisible colleges’ (Crane, 1972 in Mølstad, Pettersson & Forsberg, 2017, p. 870), as social groupings has resulted (Mølstad et al., 2017, p. 1870). Conflicts and rivalries arguably can prevail amongst noted scholars about what constitutes ‘facts’ and ‘truths’ and how respective views on knowledge are justified (Schapin & Schaffer, 1985 in Mølstad et al., 2017, p. 870).

These observations support earlier discussions that epistemic culture can affect perspectives and mindsets. At an international level, in a neo liberalist context, organisations such as the OECD play an instrumental role in navigating such contrasting views, to facilitate more harmonisation around educational policies and practices (Mølstad et al., 2017, p. 870).

3.9.4 Knowledge Ventriloquism and Echo Chambers

Several authors have raised concerns about misuse of research and knowledge to legitimise adoption of certain policies and programs (Zeichner, Conklin & De Paul, 2017). These authors also note how a non-university pathway is becoming a preferred alternative to advance teaching.

They view skewed knowledge, where discourse can be manufactured to downplay the performance and effectiveness of traditional educational institutions, as destructive; subsequently leading to closures of traditional institutions (Chubb, 2012; Knowles, 2013 in Zeichner et al., 2017 and influencing how education is evolving (Goodson, 2001), These authors also promote an alternative or ‘non university pathway’ to advance teacher training and build knowledge (National Research Council, 2010 in Zeichner et al., 2017).

This departure from learning and knowledge through traditional bedrock teaching institutions is becoming more normal. These changed practices are also supported by funding from corporations as well as government sources augmented by external influences such as the media. This situation contributes towards reshaping public perceptions about the value of traditional versus non-traditional education and these authors express concerns about the impacts of neoliberalism and deregulation in education. Zeichner et al. (2017) also note the concept of ‘knowledge ventriloquism’ (Robertson, 2012) that applies to narrow sets of

information or research sourced by a clique of ‘like-minded supporters’ to justify almost as a fait accompli; then using such evidence as a basis for policy-making purposes.

Additionally, the ‘echo chambers’ (Goldie, 2014) principle means messages are continually amplified and reinforced with views ‘censored’ or ‘disallowed’. Not surprisingly, numerous networks apply forms of knowledge ventriloquism and echo chambers to build strong coalitions that shape and influence policy discourse and decisions that might lead to flawed policy outcomes (Zeichner et al., 2017, p. 6). As an example of this, these authors use the case where US Government departments might exclude key research findings, leading to a distorted picture where knowledge is not subject to independent or peer-review; they then evaluate the efficacy of recent research drawing upon dated, historic and at times unrelated reports (Zeichner et al., 2017).

3.9.5 Politics of Expertise, Ignorance, Unknowns and Degraded Knowledge

Knowledge generation is not immune from political processes or dynamics. But the degree to which knowledge is subject to politicisation can be complex and difficult to gauge because of varied stakeholders. Knowledge is impacted by different value systems, needs of particular professions, needs and interests, individuals or organisations. Here, the focus is on politicisation and knowledge where experts and expertise can become entwined with politics and how use of data can be unreliable or lack coherence. In concert with the above, McGoey (2012) refers to ‘strategic unknowns’ and limits to such knowledge production.

The concept of ‘strategic ignorance’ manifests in socio-political contexts, such as controversial debatable areas of migration policy, and ignorance practices vary. They can include: an omission of key information; failure to acknowledge gaps; and risks around compression of varied forms of information, for a single generic account that can lead to a ‘deflection of knowledge’ (Scheel & Ustek-Spilda, 2019, p. 1); and downplaying methods or metadata used, which leads to possible ‘sanitising of statistical information to cover up possible ‘messy areas’.

Scheel and Ustek-Spilda (2019) conducted an empirical ethnographic study on practices of researchers, which focused on exploring the relationship between expertise, knowledge and ignorance in a contemporary European context. How the nature of expert knowledge has been applied has a bearing on policies such as that of migration (Boswell, 2008), and the political

use of expert knowledge whilst igniting intellectual capital and ‘epistemic authority’ (Scheel & Ustek-Spilda, 2019, p. 5) where the value of such knowledge is deemed as a ‘reliable source of information’ (Geuss, 2001, p. 38).

Emphasis on more fact driven evidence for policymakers has further been amplified by deference to multiple streams of data and use of ‘biometric databases’, as well as other digital applications including surveillance satellites to ensure more detailed information to support statistical analysis. It is here that ‘technologies of truth production’ are taking front stage (Urla, 1993, p. 819).

Furthermore, to verify sensitive topics such as migration policy requires a stronger depth of quantifiable data to demonstrate objectivity and provide greater assurances to guide decision-makers. Such a dominant contemporary knowledge epistemology is construed as ‘metrological realism’ (Espelan & Stevens, 2008, p. 447). Furthermore, with this hard edged form of reality, a ‘God’s eye view of the world’ supported by surveillance (Pickel, 2004, p.106) projects a universalist assumption about knowledge.

The above authors differentiate ignorance in modern society from knowledge where ignorance is in actively generated forms of non-knowledge. This is where ignorance can be built and preserved as a resource for advancement of particular interests. Stakeholders can deny responsibility or legitimise results due to the use of experts or have conscious or strategic and deliberate intent about how information is conveyed.

Avoiding ‘troubling knowledge’ (McGoey, 2012) is also another reason to legitimise non-knowledge. In modern society, the notion of ‘data friction’ presents a challenge. Data friction occurs where data are distributed across various social groups including organisations and machines (Edwards et al., 2011, p. 669) and the data are viewed as uncontaminated or pre-interpretive information that can be used outside of the groups’ interests (Scheel & Ustek-Spilda, 2019, p. 11).

Statisticians in modern society can be susceptible to sanitising data and being influenced by socio-political forces. Additionally, methods can be potentially inappropriate if the data are outdated and time prevents the statisticians converting the data into meaningful information.

The sanitising effect is also a risk strategy around minimising findings being observed as inconclusive, that could subsequently compromise the legitimacy of institutions or bodies such as governments.

3.10 Social and Contemporary Organisational Context and Knowledge Risk Challenges

Contemporary organisations have emerged post modernity and post industrialisation although tainted with connection to modernity and western shaped practices (Ackoff, 1994)⁴⁰. The increasing importance placed upon knowledge is accentuated by the recognition of pressures placed upon organisations (including those in the public sector) that are operating under tighter fiscal and human resource constraints, whilst simultaneously striving to deliver and meet performance expectations (Salisbury, 2003; Schoop, Hesse & Breidung, 2016, p. 365) as well as retain and build key knowledge.

Contemporary organisations can be viewed as more contextualist⁴¹ social institutions where employees and organisation operate in dynamic rather than static ways (King et al., p. 513) and subject to social legitimacy⁴².

The drive for continued performance improvement therefore can create a conundrum and requires the capability to harness the somewhat elusive nature of knowledge inherent within individuals and organisational structures (Bollinger & Smith, 2001). Hargadon (2016, p. 42) states ‘What you don’t know you don’t know’ which, means that identifying and delineating

⁴⁰ Ackoff (1994) asserts: ‘...organisations have been susceptible to administering ‘mantras’ to ameliorate performance including ‘total quality management, continuous improvement, and rightsizing’. This author goes on to assert that there is a preoccupation ‘with core competence, process engineering, strategic alliances, and competitive strategies, value analysis and maximising shareholder value (Ackoff, 1994, p. 7).

⁴¹ Contemporary organisations reflect changing societal values; however, there are embedded cultural values that differentiate societies (Hofstede, 1980, 1991) and firms (Trompenaars & Hampden-Turner, 1997); social and cultural differences can also influence the value placed on knowledge. Organisations through globalisation are increasingly more dispersed as work places ‘geographically, temporally and culturally’ (Farrell, 2004, p.479).

⁴² Firms, as economic actors, need to also operate effectively in modern societies and although this varies from country to country, the focus in this study is a Western context. There can be variations with which employers take legitimacy goals seriously, depending on the country and its prevailing laws and the type of organisation.

types of necessary capabilities can be painstaking as a knowledge endeavour, yet contribute to the long-term survival of a business.

The ‘temporalities of work’ is another major social change (Felstead & Jewson, 1999, p. 21) can be seen with casualisation and externalisation of the workforce, through ‘teleworking’ (Felstead & Jewson, 1999, p. 43) and increased trends in contingent and non-standard work arrangements. Such as increased numbers of contingent workers and ‘freelancers’ and ‘flexibilization of work’ evidenced as a continuing trend (Bendkowski, 2019)⁴³. Here there is a risk of preventing knowledge building and the depth of knowledge, with risks of degradation of the quality of work performed. Additionally, cross-functional teams, self-managed teams and flow to work pools reflect more and less static work structures based on priorities and needs (McKinsey, 2017).

Arguably, a balance is needed between short termism and long-term sustainability. Hyman (1987, p. 43) in a critique of capitalism as a business system, notes that ‘employers require workers to be both dependable and disposable’. The argument is the need for a balance between operational stability and flexibility to ensure key people with key knowledge are emboldened to stay within an organisation. Being too flexible from an employment HR perspective, may threaten long-term organisational survival where loss of key people or key knowledge assets create a form of brain drain.

Within this broad societal context, organisations such as multi-business organisations are experiencing and responding to numerous challenges⁴⁴ each of which has an underlying connection with knowledge and possible knowledge erosion or degradation.

⁴³ Growth in numbers of independent professionals and freelancers is evidenced in Western Europe. In the United States 2014 survey results found over 34% of the labour force were independent contractors or freelancers (Bendowski, 2019).

⁴⁴ Viability is also viewed as a quintessential sustainability problem, where the firm faces challenges remaining viable in its chosen industry and competitive contested market space (Amikr-Aslani 2009) in a digital age (Pearson & Theofilou 2016) where it needs to adopt various goals, resources and capabilities to operate effectively within changing industry contexts (Boxall & Steenveld, 1999; Hamill & Prahalad, 1994; Boxall, 2003; Boxall & Purcell, 2015) and with continuous digital disruption (Manyika, et.al, (2013). Hyper competitive environments also mean there is minimal time for reflection or to enquire deeply into a particular subject. Subsequently, time has become a precious resource and, arguably, the next source of competitive advantage (Stalk, 1988). Consequently, organisations have had to rapidly respond to ‘time-based competition pressures’ (Stalk & Hout, 1990) by increasing speed to market and adopting ‘dynamic capabilities’ (Teece et al., 2004). In addition, if organisations are constructed as either mass service market types, a hybrid, or highly differentiated market operators, knowledge and how it is viewed may differ within each of these respective organisational forms.

Key challenges impacting contemporary organisations reflect influences of modernism, changing and are provided in Appendix 3.

More focus on organisations and knowledge related risks and challenges are detailed in Chapter 4.

3.10.1 Changing Nature of Work Systems and Practices

Additionally, contemporary organisations are noticing the effects of fragmentation of work into specific parts with ‘repeatable procedures’ (Pall, 2000, p. 101).

There is also debate about the changing nature of work with greater demands for higher levels of problem-solving and needs for knowledge production (Barley, 1996; Fleming et al., 2004 in Mitchell & Meachem, 2011); this means a shift from low skill, routine work to more complex analytical tasks with continued requirements for specialised forms of knowledge (Thompson & Warhurst, 2005).

The changing nature of work practices includes ‘stretch work’ (O’Mahony & Bechky, 2006) amidst changing external market conditions. These changes create challenges for knowledge sharing in such rapidly changing labour environments (Chalkiti, 2012) and work arrangements such as telework (Hunton & Norman, 2010). Changing work practices also necessitate the need to better allocate ‘high end experts’ and their time to maximise leveraging their specialised or expert knowledge (Dewhurst, Hancock & Ellsworth, 2013), whilst also acknowledging the possible erosion or degradation of expert knowledge, previously discussed in Chapter 3.

The nature of work being more dispersed (Lichtenthaler, 2009; Rittle-Johnson, Star & Durkin, 2009) has implications, given complex and knowledge intensive work roles with likely risks of knowledge erosion and degradation and the need for deeper knowledge. An increasing trend of working internationally (McKenna & Richardson, 2007), is another factor that may affect risk of knowledge loss or diminish the opportunity to build and retain sustainable intellectual capital. More specifically, the new era of digitalisation (introduced earlier) highlights the major shifts in learning at work as organisation embrace a virtual world (Kijkuit & van den Ende, 2007; Welbourne, 2009).

Work system variations means knowledge managed practices can vary. In constrained or standardised work environments such as call centres, fast food outlets, rationalised labour-intensive sectors such as healthcare, may operate differently from semiautonomous clerical or administrative public sector workplaces which, in turn, differ from the nature of highly skilled autonomous specialist jobs such as engineers (Hertzenberg et al., 1998; Boxall & Purcell, 2015). Additionally, the nature of ‘boundaryless’ work where work infiltrates home life with flexible working enabled by smart devices. These authors suggest there is risk of being enslaved rather than ‘empowered’ (Field & Chan, 2018) from devices and modes of working. This has implications for knowledge quality when there are increased work and family demands coupled with working from home family domain. These different work systems or work design reflect varying organisational attitudes towards knowledge and have knowledge erosion and degradation implications.

3.10.2 Data Ambiguity

In the health science arena, use of ‘fine grained data’ is supporting advancement towards delivering better health outcomes (Chorev, 2019) with increasing demands to manage complex health conditions, requiring more customised treatments augmented by meaningful data to support treatment decision making. This shift towards a more tailored and patient-centric focus and ‘non standardised practices’, raises challenges if information and knowledge deviates from set parameters or routines (Chorev, 2019).

Decision support systems (DSS) are designed to help navigate dearth of data, yet infrastructural barriers and viewing systems design from a tool or techno focus, may limit how such systems can support knowledge. Creating possible tensions between the socio-material elements and data and artefacts. The difficulty of making decisions with ambiguous data and skewing to reliance on more tools and less on people has been recognised (Chorev, 2019).

The potential problems of adopting technology and its output were introduced in section 3.8.2.4. An interesting example of data bifurcation can be seen with clinical trial work, where separate experts manage information portals that provide categories of data and information to enhance knowledge and assist medical specialists with decisions. The constraints of computerised artefacts are noted in the following extract where the knowledge and expertise and wisdom of medical professionals is apparently subordinate to the system design.

We don't even know what we're debating. [The algorithms] just have us an answer, and that's it. Now it increased uncertainty because we're people, and we're saying, well, how did it come up with that? ... So I think, in order to quiet the debate, it would be better if the scoring tool was like this, it says, this is your drug, and this is why this is your drug. So we would understand. So it would make us happier. (Interview, Paris, 29 June 2015).

The feedback from clinical participants suggests a need for more extensive information. From a medical risk perspective, knowledge degradation is implicated when a physician is bound to follow rules, or a treatment, as suggested via an algorithm and lack of clarity exists around options due to the apparent rigid framework (Chorev, 2019, p. 7).

Additional organisational challenges are noted in Appendix 3. Such challenges facing contemporary organisations have implications for the focus of and perceived value of knowledge and knowledge erosion and degradation risks which some attribute to post-industrial and neoliberal driven forces shaping the knowledge agenda as elaborated in the following section.

3.12 Socially Decentralised Knowledge

Social trends are perpetuating the spread of knowledge outside conventional social institutions⁴⁵. Resulting in other forms of knowledge creation, such as within local contexts, where projects are becoming more decentralised with funding dispersed to numerous stakeholder interest group needs.

Discussion prevails regarding the web as a form of knowledge infrastructure with an 'epistemic import' (Halpin & Monnin, 2016). These authors also argue how industries in a maturing stage are more likely to become oligopolies, where the internet has been dominated by fiefdoms with the web embracing contrasting perspectives of knowledge and knowledge diffusion. Decentralised systems imply 'no single trusted authority' (Halpin, 2016, p. 2).

⁴⁵ Modern society has also created marketisation of social relations with crowdsourcing for new funding and participatory innovative models (Estelles-Arolas & Gonzalez-Ladron-De-Guevara 2012)... Additionally, competitiveness is firmly grounded within social, cultural processes and traditions (Fitzgerald, 2017). Arguably the degree of competitiveness can orchestrate and direct knowledge and what constitutes valuable knowledge, as contemporary organisations strive for excellence in pursuit of strategic advantage.

3.12.1 Local and Public Preference Knowledge, Diversified Knowledge, Multiple Sources and Platforms

Social changes are encouraging multiple methods for knowledge generation including referring to localised experiences. The process of knowledge gathering, however, is also susceptible to being less rational and systematic given the multiple sources and avenues by which information can be accessed and developed.

Multiple sources or locations by which to extract and generate knowledge are now available, with less formal sets of actors including the digital media, and use of websites or other technology platforms that elicit a myriad of knowledge participants⁴⁶ including knowledge networks to support sustainable and regional development (Shahraki, 2019). Traditional institutions, such as universities, are increasingly being challenged to deliver more value around knowledge production, subject to scrutiny, with changing government funding arrangements.

3.12.2 Policy Knowledge

Specialist knowledge areas augmented by the emergence of advocacy groups, is bringing shared knowledge to the public discourse to promote social action. Cross participation between industry, organisations and collaborative partnerships enables knowledge building where commonality of interest drives knowledge initiatives. Professional and individual postures and positions are also framed driving knowledge to application of policies by key stakeholders (Lester, 1993).

With social change, new actors are on the horizon where knowledge is being disbursed and diversified through the spread of organisations including not-for-profit and profit-making organisations. This diversification of knowledge has implications for what knowledge means and who owns and produces it. Questions also surround, the perceived legitimacy of knowledge across various groups of stakeholders or constituents who can be knowledge

⁴⁶ This non-systematic approach creates degrees of fluidity and informal less orderly or structured social actors as knowledge generators. Knowledge generation now is also being influenced more by political forces that may dilute or distort data relating to policy. In contemporary societies, more diversified knowledge can present challenges due to problems associated with complexity and uncertainty and additional biases.

producers, or transmitters and end-users, or consumers of knowledge. Certain institutionalised practices shape how knowledge is developed and, in the academic and peer review space, certain methodologies concerned with validity and reliability are part of the process of garnering knowledge.

Knowledge can be influenced by cognitive and social norms as well as cultural and social contexts. Emphasis on formal and explicit protocol driven science has shaped and influenced paradigms around knowledge. Traditionally and historically knowledge has been developed and generated through universities or scientific forums and laboratories. Other areas of collected knowledge are in government and industry. However, there are broader types of knowledge now being created that are transdisciplinary and cross-border, consistent with how the world is changing. Practitioners undertake local and public preference knowledge creation, sometimes to address specific local problems.

3.12.3 Social Ignorance

In this chapter changing approaches to knowledge are explored using a social, political and cultural set of lenses. The views of societal attitudes to knowledge are diverse and there is a body of thought that pronounces knowledge is shaped by changing forces such as globalisation reflective of neoliberalist driven influences. The arguments further expound how political and other forces are changing the knowledge landscape and the idea of ignorance aligned to knowledge production may have implications for this study.

Numerous authors are interested in how knowledge is shaped and the social contexts in which knowledge is produced. Such knowledge is influenced by ‘epistemic forms’ that guide all practice. Such practice is also connected with institutional or external forces that arguably have created conditions for ignorance in relation to knowledge.

This type of situation is demonstrated by the agricultural methods applied to the killing of bees in the United States based on decisions to use synthetic insecticides to fast track elimination of a large population. This decision subsequently impacted on adult honeybees in an unexpected consequence arising from synthetic chemical usage. The knowledge provided by beekeepers had been largely ignored and the incident showed that social actors with vested interests could shape a knowledge agenda and acceptance of approaches that could be viewed as a ‘systematic production of ignorance’ (Kleinman & Suryanaryanan, 2012, p. 492). The

application of varying knowledge paradigms prevails in a myriad of research institutions that have a low risk appetite and seek to circumvent challenging experts who, in this case, could have avoided the problem of ‘undone science’ (Heis, 2007 in Kleinman & Suryanaryanan, 2012, p. 495).

Where people seek and find information can affect how a phenomenon is analysed (Haraway, 1991 in Kleinman & Suryanaryanan, 2012). Ignorance is associated with ‘non knowledge’ (Harding, 2000; Gross, 2010, 2019) that arguably is embedded in the politics of knowledge and other concerns about science (Hess, 2007; Fickel et al., 2010). Knowledge in this societal context is regulatory and influenced by social movements or by scientific bodies; this is where particular frameworks or models and heuristics can limit understanding or produce particular forms of evidence (Frickel & Vincent, 2007).

The research methods that resulted in the bee mortality were founded on a biased epistemic form of degraded knowledge that, in turn, led to false conclusions (Smithson, 1985). The knowledge degradation threat can be seen in the empirical findings where knowledge provided by beekeepers, who held an accumulated depth of experience, about the phenomena and possible causes relating to bee colony eradication was ignored and vastly different to postulations of the researchers. Commercial beekeeper knowledge was denoted as ‘real time’ and ‘in situ’ or context specific and sensitive (Kleinman & Suryanaryanan, 2012, p. 500). This knowledge context differed widely from controlled laboratory settings.

Knowledge deemed important to beekeepers contrasts with that managed by experts, such as toxicologists, who are more quantitative and adopt a narrow focus centred on statistical analysis and clear deduction. These experts applied pre-set methods, not necessarily reflective of the real world or field environment and context. This perspective has possible knowledge degradation implications, when other knowledge inputs and methods including knowledge held by other parties is ignored, devalued or sidelined. Misconceptions also exist as to the health of bee colonies and knowledge gaps remain, due to potentially degraded forms of research that discard for example ‘environmental complexity’ factors. But dominant institutions are skewed to adherence to ‘conclusive evidence’ or ‘definitive knowledge’ to determine policy and decisions (Kleinman & Suryanaryanan, 2012, p. 505).

The question of the need to push scientific enquiry boundaries is a challenge. When considering new or innovative forms of knowledge, systemic barriers can exist to inhibit acceptance of new forms of knowledge. Traditional rational methods including regulators, like the EPA, legitimise research constraints and there can be limits to the enthusiasm for more substantive research. The social acceptance of low risk pesticides is also an embedded form of knowledge degradation or ignorance. Knowledge ignorance by key companies can result not through fabricated or misused data, but supported by information disseminated from research institutions who issue inconclusive findings of causality that legitimise current practices.

Unknowable science is argued as established epistemic bias and paradigms failing to take into consideration extraneous factors that can lead to false knowledge being introduced or 'factual ignorance' (McGoey, 2007). Factual ignorance can be offset by more inclusiveness from a broader knowledge base. For example, through recognising imports from local and community knowledge.

3.12.4 Scientific Knowledge and Ignorance

The limits of knowing and ignorance are founded on historical examples (Gross, 2007). The question surrounds certainty and risk when considering expert and scientific knowledge. It is clear that public pressure for access to knowledge is identifying knowledge gaps and that can restore confidence. Using the example of surface coal mining in East Germany, it is emphasised that public discourse and debate on knowledge limits has been curtailed or avoided and knowledge production is at a 'standstill' (Gross, 2007, p. 268). This type of risk adverse environment eliminates focus on opportunities. Instead of acknowledging and recognising knowledge gaps, certainty needs to be provided rather than uncertainty or non-knowledge. There is a need for science to deliver reliable knowledge and prevent experts or scientists overestimating their own methodological competence (Gross, 2007, p. 269).

3.12.5 Knowledge Use

Knowledge is closely aligned with sociocultural environments, and information takes many forms depending on the needs of the groups, entities or organisations and how the knowledge will be used. There are an increasing variety of actors generating knowledge. An example of these conditions is that of environmental knowledge and the challenges of analysing diverse knowledge in this field, which is relevant to recent social and global issues. Some data in this

field, are reported to be uncoordinated or less systematic; however, the information is important to assist with policy-making.

3.12.5.1 Marginalised and partisan knowledge

Marginalised and partisan knowledge is another aspect of post modernism and social change. An example here is that of climate change and global warming where knowledge can become marginalised and partisan positions taken. On one end of the spectrum are sceptics who question climate change and global warming propositions, in contrast with proponents, who accept the reality that global warming is a real phenomenon. Each partisan group will gather, select, present and treat knowledge to legitimise its respective arguments and position, perhaps from a confirmatory bias⁴⁷ perspective.

3.12.5.2 Common knowledge and devolution of knowledge responsibilities

Social change within the neo liberalist context has also seen the emergence of changing ‘governing practices’ and how laws and regulations are shifting policies where knowledge is being subcontracted to 3rd parties. From a governmental and policy regulatory context, subcontracting of knowledge is associated with common knowledge⁴⁸ and places responsibility for having knowledge with the general public which raises knowledge degradation risk.

3.12.5.3 Common knowledge, rules based knowledge and ‘knowledge of’ critique

This raises a contemporary issue, namely that unless we can presume the individual associated with the knowledge, knows exactly what to do with rules-based knowledge and has the conceptual, cognitive and other abilities required to enact the rules, such knowledge may seem superfluous. The criticism in a general sense here, is prescribing a type of explicit or codified knowledge and generalisability across all hospitality service personnel and their capability to elicit and apply common understanding and meaning with all situational variables. This example heralds prospective knowledge degradation through ‘*knowledge of*’-a

⁴⁷ Confirmatory bias has been link to fake news. Fake news is increasing phenomenon presenting challenged in organisation (Weidner, Beuk & Bal, 2019) .Confirmatory bias is also refers to conscious or unconscious behaviours and practices that seek out data or information to match or fit within a view thus drawing conclusions that validates the position (Andrews , Logan & Sinkey, 2015).

⁴⁸ In Chapter 2 common knowledge as a knowledge construct was introduced and discussed. An example of this situation relates to hospitality employees being required to detect patron intoxication and drunkenness levels (Valverde, 2003).

governance or conformist approach to knowledge which prevails in all forms of modern social institutions and organisations.

Knowledge risks are associated with this policy shift. Non-expert knowledge transferred into the administrative and common knowledge domain represents an epistemological shift in boundaries where knowledge governance has been redefined. Distinctions between occupational knowledge and skill levels are non-specific; having additional knowledge apart from one's job role, may not be sufficient for employees to make appropriate judgements or determinations when held accountable for responsible service of alcohol. This aspect of social change concerns the 'legal duty to know' principle (Valverde, 2003, p. 169).

3.12.6 Responsibility for Knowledge and Risks

In the past, legal and procedural knowledge was held by specialists such as police, medical professionals and the like. For employees and with increased risk management transferred to organisations, this perspective of added knowledge requirements core to an employee's job role, makes knowledge appear more as a "burden", rather than being a resource (Valverde, 2003, p. 169) when additional knowledge duties are reassigned to the general public. This positions knowledge more as an obligation, rather than perceived value by recipients. Viewing this common knowledge as an encumbrance can result in erasing or downgrading of potential nuances and degrees of 'variability' that might arise in a given situation (Washington, 2012).

The risks associated with this social change and policy shift, with devolution of knowledge responsibilities, become apparent where simplistic tools and checklists are used to guide difficult decisions or judgements. This aspect of social change and knowledge fits within the sociology of knowledge literature and socio-legal perspectives of "responsibilization" and knowledge reflective of 'neo-liberal governance' (O'Malley, 1996 in Valverde, 2003, p. 191).

There are risk and degradation implications here with assumed knowledge deferred to employees, often casuals, employed as bartenders who are expected to diagnose people under the influence. This to some medical and other professionals requires specialised knowledge which untrained or inexperienced persons might not possess. Knowledge devolved to employees and the public is also held or imputed to government and officials at higher

competency levels, which indicates an additional risk of possible social inequity. These concern mirror those noted in Chapter 2 regarding rules based knowledge risks.

3.12.7 Decline of Expert Knowledge - a Form of Degradation

One commentator suggests the erosion of knowledge is due to a waning personal confidence, or lack of forbearance to participate in informed debate. This author further contends that the diminution of deference to expert opinion, in lieu of perceived *self-evident truths*, is where individuals can source information akin to a pseudo form of knowledge, which is another example of a form of erosion and degradation (Nichols, 2017). Nichols concludes that the decline of societal knowledge is, in part, a manifestation of increased recalcitrance towards learning and an admonishment of ‘established knowledge’ (Nichols, 2017, p. 3). This reaction towards established or rational expert knowledge, the author asserts, due to misinformation and ignorance produced in an information era plagued by increased dependence on the internet as the dominant information source. Educational professionals no longer ‘have a stranglehold on knowledge’ (Nichols, 2017, p. 6).

Coupled with this decline in reliance or deference to credible and educated professionals, is the susceptibility to confirmatory bias where individuals and groups seek information to confirm what they believe or want to know - which can contradict the evidence provided by expert opinion. There are a number of examples of misinformation and confirmatory bias creating misconceptions about causal links and outcomes subsequently raising counter knowledge claims against accepted medical scientific evidence. Examples of misinformation and questioning of scientific knowledge include the growing social dissent around risks of vaccinations and links to autism where no clear evidence exists as the relationship (Nichols, 2017). Individuals with self-efficacy may have diminished knowledge where ‘the internet as a knowledge repository becomes a potential source of ‘misinformation’ (Nichols, 2017, p. 9; Mercier & Sperber, 2017 p. 192). Another area of possible erosion and degradation in modern society is due to cognitive gaps or decline linked to a relationship between culture and cognition (Di Maggio, 1997).

For some commentators, knowledge degradation is implicit when traditional scientific knowledge and expert knowledge is questioned. The counter argument here is that inclusion of knowledge inputs from non-experts, such as local and indigenous sources, provides a more

holistic perspective confirming the idea that knowledge exclusion may also downgrade available information.

In a similar vein, some authors deride information technology repositories, such as Google, and depict such platforms as a source of knowledge decline or degradation with facts rather than knowledge becoming available, obviating discerning opinions (Naughton, 2010). This inability to separate quality and meaningful knowledge from “information waste” (Nichols, 2017, p. 108) results from individual appetites to quickly access information and an illogical acceptance of policies based on ‘hyper-partisan attachments’ (Nichols, 2017, p. 230). An example of such an attachment is where the general public may have minimal knowledge about a particular issue or topic, but will vote in favour of a potentially weak policy due to the likability of personalities representing the issue through such platforms.

3.12.8 Citizen Science

The emergence of ‘citizen science’ (Ellis & Waterton, 2004) is where communities undertake data gathering arguably with less verification than pure science (Lukyanenko, Wiggins & Rosser, 2019).); although other authors see benefits and how such citizen led knowledge can support scientific studies (Bonney, Cooper & Dixon, 2009; McKinley et al., 2017) while acknowledging the importance of sourcing both local and expert knowledge (Davis & Wagenr 2003; Mengerson 2012). This change in knowledge and research practices presents both challenges and opportunities, with devolution of responsibilities to citizens (Dickinson, Zuckerberg & Bonter 2010) in undertaking activities in lieu of scientists, about how to gather and communicate knowledge related to biodiversity and ecological conditions (Cooper, Dickinson, Phillips & Bonney, 2007).

A key concern associated with this shift to citizen science and devolution of knowledge relates to financial arrangements and payment to participants such as students or the general community, for access to research and information as well as the implications of the potential degradation of such knowledge and information (Bonney, Phillips, Enck, Shirk & Trautmann, 2015). Accompanying the growth of citizen science (Silvertown, 2009), has been the realisation of economic benefits through cost savings, to address research resource scarcity by procuring or sourcing more cost effective alternative knowledge and information gathering practices.

3.12.9 Learning and Attention Deficit

The tendency to skim read information has also enveloped higher education and it is suggested that this has led to impacts on learning such as the proliferation of new entities and providers and rebranding of value higher education. Other causes of concern include the lower attention spans of readers and that ‘experts are often reduced to sound bites’ (Nichols, 2017, p. 10).

3.12.10 Complexity, Incomplete and Non-Comprehensive Knowledge

There is a great complexity of knowledge and its fragmentation has been attributed to a myriad of social and institutional changes where it almost becomes untenable to arrive at a discernible set of environmental policies, when it is such a difficult and complex exercise to gather complex relevant data for decision-making (Bennet & Bennet, 2008). Complexity concerns the interconnectedness challenges in seeking to obtain ‘comprehensiveness’ in knowledge. An example of the amount of scientific information needed to make sense of an environmental problem is the case of global warming. This challenge extends to having inordinate amounts of data and disparities with increased social institutional systems, as well as complex structures which make it difficult to coordinate both knowledge and sources.

3.12.10.1 Fragmentation: a form of erosion

The following commentary typifies how knowledge related to environment could be perceived to be very fragmented:

Consider for instance, the fragmentation in knowledge generation related to “green building” and development practices. Engineers, hydrologists, architects, planners, building material and equipment suppliers, horticulturalists, builders, wildlife biologists, homebuyers, and others create or analyse knowledge relevant to green building practices. Architects, engineers, energy agencies, and equipment manufacturers generate knowledge of their energy use. Wildlife agencies generate knowledge about how building practices can minimise impact on terrestrial habitats stop forestry agencies generate knowledge on how to preserve tree canopies and green infrastructure. At the same time, water quality agencies create information about how to prevent stormwater run-off, minimise sedimentation in waterways, and established buffers to lessen the erosion. The experts span the public, private, not-for-profit, and research sectors (Ascher et al., 2010, p. 37).

This demonstrates how knowledge in modern society is diffuse and subject to fragmentation through many separate and specialised interest participants, who might be outside established ecosystems but are necessary to gain an overall shared and mutual understanding. This

knowledge diffusion can be magnified by program funding programs, where participants cease working on projects in resource constrained environments and where knowledge or information resources are not fully deployed (Meir, 2009) This also echoes a sentiment that knowledge is framed under conditions of uncertainty (Fantl & Mc Grath, 2010).

3.12.10.2 Dislocation-a form of knowledge erosion and degradation

Knowledge generators, with important and competing bodies of knowledge, can also add to knowledge dislocation. Incoherent or inconsistent information can result from these competing and contrasting sources of knowledge generation, where local and scientific knowledge controversies can arise. This can polarise stakeholders in making sense of a problem or issue where local knowledge diverges from experts and scientific research. An example of this type of situation occurred with sheep farmers in Umbria and concerns raised about impacts of the Chernobyl meltdown on pastures⁴⁹ (Ascher et al., 2010, p. 55).

3.12.10.3 Experts and fallibility of knowledge

The claims of different kinds of ‘not knowing’ are an extension of discussion about the fallibility of the human mind and susceptibility to ignorance (discussed in Chapter 2). The counterpoint about the role of experts and fallibility is that experts can make mistakes⁵⁰, and laypeople may be intolerant of experts making errors (Nichols, 2017, p.23).

An example, supporting this sentiment concerning expert knowledge being infallible, and significant errors of judgement relates whether predicting major catastrophes or impacts on financial markets as a few examples.⁵¹ (Sloman & Fernbach, 2017).

⁴⁹ Contrasting knowledge and information captured by farmers in Calabria, the United Kingdom compares with information from scientists and their studies, highlighted that scientists assumptions regarding the timeframe for sheep to recover from the Chernobyl fallout, were based on incorrect data such as the wrong soil type and that the level of radioactivity had not diminished. Sheep farmers using historical and local knowledge of a similar type of phenomena demonstrated wisdom that had been neglected by the scientists and government (Ascher et al., 2010).

⁵⁰ Development of thalidomide as a drug used for pregnant women that caused deformed babies is one example.

⁵¹ Misjudgements and perceived knowledge gaps include lack of foresight to predict the risk of major catastrophes and impacts on markets such as the Japanese stock market decline arising from a major earthquake (Ranghieri & Ishiwatari (2014) and tsunami events (Sloman and Fernbach, 2017) the Brexit referendum result⁵¹ are three contrasting examples

These authors conclude that no one can fully master everything in terms of having full knowledge and information; they also suggest that people are most likely unaware of their ignorance or lack of knowledge. The contemporary approach to knowledge and information is that of extraction of what is needed and filtering out the rest; although it is further suggested that humans do not have the equipment or capabilities to capture all that is known (Sloman & Fernbach, 2017, p. 13). Another view concerning the role of experts is proposed by Lovegrove (2016) who expresses the need for knowledge contributions from ‘polymaths’ and less narrow or specialised expert knowledge⁵².

3.12.12 Concepts of Self and Knowledge in Modern Society

Self-perception may also be a factor, in that appearing to be well informed on matters may mask limited intelligence or incompetence⁵³. A less informed individual might dominate the discussion, yet have incorrect facts and information on the subject. This scenario is conceptualised as the ‘Dunning-Kruger-Effect’ (in Nichols, 2017, p. 43). Individuals can reach erroneous conclusions and lack competencies to recognise such knowledge or information flaws. However, some individuals lacking competence with higher self-efficacy levels will be particularly blind-sighted. The implications of this phenomenon transferred to organisations can clearly have significant consequences.

3.12.13 Cultural ‘Illiteracy’ Threats, ‘Pastiche’ Knowledgeability and Relevant Knowledge

Other types of bias can include stereotyping or equality bias, where certain social groups’ views can be more acceptable than others. This is the case with drawing upon the knowledge of positional authority over a subordinate’s knowledge, or disregarding knowledge and ideas due to characteristics such as gender. This can lead to suppression of knowledge and becoming ‘lost in conversation’ (Nichols, 2017, p. 66) subsumed by a dearth of information that might lead to people having false perceptions about knowledge they come to possess

⁵² Polymaths (Lovegrove, 2016) are people who have diverse skills and knowledge sets and a plethora of experience, in stark contrast to the expert specialist who has narrowly defined skills limiting his or her ability to see the broader picture. This argument supports the premise that society and contemporary organisations need to recognise an imputed knowledge risk when people have narrow and tightly scripted roles ill equipped to address complex issues in rapidly changing environments.

⁵³ These authors noted a test of how much people actually know about a subject namely zippers. A test was undertaken where respondents rated themselves, with the results highlighting respondents knew less than they originally thought and needed (Sloman & Fernbach, 2017). The example illustrates how knowledge degradation may be less easily identified due to psychological and other factors.

construed as ‘a form of fake cultural literacy’ (Greenfeld in Nichols, 2017, p. 66) flags a possible form of knowledge degradation through what he conceives as prestige knowledge ability. He states:

What we all feel is the constant pressure to know enough, at all times, lest we be revealed as culturally illiterate. So that we can survive in elevator pitch, a business meeting, a visit to the office internet, a cocktail party, so that we can post, tweet, chat, comment, text as if we have seen, read, watched and listened. What matters to us, awash in petabytes of data, is not necessarily having actually consumed this content first-hand but simply knowing that it exists and having a position on it, being able to engage in the chat about it. We come perilously close to performing pastiche knowledgeable that is really a new model of know-nothingness. (Greenfeld in Nichols, 2017, p. 66)

Finally, it should be noted that contemporary westernised legislative frameworks can place restraints on the quality of knowledge incorporated, where ‘relevant information’ is excluded. This form of knowledge erosion and degradation may be a sign of a reductionist perspective, by adopting a rational scientific approach to solving complex problems.

3.13 Knowledge Erosion and Degradation - Socially Reconstructed

Having considered various social theorist’s views about how society can shape knowledge highlights that knowledge is arguably socially constructed and shaped as denoted in the above discussions. Knowledge erosion can reflect evolutionary forces that throughout time may re-evaluate or connote what represents key or valuable knowledge. Knowledge degradation is interpreted from various angles whether coupled with the rational forces of neoliberalism and neo capitalism that might stymie forms of knowledge or as an overlay technology may act as an enabler for greater real time information but at the cost of quality knowledge as society sees the devolution and plethora of information sources many of which question science. Discussion from this chapter highlights how knowledge erosion and degradation has many layers and with implications that degrees of knowledge erosion and degradation risks are likely to manifest and, how social change and the fourth industrial revolution is reshaping people’s lives. Knowledge erosion and degradation constructs are further explored and operationalised in Chapter 4.

3.14 Summary

This chapter introduced changing social context including a sketch of social theories and perspectives on modern society. It also noted how society has changed in its approach to

knowledge and how knowledge is controlled or distributed. The influence of technological advancements is outlined and the mixed views about the betterment of society and quality of knowledge resulting from new systems or platforms are discussed. Finally, this chapter identified key challenges organisations face in the light of broader societal and macro influences.

This broad review of the context of social change is a necessary prelude to a more focused discussion on organisations and their perspectives on knowledge and knowledge erosion or degradation within the work environment. The organisational context is explored in Chapter 4.

Chapter 4 - Knowledge Management and Knowledge Erosion and Degradation Risk implications– A Review

4.1. Introduction

Previous chapters have considered aspects of knowledge from historical, philosophical and societal or general levels. The purpose of this chapter is to focus on exploring contemporary perspectives on organisational knowledge and knowledge management. This literature review follows a sequence from contrasting perspectives surrounding organisational approaches towards organisational knowledge and its management. Throughout this chapter, the pervasive theme of knowledge erosion and degradation is considered and implications drawn from literature findings. First, some brief discussion about definitions of knowledge and knowledge constructs.

4.2 Constructs and Forms of Knowledge

As explained in Chapters 2 and 3, knowledge is a rather nuanced and evolving term. However, it is important to specify key knowledge terms applicable to organisations in order to further frame and conceptualise knowledge erosion and degradation in that context (see Appendix Table A4.1 and the following section). Knowledge erosion - represents a lesser form of knowledge loss that can represent a graduated abruption. Knowledge degradation can be due to conscious, deliberate or intentional acts of degrading or downgrading forms of organisational knowledge or unintentional due to extraneous factors. Knowledge erosion and degradation as coupled constructs can induce the whittling away and devaluing of knowledge.

4.2.1 Classification and Organisational Knowledge

Chapter 2 introduced knowledge constructs relevant to organisations such as those developed by Ryle (1971), depicted as forms of knowing. Three forms, or ways, of knowing are: (1) Knowing why, (2) Knowing how and (3) Knowing whom as a basis for organisational knowledge. These forms as knowledge classifications, have been extended in the context of organisational knowledge. See Appendix 4 for more details.

Another perspective of organisational knowledge sees organisations as institutions through which to classify and disseminate streams of knowledge (Von Krogh, Roos, & Slocum,

1994). Organisational knowledge also combines individual and systems knowledge, each intricately connected and not simply decoupled. This interconnectedness and pervasiveness of knowledge is deeply inured with action (Lewis, 1946) with links between knowledge and action with knowledge proclaimed as an intent or capability to act.

An adapted version classifies knowledge in four ways: (1) Contextual knowledge denoted as “knowing when, knowing why”⁵⁴ (2) Declarative knowledge (3) Procedural knowledge denoted as knowing what and how and (4) Social knowledge is denoted as knowing about how to work with and relate other organisational members (Liebowitz, 2008). Additionally, organisational knowledge includes: relational knowledge, ethical knowledge and systems knowledge representing forms of “knowing about”. Furthermore, organisations arguably are positioned at various stages of attainment of these levels with care why featuring at a higher end of knowledge.

4.2.2 Reliable and Responsible Knowers and Low versus High Grade Knowledge

Zagzebski (1996) delineates between low-grade and high-grade knowledge. This author attributes low-grade knowledge to those persons who do not make provision for reflection and thinking in relation to beliefs. Higher grade knowledge includes levels of wisdom and understanding. For a knower to have acquired or retained high-grade knowledge including understanding, one needs to demonstrate solid reflection.

4.2.3 Consensus Knowledge, Common Ground Knowledge and Common Knowledge

The varying levels of knowledge fall within three levels: the first being *consensus knowledge*⁵⁵ the lowest level (or veneer level) of knowledge sharing, requiring minimal interaction. The second level is *common ground knowledge* represented as a medium level of

⁵⁴ Extending this discussion, Quinn, Anderson and Finkelstein (1996) suggest organisational knowledge levels ranging from “know what” through to know how, know why, and care why.

⁵⁵ Consensus knowledge contains tasks, rules and conditions likely for agreement including storage information and accessing of ideas and clear definitions to require less need for elaborate levels of knowledge sharing and management. The highest level, common knowledge goes beyond merely sharing information and involves high levels of content processing. Distinguishing different levels of knowledge from a collaboration point also concerns the extent of regulation and issues surrounding over regulation of groups when processing or sharing knowledge (Van der Meijden, 2005).

knowledge and knowledge sharing; the third level *common knowledge* is also considered to be the highest level.

4.2.4 Indigenous and Exogenous Knowledge

Knowledge more recently has incorporated ‘indigenous’ and ‘exogenous’ knowledge (Lwoga, 2011). For example, knowledge management approaches are evolving in developing countries to include ways of integrating both indigenous and exogenous knowledge in sectors such as agriculture (Lwoga, 2011).

Knowledge viewed as embedded resides not merely in individuals, but with indigenous knowledge and ‘traditional knowledge’, it is located within local communities and local knowledge as discussed in Chapter 3 under local knowledge. Exogenous knowledge represents more ‘non-traditional’ knowledge (Lwoga, 2011, p. 408) imported from outside the local environment. ICT and knowledge management provide mediums by which to integrate these two forms of knowledge⁵⁶.

4.2.5 Types of Organisational Knowledge

Within the knowledge management field, there is debate about what organisational knowledge constitutes (Tsoukas & Vladimirou, 2001). Whilst it is recognised that knowledge in organisations is an established research area (Prusak, 1997), there is considerable discussion of theories and perspectives on how organisational knowledge evolved (Nonaka, Von Krogh & Voelpel, 2006; Aboelmaged, 2012). One view of organisational knowledge classifies it into three distinct areas (1) core knowledge, (2) advanced knowledge and (3) innovative knowledge (Tiwana 2002).

A distinction is also made between organisational knowledge as a more tangible form of knowledge, contrasted with organisational knowing that is less tangible (Cook & Brown,

⁵⁶ These knowledge forms have implications for both suppliers sourcing local produce from farming communities and larger entities, such as MNCs, conducting work in host countries and interfacing with local communities. There are knowledge erosion and degradation risks concerned with effectively accessing or harnessing such local knowledge and also in providing appropriate infrastructure for new knowledge in order to avoid loss of key traditional knowledge.

1999). Another view of organisational knowledge deems it should be managed as a process (Hara & Schwen, 2006). Key terms associated with organisational knowledge are defined and discussed in Appendix 4.

4.2.6 Intellectual Capital and Cultural Knowledge

Organisational knowledge and intellectual capital feature as themes within the literature and the use of the terms at times overlaps. Intellectual capital management (ICM) examines the worth of the firm beyond book market value and the intrinsic value held within intangible assets (Roos & Roos, 1997; Sveiby, 1997). Knowledge can be an organisational asset that represents a stock of capital of calculable value (Blacker, 2002) and include structural and social elements. See Appendix 4 notes for more details. Other authors examine antecedents and impacts as evidenced in financial sector studies (Serenko & Bontis, 2009).

Cultural knowledge concerns shared beliefs that an organisation has about its purpose, capabilities and business focus. Belief systems develop over time and shape organisational practices, including how to respond to external environments. In addition, cultural knowledge influences decision-making criteria and the selection of strategic alternatives, or general evaluation of projects and business cases (Choo, 1998).

Furthermore, cultural knowledge is ingrained and encoded through storytelling, using historical information to communicate success stories to legitimise an organisation's cultural heritage. In this context cultural knowledge is instrumental for collective organisational beliefs and alignment of individuals to an organisation's vision.

4.3 Tacit and Explicit Knowledge

The notable organisational knowledge model, developed by Nonaka and Takeuchi (1995), distinguishes two forms of knowledge, namely tacit and explicit. Tacit knowledge is deemed as important background knowledge individuals possess; if left unharnessed or dormant, there may be deleterious effects or consequences when there are sudden departures of key employees from organisations. Nonaka and Takeuchi (1995) represent tacit knowledge as individual knowledge to guide day to day work and this type of knowledge accumulates from learning and practical experience over time.

Tacit knowledge can be utilised to make judgements for decision-making and implementation. This knowledge can also be non- verbalised or hidden, with individuals unaware of the value and importance of articulating such information (Haldin-Herrgard, 2000). Tacit knowledge can be the basis of intuition, or using a “gut feeling” in decision-making.

Additionally, Haldin-Herrgard (2000) maintains that humans are still the main repositories for tacit knowledge, but that communicating such knowledge can be challenging⁵⁷.

However, the value aspects surrounding tacit knowledge can be variable. Even within aware organisations individuals may be at variance as to what is deemed valuable tacit knowledge, or where aspects of individual knowledge remain unnoticed and not captured or transferred.

4.3.1 Tacit Knowledge and Organisational Performance

Several authors contend that tacit knowledge management can impact on organisational performance (McIver & Lepisto, 2017; Muthuveloo, Shanmugam & Teoh, 2017). It is also acknowledged that management of tacit knowledge presents challenges (Garrick & Chan, 2017) with implications for how knowledge is managed and how people learn (Platts & Yeung, 2000).

Another view questions assumptions of tacit knowledge as an untapped resource that can be extracted and converted as knowledge and seamlessly integrated into an organisation’s intellectual capital base (St Onge, 1996). The alternative view this falls more within the domain of ‘unrepresentational knowledge’ that is ‘less easily realised’ (Styhre, 2004).

Another view explains that building tacit knowledge trust and knowledge flows for rapid acculturation can be a complex process (Chin, Lee & Nissen, 2010). Other authors recant the value of knowledge management when tacit and explicit knowledge are effectively aligned and integrated into work functions and routines (Prusak & Davenport, 1997b).

⁵⁷ Various individual processes, such as reflection, mean that accessing tacit knowledge will continue to be difficult. Individuals can face perceptual and cognitive challenges surrounding understanding knowledge they have that may be unconscious and yet undiscovered or unconverted (Haldin-Herrgard, 2000). Furthermore, time considerations can hinder the diffusion of tacit knowledge; teaching individuals to grasp such concepts requires time and organisational resources.

Tacit knowledge also plays an instrumental role to convert and apply explicit and codified knowledge. It is one thing to read and understand policy and procedures and steps required to undertake tasks, as noted in rules based knowledge in Chapter 2, but the intangibles of meaning and understanding are often through tacit knowledge which facilitates depth of understanding.

Another perspective considers three types of tacit knowledge some of which may be more easily codified namely collective tacit knowledge (CTK, social environment situated, relational tacit knowledge (RTK) closely linked to personal interactions, somatic tacit knowledge (STK) residing within the self (Collins, 2010).

The aspect of Artificial Intelligence supporting tacit conversion still remains somewhat dubious if tacit knowledge is less objectivist (Sanzogni, Guzman & Busch, 2017). These authors further posit that RTK is a more diluted form of tacit knowledge most susceptible to knowledge risk for various reasons and explaining somatic knowledge such as complex actions is not easily converted to into procedures (similar to the example of learning to play baseball noted in Chapter 2). Moreover, use of automation such as Artificial Intelligence to capture CTK are unique to human experience.

4.3.2 Explicit Knowledge

In contrast to tacit knowledge, explicit knowledge is formally expressed for diffusion and can be rule based (Choo, 2000). This objective-based knowledge can be located through products, intellectual property patents, technical drawings and other mediums; it involves the use of symbols and words formally embodied in physical entities including equipment. Explicit knowledge that is rule-based, occurs where knowledge is codified as existing rules or policies and procedures.

Explicit knowledge is also construed as a category of organisational intellectual assets that can be accessed and utilised. Such knowledge is considered valuable as it is more readily communicated and diffused for organisational members to access and leverage (Cross, Prusak & Borgatti, 2001)⁵⁸. The presumption is that this form of organisational knowledge is in a form more readily accessible and configured appropriately to meet end user needs.

⁵⁸ Explicit knowledge is viewed as important to exploit or leverage and serves several purposes to assist organisations in aiding learning and understanding in performing functions. Additionally, documenting past

Another form of explicit knowledge is knowledge reproduction (Foray & Steinmueller, 2003), requiring reflection and introspection and suggesting internalising of explicit knowledge as a form of situated knowledge can prove problematic.

Implications can be drawn from tacit and explicit knowledge as the two key knowledge areas and how knowledge erosion and degradation risks might surface expanded further in the chapter.

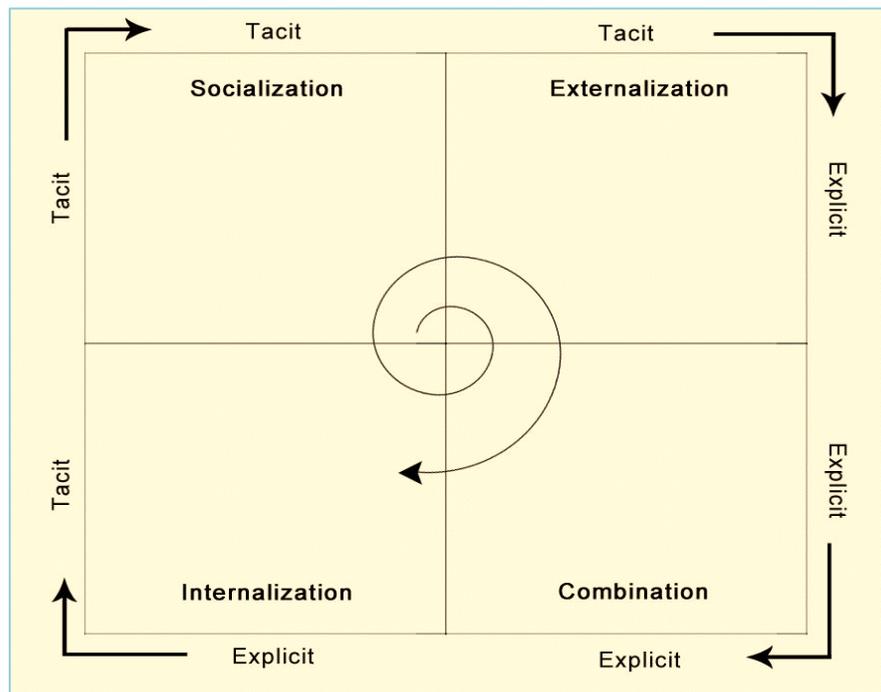
4.3.3 Explicit and Tacit Knowledge Model

The SECI model (refer Figure 4.1 below) developed by Nonaka and Takeuchi (1995), depicts the dynamic processes and set of interrelationships between explicit and tacit knowledge. Nonaka and Takeuchi (1995) developed a knowledge creation and conversion model comprising two key dimensions: (1) an ontological dimension where organisational spirals reflect the interactions and interrelationships between individuals and intergroup levels or communities to facilitate knowledge creation or transfer; and (2) an epistemological dimension that explores four dimensions of knowledge conversion.

The framework also extends to the use of informal and formal teams in organisations to facilitate and support knowledge creating culture. The framework highlights complexities related to combining various forms of knowledge and how factors such as socialisation and combination have a role.

experiences and knowledge provides useful resources to assist organisations in decision-making and to avoiding repeating mistakes.

Figure 4.1 SECI model



Source: (Nonaka & Takeuchi, 1995)

The SECI model comprises four quadrants and each quadrant (discussed below) contains a descriptor that indicates how tacit knowledge links to explicit knowledge. This framework shows tacit and explicit knowledge are complementary and involve interaction and collaborative functions with employees. The knowledge conversion process has four stages and repeating these is designated as the spiral of knowledge where knowledge creation and sharing is inculcated within organisational culture. The SECI model depicts methods for converting, conveying and sharing tacit knowledge. The model also imputes employee engagement with high levels of organisational commitment.

The socialisation quadrant depicts dissemination or diffusion of tacit knowledge across the organisation. A precondition for effective implementation of tacit knowledge sharing, is having a high learning and sharing culture instilled through socialisation and organisational methods.

The externalisation quadrant depicts the process of enunciating tacit knowledge and converting it into explicit knowledge. Translating tacit knowledge into understandable information is one aspect⁵⁹.

The combination quadrant involves standardisation and conversion of a body of knowledge into a policy or procedure manual (or other written communication and appropriate media facility) by which to communicate and diffuse the knowledge to various audiences. This process requires collaboration across departments including use of knowledge shared portals or intranet facilities. Converting tacit knowledge into explicit knowledge can be a complex process involving various steps and processes to take knowledge from people's heads which may not be easy to communicate when converted to words and symbols (Becerra-Fernandez, González & Sabherwal, 2004) with implications of knowledge erosion and degradation risks.

The internalisation quadrant concerns intuitive knowledge an enabler for an organisation in meeting its goals. Employees can learn, improve efficiency and develop different perspectives based on their own tacit knowledge. A key element within this framework is the spiral where knowledge relationships and patterns interact with one another at different points. Nonaka's view of the knowledge based organisation can see shifts in the spiral of knowledge where explicit knowledge is reconstituted into tacit knowledge, and there are other underpinning considerations concerning the SECI framework and its application.⁶⁰ Other approaches seek to capitalise on the spiral framework for knowledge creation through adaptation of technical theories including data mining and a mesh of social and people theories for to constitute a 'meta framework (Wickramasinghe, 2006 p.558).

⁵⁹ The second aspect is providing appropriate resources and support to facilitate tacit knowledge owners to be able to express or convert their ideas through mediums such as: metaphors, analogies, anecdotes narratives and visual presentations. Various elements of explicit knowledge can be compressed or absorbed and made into tacit knowledge.

⁶⁰ The first consideration is that tacit knowledge management requires joint or collaborative activities and in close proximity. In some cases, it can be complex and difficult to formalise and document certain aspects of tacit knowledge. The tacit-explicit stage presumes transfer of knowledge assuming it can be clearly articulated or enumerated. Another approach for converting tacit knowledge outside this framework is through the idea of immersion and people working closely together in shared practices in situated environments. The model also is somewhat static in design and many steps do not occur in a sequential order. Furthermore, the model being high level raises the practicalities for implementing such a framework when dealing with knowledge goes beyond a step-by-step approach. Additionally, there is also a high reliance on the skills and capabilities of individuals in converting different forms of knowledge and misunderstandings can arise surrounding sharing of knowledge.

4.3.4 Knowledge Gaps

Stewart (1997) observed knowledge gaps exist where tacit or implicit knowledge, uncodified or consciously articulated, a form of knowledge erosion and degradation may have implications for leveraging knowledge assets (see Table 4.1 below). The author further argued that depth of knowledge, as a competitive advantage, is realised when organisations seek to go beyond explicit knowledge to exploring knowledge gaps as a potential realm for greater discovery. However, knowledge management practice is arguably not merely about identifying and overcoming knowledge gaps (Jain, 2008), but also developing strategies to effectively embed and institutionalise knowledge (Hordern, 2012) to minimise risk of knowledge being eroded or degraded.

Table 4.1 Explicit and Tacit Knowledge Gap

	KNOW	DON'T KNOW
KNOW	KNOWLEDGE THAT YOU KNOW YOU HAVE (EXPLICIT KNOWLEDGE)	KNOWLEDGE THAT YOU KNOW YOU DON'T HAVE (KNOWN GAPS)
DON'T KNOW	KNOWLEDGE THAT YOU DON'T KNOW YOU HAVE (TACIT KNOWLEDGE)	KNOWLEDGE THAT YOU DON'T KNOW THAT YOU DON'T HAVE (UNKNOWN GAPS)

Source: (Stewart, 1998)

4.3.5 Commodification of Knowledge

The rationalist approach to knowledge management it is postulated, regards knowledge more as a commodity (Whitelea, 2000) - as an object capable of being acquired and applied like any material resource (Marshall & Sapsed, 2000). The commodified approach to knowledge enables problems need to be solved using systems to ensure codification and circulation of knowledge (Breston, 2003). Although, some authors emphasise the limits of codification, given the complexity in some project contexts - meaning that knowledge is contingent (Marshall & Sapsed, 2000).⁶¹

⁶¹ This rational view of knowledge has also come under scrutiny from others who proffer a counter perspective useful for managing tacit knowledge - that it should be treated more from a people-centred orientation. This perspective is dominant within social science discourses that espouse that knowledge cannot be simply

4.3.5.1 Codification/Diffusion and Erosion and Degradation

Knowledge codification and diffusion effectiveness also has economic and resource implications that affect the depth and scope of knowledge (Cowan & Foray, 1997). Both codification and diffusion are viewed as becoming more cost-effective through technological advancements, but researchers consider the binary nature of codification versus tacit knowledge in a digital era; emphasising the rise of technology yet acknowledging that codified knowledge can still contain substantive gaps (Cowan & Foray, 1997)⁶².

However, a question arises as to whether advances in codification align with advances in knowledge access and distribution. It is one thing to codify knowledge and another for that knowledge to be able to be readily sourced and used. If information is inaccessible or unused there is also risk of forms of erosion or degradation.

4.4 Knowledge Management

Having considered forms of organisational knowledge, this section details contrasting fields and perspectives in relation to organisational knowledge practices, commonly depicted as Knowledge Management (KM).⁶³

Whilst KM has various definitions, KM is generally viewed as a process used to enhance organisational capabilities through creating, sharing and leveraging knowledge as intellectual capital (Van Der Spek & Spijkervet, 1997). It is important that KM be strategically aligned with the overarching goals and aims of the organisation. It should also be noted that

reduced to a commodity or tangible thing but must be seen as an interactive process (Marshall & Sapsed, 2000). The commodified view is denounced following an assertion that knowledge is not something that is simply captured, stored and transferred and that the tacit aspect of knowledge and knowing can only be properly developed it is posited through initiatives including learning by doing, learning by using, learning to learn, trial and error, on the job experience, and other methods.

⁶² These authors contend that certain types of knowledge might be more worthwhile to codify than others with resultant risks of less incentivisation around knowledge sharing and codification, due to the low perceived return on investment or lack of perceived value of codified knowledge. Although information validated from experience, processed through individuals and groups and then codified, arguably assists organisations to improve firm performance (Van der Bij, Song & Weggerman, 2003).

⁶³ The term knowledge management is extensively covered in the literatures (Demarest, 1997; Beckman, 1999; Liebowitz, 1999a; Wiig, 2000; Dove, 2003; Mertins, Heisig & Vorbeck, 2003; Holsapple, 2003; Al-Hawamdeh, 2003; Call, 2005; Hislop, 2005; Wallace, 2007; Cranfield & Taylor, 2008; Liebowitz & Frank, 2011; Durst & Edvardsson, 2012), including recent theory as practices including case studies (Becerra-Fernandez & Sabherwal, 2014; Matošková & Směšná, 2017; Dalkir, 2017) and extensive bibliomaniac analysis for a global review (Gaviria-Marin, 2019).

knowledge management mechanisms influence organisations' capabilities to build, transfer and retain knowledge (Argote, McEvily & Reagans, 2003).

The importance of knowledge and its management, is now demonstrated by the fact that knowledge management (KM) practice is becoming an essential activity for organisations (Toledo, Chiotti & Galli, 2016, p. 1). This argument is extended by recent studies highlighting links between Human Resource Management (HRM) performance improvements, efficiency gains, and knowledge management practices (Trivedi & Raval, 2015; Tabarsa & Kadhim, 2016).

Knowledge management, as a field of expertise, had its origins in the 1990s (Jasimuddin, 2006), and its importance increased with the expansion of the worldwide web; it is an emergent field relevant to 21st century corporations. Furthermore, KM fits squarely within the remit to support organisations as managers operate under conditions of 'flux' (Buckley, Monks & McKevitt, 2002, p. 1) and is subject of continuous specialised studies⁶⁴.

New ways of approaching knowledge and knowledge practices include SMART KM practices (Ahmed & Elhag, 2017) to coincide with organisations operating in rapidly changing and vastly different environments from those 25 years ago. The evolution of knowledge management has accommodated major developments such as the emergence of data analytics and big data (Erickson & Rothberg, 2014) and, Cloud based solutions (Chiki. & Bouarfa, 2019)⁶⁵.

⁶⁴ Numerous empirical studies examine various components of knowledge management including influences of organisation wide (Alavi, Kayworth & Leidner, 2005; Tseng, 2011) the role of leadership (Cleveland, 1985; Singh, 2008). Other authors focus on tenets around building a knowledgeable organisation (Darling, 1996; Buckman, 2004; Choo, 2006) whilst other authors discuss ways to manage knowledge (Little & Ray, 2002; Razali & Juanil, 2011) highlighting how knowledge management is deeply embedded in industry or sector contexts (Mishra & Bhaskar, 2011; Myllärniemi, Laihonon, Karppinen & Seppanen, 2012; Naicker, 2013). Knowledge Management strategies are subject to extensive empirical studies and case studies (Smith, 2004).

Additionally, knowledge management studies explore specific organisational contexts and settings (Squier & Snyman, 2004; Alrawi, 2008). Other studies consider perceptions within libraries (Koloniari & Fassoulis, 2017), Not-For-Profit (NFP) organisations (Downes & Marchant, 2016) including roles of specialist practitioners, manager perceptions and introduction of social networking platforms and knowledge management tools within higher education (Garcia, Annansingh & Elbeltagi, 2011). Experiences within SMEs are noted (Durst & Edvardsson, 2012). Corporate or larger organisations (McAdam & Reid, 2001) feature including functional specific studies such as within pharmaceutical marketing arenas (Sadika-Sultana & Manivannon, 2009). Other specific contexts include empirical studies of property management companies in Malaysia (Razali & Juanil, 2011) and KM for quality assurance purposes (Yang, 2008; Waddell & Stewart, 2008).

⁶⁵ The argument for alignment knowledge management frameworks and systems to technological advancements highlights the importance of understanding knowledge management processes. Chiki, &

To develop a broad perspective of KM, it is logical to be aware of previous problems and risks associated with earlier forms of knowledge management (Fahey & Prusak, 1998; Lang, 2001) and ephemeral notions of knowledge management, such as faddism (Hislop, 2010), that might also have implications for knowledge erosion and degradation.

Within knowledge management research, noticeable paradoxes and contrasting discourses can be identified (Schultze & Stabell, 2004) and KM continues to be an emerging frontier. There is considerable discussion around KM success factors (Akhavan, Jofari & Fathian, 2006; Al-Alawi, Al-Marzooqi & Mohammed, 2007; Ajmal, Helo & Kekale, 2009; Conley & Zheng, 2009), as well as KM effectiveness (Oltra, 2005; Zheng, 2005) and knowledge theory and how the discipline is changing (Tzortzaki & Mihiotis, 2014) including international comparisons and reviews of KM practices across Western and Eastern business environments (Tikakul & Thomson, 2018) and, local government (Laihonen & Mäntylä, 2018).

4.4.1 Audit, Knowledge Use and Reuse

Knowledge auditing includes: identifying what an organisation currently knows; identifying knowledge and strategy gaps; determining organisational capabilities, what an organisation 'can do'; ascertaining what an organisation needs to know and, providing knowledge of what to do (Tiwana, 2002, p. 102).

Various authors suggest a paucity of data exists for knowledge utilisation (knowledge creation transfer and application) due to complexity about definitions of knowledge (Alavi & Leidner, 2001; Grant, 1996; Schulz, 2003, in Richards, 2004; Spender, 1996). Richards (2004) attempts to address a gap within the KM literature, by examining the roles of middle managers and management practices in influencing knowledge utilisation (Bartlett & Ghoshal, 1998; Nonaka & Takeuchi, 1995; Zoffoff, 1988; Zahra & George, 2002).

Knowledge reuse includes determinants of knowledge contribution and reuse (Watson & Hewett, 2006), and KM success might also be gauged on the amount of knowledge reuse (Markus, 2001) - which could be evaluated through an audit process to ascertain indicators of

Bouarfara, 2019) suggest there are processes and km activities that need to be considered in the context of a cloud operating environment suggesting there are several gaps in processes including areas such as 'knowledge spotting' and others highlighting the need for a shift from apparent on purely as knowledge engineering based to a more distributed km approach with a service orientation.

knowledge quality. Notably the area of knowledge risk and knowledge preservation may be bypassed depending on the audit goals and methods which creates risk of knowledge erosion and degradation being remaining undetected and devoid of risk mitigation.

4.4.2 Knowledge Management Paradigms and Perspectives

Whilst KM is viewed as an 'emerging discipline' (Zack, McKeen & Singh, 2009, p. 392), others contend that KM connects with the knowledge economy and is nested within a paradigm somewhat different from the ontological and epistemological foundations of knowledge (Rooney & McKenna, 2005, p. 307). The cognitivist position (Jelavic, 2011) supports the technological approach with strong infrastructure of databases and intranets; with individual information and knowledge viewed as an object that can be manipulated, extracted or codified. The interpretivist view sees knowledge as dynamic, situated and embedded within social groups and therefore easily captured and stored. Other KM field paradigms also exist.⁶⁶ More recent discussion seek to reconcile contrasting paradigms in relation to Artificial Intelligence and Knowledge Management (Sazzogni, Guzman & Busch, 2017). Figure 4.2 (below) summarises a number of KM paradigms and intersection areas.

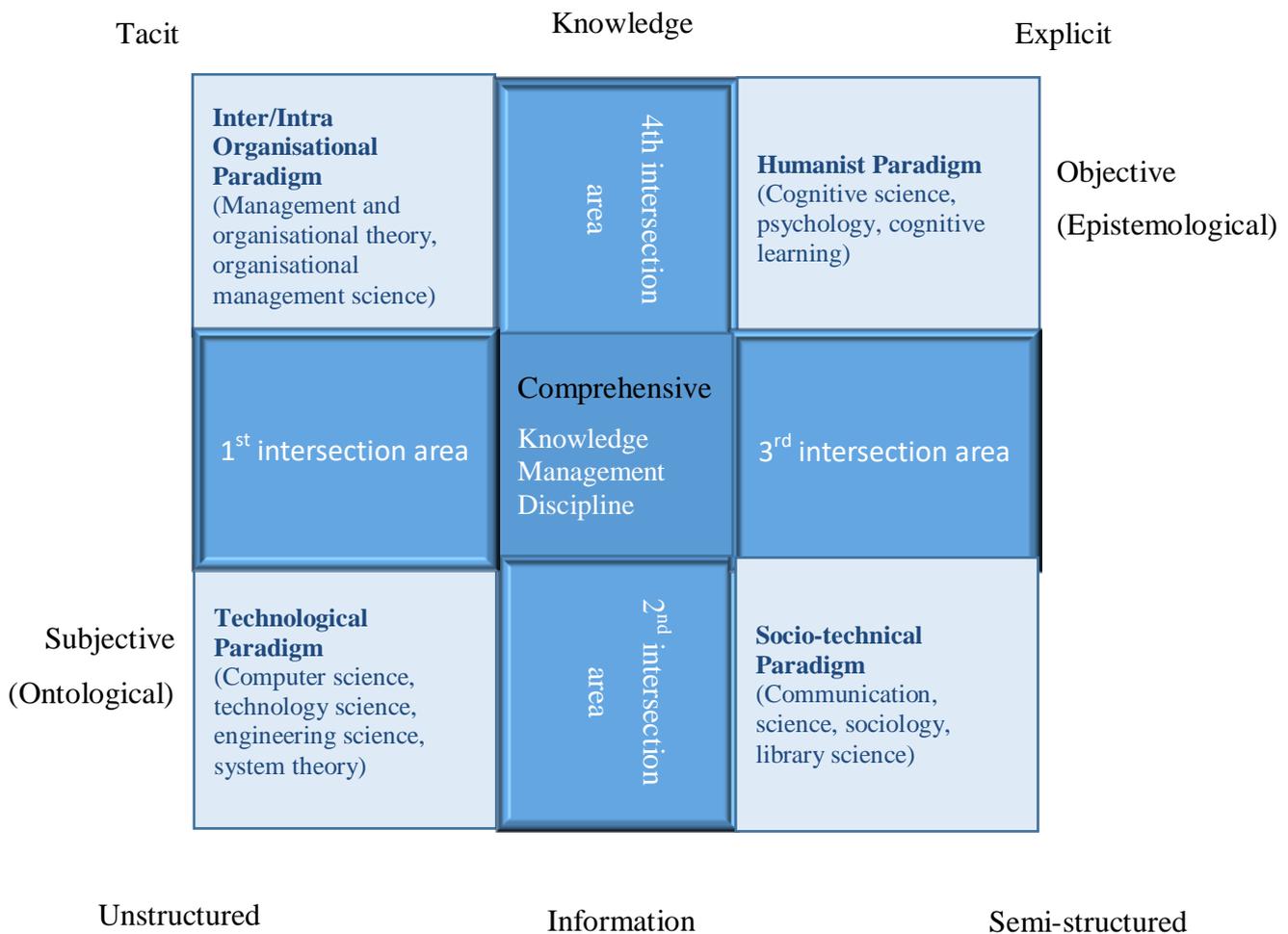
⁶⁶ Paradigms derive from the neoclassical economics perspective assume that parties live in a perfect market with complete information, and that these concepts are in conflict with the dynamic nature of the firm (Nelson & Winter, 1982). These authors further postulate that higher value or regard is often placed on explicit and or codified knowledge in organisations.

There are four key views of knowledge applied within KM (1) epistemological (theory of knowledge) where knowledge acquired and experienced is explicit (2) ontological knowledge being social and individual, (Spender, 1996) (3) community based knowledge embracing communities of practice and (4) commodity or a managerial approach that treats knowledge as a static resource that can be stored. Jakubik (2007) suggests these views need not be mutually exclusive.

The functionalist view of knowledge adopts an ontology that has realism facts and objective realities as representational forms of knowledge. This rational and objective view of knowledge makes it more logical that knowledge as an intellectual capital form can contribute towards strategy for competitive advantage.

Other KM paradigms include three contrasting perspectives on knowledge management approaches the first being the interpretive, the second functionalist and the third socio-technical. These are different paradigms of knowledge and knowledge management. These are also contrasting epistemological positions organisational knowledge (Jelavic, 2011). These three contrasting epistemological positions are the cognitivist, connectionist, autopoietic (Venzin, Von Krogh & Roos, 1994).

Figure 4.2 Knowledge Management Paradigms and Intersection Areas



Source: (Sagsan, 2009)

KM for some is seen as a capability, following the resource based or rational view of the firm (Barney, 1995). This perspective views knowledge as a resource to obtain competitive advantage through which effective management practices play an instrumental role (Civi, 2000). Another view, extending from the resource based view and competitive advantage, is that employees and their knowledge are the basis for sustainable advantage (Mårtensson, 2000); on this premise, organisations need to ensure effective KM in order to build effective strategies (Clarke & Turner, 2004). However, for other authors not subscribing to the rationalist view of knowledge, an alternate view is that KM needs to embrace a broader perspective than that proffered by resources based view proponents (Darroch & McNaughton, 2002).

KM can also be viewed from three contrasting perspectives; the first being the knowledge systems or IT perspective, regarding storage of knowledge and knowledge resources (Becerra-Fernandez & Sabherwal, 2001; Gold, Malhotra & Segars, 2001). Another perspective is socialisation.

There is an argument that many practitioners still operate with first generational knowledge that is IT centric, with limited capacity for knowledge transfer and use (Firestone & McElroy, 2004; Zuber-Skerritt, 2005). Second and third generation knowledge management has evolved to integrate organisational learning (Pemberton & Stonehouse, 2000; Bennett & Tomblin, 2006).

Authors have also raised questions about the efficacy of knowledge management systems tied to knowledge management (Hendriks & Vriens 1999), affirming the need for reappraisal of knowledge management to incorporate more hybrid approaches (Pinho, Rego & Cunha, 2012) and shifts in knowledge management paradigms (Sagasan, Medeni & Medeni, 2016). New models are exemplified in government sectors (Cahyaningsih, Sensuse, Arymurthy & Wibowo, 2017, p. 1530) and include reviews of knowledge management metrics (López-Portillo, Vázquez González, René, Hidalgo & Alberto, 2016).

Knowledge erosion and degradation risk has implications given an organisation's KM orientation or paradigm could be potentially circumvented through more pluralistic approaches.

4.4.3 Best Practice, Knowledge and Knowledge Management

Other researchers focus on best practices and knowledge management, such as with the review of higher education institutions (Ishmail & Abdullah, 2016a). Additionally, effective knowledge management through best practice is said to reduce costs, improve customer service and provide other benefits (Maglitta, 1995).

Other researchers question the legitimacy of best practices⁶⁷ in contemporary environments, given the rather static nature of best practice methods, and postulate that knowledge derived

⁶⁷ Benchmarking, as an extension of best practice, has been subject to resistance (Williams, Brown & Springer, 2012) because it establishes comparisons for standard-setting that have implications for knowledge is measured in terms of quality. However, benchmarking is still recognised as an important aspect of

from best practices is a limiting approach or paradigm. A model for information and knowledge drawn from neuroscience⁶⁸ refers to ‘collaborative entanglement’ and the need to conceptualise ‘knowledge robustness and sustainability’ from various individual and societal vantage points (Bennet & Bennet, 2008a, p. 22). These authors go on to explain that building sustainable knowledge to enhance communities and amenity or social fabrics, involves intricate social processes and interactions to stimulate knowledge mobilisation (Bennet & Bennet, 2008a, p. 21).

Organisations such as Ford are noted for creating a learning culture to manage, share and retain critical knowledge to assist in achieving productivity improvements. Following best practice does not necessarily contain profound or exceptional knowledge for sustainable performance (Beazley, Boenisch and Harden, 2002, p. 3).⁶⁹

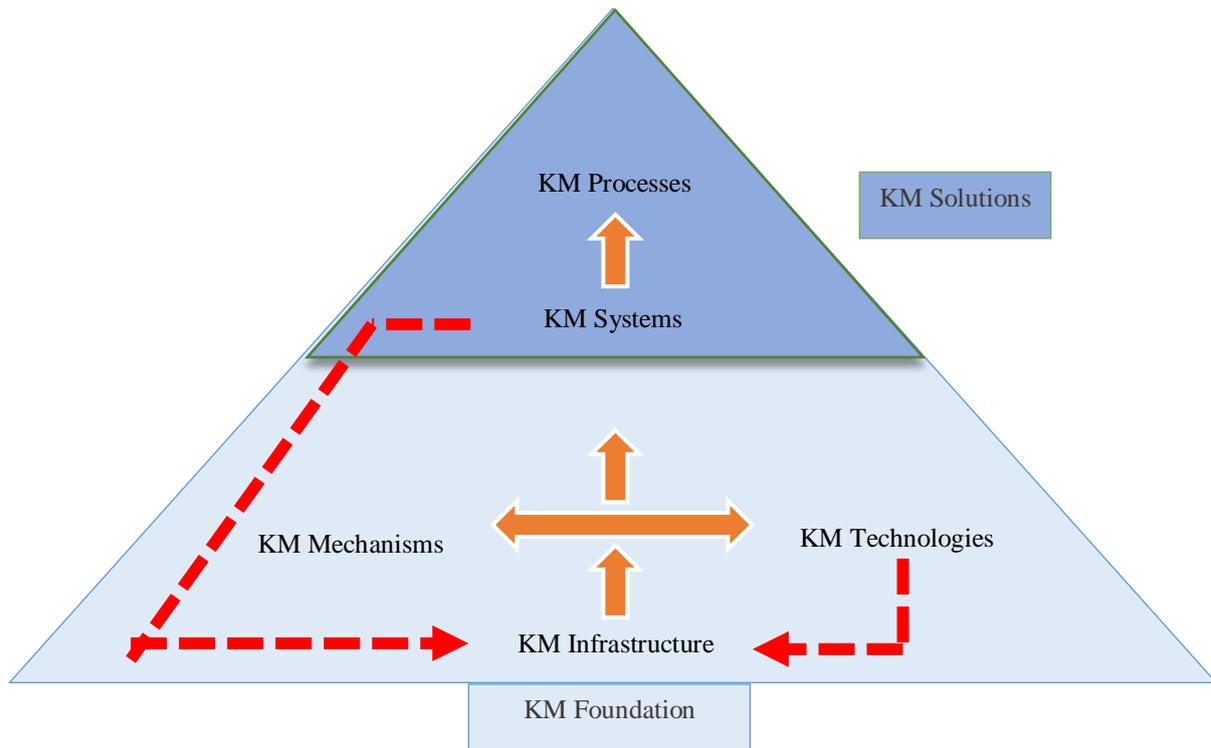
A fallacy of applying such best practice thinking in knowledge management is in not recognising that considerable knowledge within organisations or communities is context sensitive or situation specific. Such knowledge may not be relevant or usable in certain situations or contexts and perceived to be a degraded form of knowledge. For an integrated overview of interactions between processes and KM outcomes see Figure 4.3 below.

knowledge management practice and reviewing performance (Syed-Ikhasan & Rowland, 2004), and may complement knowledge audits to examine business unit responses to knowledge management practices.

⁶⁸ Information and knowledge are viewed from spatial and temporal aspects with mind involved in a process of growing and restructuring to absorb increased information. A functional approach to knowledge means knowledge enables action in various situations but requires sense making and comprehension or understanding when considering the repercussions of proposed actions. Knowledge is not viewed as binary and an output of patterning arising from the brain function meaning that knowledge is more than information or keeping people informed but also about perceiving and distinguishing between knowing that and how.

⁶⁹ Dixon (2000) observed: Every Ford plant is responsible for making a 5 percent productivity increase every year. People in the plants refer to it as the “task”. This is serious business; as one plant manager said, “if you don’t make your task, your successor will”. Year after year it is a real chore to keep making the 5 percent task, as production engineers are stretched to find some new process or technique to reduce the cost of labour, materials, or energy. Now, the Best Practice Replication process sends the production engineer in each Vehicle Operations plant five to eight best practices items a week, each of which describes how a sister plant reduced costs... spells out exactly how much was saved, specified in hours, materials, or energy. The production engineers have come to rely on this system as a way to make their task. In fact, on average, 40 percent of task comes from best practices pulled off the system-and in some plants is 100 percent of task is taken from the system.

Figure 4.3 A Knowledge Management Solutions and Foundation Framework



Source: (Sabherwal & Becerra-Fernandez, 2010)

4.4.4 Knowledge Intensive Business Services (KIBS) and Project Organisations

Knowledge management practices are further reinforced through the emergence of Knowledge intensive business services (KIBS), as a specialised area in the field of knowledge creation (Kohtamäki & Partanen, 2016).⁷⁰

Knowledge intensive business services include manufacturers’ product related services, to enhance knowledge creation and improve customisation, including knowledge extension for

⁷⁰ A research study examined relationship learning as a moderator for quality supplier-customer relationships to ensue value derived from knowledge shared activities. As service or solutions based organisations adapt to change, companies are seeking more unique approaches to customisation and solution offerings thereby the importance of knowledge intensive business services provision is increasing.

Researchers recognise a debate exists as to the extent to which returns realised through knowledge intensive business services similar to previous examples of information asymmetries that can occur between buyers and sellers (Aarikka-Stenroos & Jaakkola, 2012). These authors investigated the moderating role of the relationship learning between suppliers’ offerings and customer sales performance.

customised solutions such as problem-solving or analysis, and product tailoring (Leiponen, 2006; Muller & Zenker, 2001). In knowledge intensive businesses, such as project environments, the interplay between knowledge, learning and capabilities is critical (Medina & Medina, 2017).

4.4.5 Knowledge Intensive Exchanges and Processes

Knowledge intensive exchanges and processes are another perspective distinguished from knowledge intensive work. Knowledge intensive exchanges provide proposals on ways to create value and nurture co-creation between suppliers and customers. A common understanding is required between the respective stakeholders, including effective knowledge integration and knowledge structures. This concept reinforces the importance of relationships and learning capabilities such as knowledge sharing, joint sense making and importance of knowledge integration to create value for customers (Karamanos, 2003). The nature of knowledge intensive processes includes a classification system (Margaryan, Milligan & Littlejohn, 2011).

4.4.6 Knowledge Workers

The nature of work has changed, with an increasing emphasis on complex and analytical tasks (Thompson & Warhurst, 2006) where workers require specialised tacit knowledge and thinking capabilities. Past research provides an example of knowledge workers in the money market, through dealers and developers, applying complex contextual and analytical knowledge and developing skills with high levels of creativity (May, Korczynski & Frenkel, 2002)⁷¹.

More recent discussion qualifies categories of knowledge workers as key knowledge workers (KKWs) as specialists with advanced levels of knowledge and who advocate for enhanced systems and new data (Morawski, 2019).

The process of knowledge work means employees have more control over their production and knowledge work or ideas are less easily monitored or influenced using traditional

⁷¹ It also needs to be acknowledged that skills of some types of knowledge workers are not directly connected with economic value or the knowledge economy (Thompson, Warhurst & Callaghan, 2001, p. 924). These authors question how knowledge and the knowledge worker is typologised, given that the growth is in low level service jobs.

management approaches. Furthermore, knowledge work involves many elements including knowing the inner workings of the firm can also create ambiguity drawing on more autonomous operations (Reich, 1991) and decentralised approaches to knowledge such as with Personal Knowledge Management PKM). See Appendix 4 notes for more details.

Frenkel, Korczynski, Donohue and Shire (1995) in their model of knowledge provide a framework to explore sources of *knowledge asymmetry*. This view is reaffirmed by the degree of disconnect between managers and the nature of knowledge work performed by subordinates noted by Sharma (1997). Knowledge work involves a transition from routinised work to more creative knowledge focused activities, which may involve complex conceptual and intellectual skills as well as a degree of ambiguity or uncertainty. The application of theoretical abstract knowledge is noted with high-end knowledge workers, requiring complex sense making around decisions (Drucker, 1998).

Other authors focus on the experiences of being a knowledge worker (Arthur, Defillippi & Lindsay, 2008; Kelly et al., 2011), acculturation issues across industries (Bakri, 2008) and accommodating the needs of different categories (e.g. generations) of knowledge workers (Joy & Haynes, 2011). Additionally, several authors assert the need for more sophisticated HRM practices to better manage flows and career stages of knowledge workers to optimise management of knowledge (Sato, Kobayashi & Shirasaka, 2020).

Managing knowledge workers, to optimise productivity and or performance includes effective work design social and inter-relational functions, and, support systems (Moussa, Bright, & Varua, 2017)⁷² which raises knowledge erosion and degradation risk implications if such elements are suboptimal.

Knowledge is deemed as of use and value if it is shown to be useful and purposeful by organisational members (McDermott, 1999). ‘Discourse technologists’ are those who provide value-added expertise and assist in challenging internal views (Farrell, 2004, p. 480). This author also suggests that there are ‘elite knowledge workers’, where quality knowledge is

⁷² A work design questionnaire (WDQ) is recognised as a useful tool model to examine work productivity and performance from HRM perspective arguably needing to incorporate knowledge management components recognising that there are seemingly nuanced elements to engender effective knowledge work practices and importance of knowledge work relies on interconnected functions and high levels of social relations and support mechanisms.

associated with innovation. However, Reich (1991) argues that it is difficult to delineate between 'knowledge workers' and general workers and where there can be difficulties in assigning knowledge roles and classifying levels of knowledge across organisational members.

The importance of high-performance work systems to support effective knowledge management practices within firms can enable more effective knowledge building and human capital management including firm specific knowledge (FSK) as discussed by Razi and More (2012). This view of effective human capital management, entwined with knowledge management practices, fits within the resource-based view of the firm; in this instance, the purpose of applying firm specific knowledge initiatives has been to ensure enhancing the quality of customer relationships.

4.4.7 Knowledge Management for Competitive Advantage

KM is the firm's main strategic asset, allowing it to achieve and maintain competitive advantage if knowledge is managed well (Kogut & Zander, 1993; Grant, 1996; Zack et al., 2009). Being competitive reflects the ability to continually manage and build knowledge while being mindful of changes in internal and external environments (Davenport & Prusak, 1997a).

The value of knowledge has become a focus across industries and sectors (Mårtensson, 2000) where knowledge has become a key lever for maintaining sustainable competitive advantage (Pemberton & Stonehouse, 2000; Pan & Scarborough, 1999; Bristow, 2000; Civi, 2000; Gupta et al., 2000 in Mohamed, Stankosky & Mohamed, 2009).

Knowledge management is viewed as a key to competitive success for organisations (Faniran, Love & Smith, 2000) and examples of the value of knowledge management are numerous in the contracting sector where capturing knowledge is viewed as critical in examining ways to improve front-end processes (Faniran, Love & Smith, 2000, pp. 2-5).

Knowledge management and its benefits contain various components and the processes of generation, transference and usage, together with implementation and technological applications are discussed (Pun and Nathai-Balkissoon (2011). It follows that organisations which learn faster and use knowledge more effectively are more likely to assume leadership

positions within their sector industry and have sustainable leadership (Pemberton & Stonehouse, 2000; Smith, 2008).(See Appendix 4 for more details).

4.4.8 Knowledge Management and Strategy, Competitive Advantage and Performance

The emergence of knowledge as a key driver for sustainable economic growth is acknowledged (Gold et al., 2001), together with the suggestion of a strong relationship between deployment of knowledge management strategies and productivity; knowledge management, as a core competency, provides a foundation for building strategic and competitive advantage (Lei, 1997). This means that KM is a key influencing factor in strategy formulation and execution (Dayan, Heisig & Matos, 2017), including accommodating planning under conditions of uncertainty (Bolisani & Bratianu, 2017)⁷³.

To align knowledge with strategy, requires considerable insight and analysis to ascertain how knowledge has been acquired, to differentiate the value of such knowledge and decipher what is assumed as known (Mitroff, 2008).

Additionally, knowledge strategy can be generic across industries rather than context specific, such as in early studies of the US pharmaceutical industry (Bierly & Chakrabati, 1996). Concerns in relation to knowledge management strategy raise issues around the ‘utility and feasibility’ of enterprise wide knowledge management (Chournazidis, 2013), in concert with recent recognition of multiple methods for knowledge management strategy as documented in major global forums (Cahyaningsih, Sensuse, Arymurthy & Wibowo, 2017a).

Swain and Ekionea, (2008) consider a conceptual framework to support discussion of ways to align knowledge strategy, adapting the Miles and Snow model (1978), which classifies organisations into three specific types: 1. Defender 2. Analyse and 3. Prospector and how these contrasting styles could affect approaches to knowledge; which, in turn, could also have implications for knowledge erosion and degradation.

⁷³ Recent discussion of strategic knowledge management (SKM) includes codification and personalisation where the latter can be via various mediums, including emails (Venkitachalam & Willmott, 2017), as well as possible knowledge erosion and degradation risks around how organisations determine what knowledge to codify and capture.

This discussion of knowledge and knowledge management strategy suggests rational views around strategy and posture as well as the importance of understanding the type of strategy (Hansen, Nohria & Tierney, 1999, 2000; Jacquier-Roux & Paraponaris, 2012). However, dynamic environments and changing context-blurred boundaries indicate greater complexity when aligning knowledge and strategy.

Additional capabilities are needed to gauge knowledge in relation to competition (Blackler, Crump & McDonald, 1998). Other researchers (Bierly, Damanpour & Santaro, 2009), suggest that gathering external knowledge and the process of exploration and exploitation of opportunities can be inconsistent, so one cannot generalise about how organisations develop knowledge (Bennet & Bennet, 2005b). Furthermore, managing knowledge as a resource requires fine-tuned ‘antennae’ (Donato, 2008). Some other authors refer to ‘Knowledge approaches’ (Heavin & Adam, 2012), through analysis of software SMES, to differentiate from corporate knowledge strategy perspectives.

Given the lexical and structural ambiguity (Kay, 2008, p. 1209) many contemporary organisations are confronting structural convergence (Morris, Hassard & McCann, 2006, p. 1485). Knowledge and strategy postures are subject to scrutiny, despite many unknowns (Pauleen, Corbitt & Yoong, 2007). Moreover, knowledge and business strategy calls upon a collective intelligence (Garrido, 2009) including wisdom (Nonaka & Toyama, 2007).

Liebowitz (2009, p. 8) advocates measurement of the ‘criticality of knowledge’ and how it determines the importance of knowledge from a strategic and performance driven perspective; this author cites the exodus of key staff holding value-adding knowledge, and resultant revenue losses as an example of failure to assess knowledge loss.

4.4.9 Knowledge Based View of the Firm, Value Creation and Knowledge Advantage

The knowledge-based view of the firm (KBM) (Chou, 2008) extends the resource-based view of the firm and emphasises knowledge and learning in the organisation. Aside from being considered a key resource, knowledge is also viewed as ‘a strategically important resource’

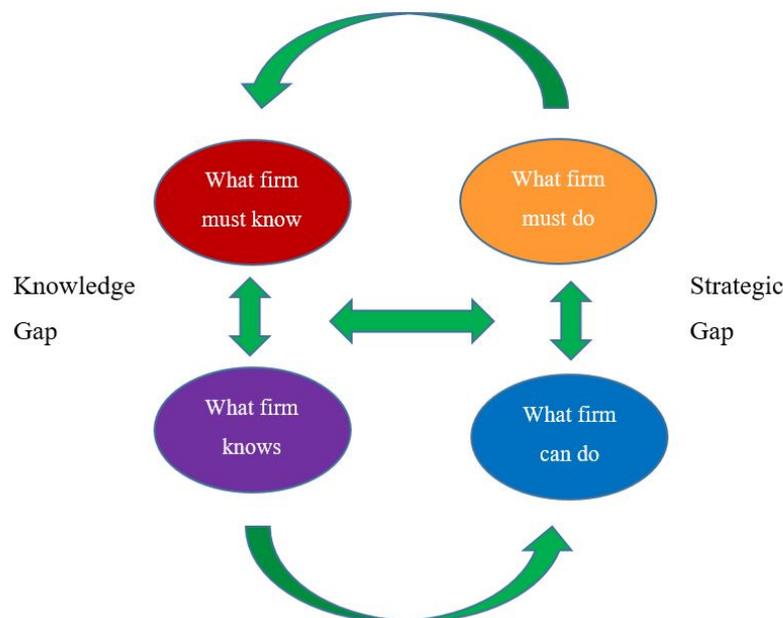
(Zack, 2009, p. 2) comprising three types of intellectual resources; these include: (1) core knowledge; (2) advanced knowledge; and (3) innovation knowledge.

The alignment between knowledge, knowledge management and strategy requires knowledge assets being managed and aligned, knowledge management strategy and well deployed business strategy⁷⁴.

4.4.10 Knowledge Strategy and Advantage

Zack (1999) developed a framework refer figure 4.4 below to articulate and evaluate what knowledge is needed and knowledge strategies supporting the resource view that explores resources and capabilities. The author suggests ‘knowledge advantage’ (Zack, 1999, p. 129) is where organisations can capitalise on use of knowledge for market advantage by developing new and superior knowledge and capabilities such as providing ‘value add services’ (Zack, 1999, p. 131). It follows that ‘advanced knowledge’ enables competitive and innovative knowledge and industry leadership (Zack, 1999, p.132).

Figure 4.4 Knowledge Gap and Strategic Gap



Source: (Zack, 1999)

⁷⁴ Other authors argue that KM needs to align with business operations methods including e.g. reverse logistics (Muniz Jr, Cunha, Almeida & Marins, 2017), whilst others state that knowledge behaviours need to be in alignment in order to uncover possible avenues towards competitive advantages (Magnier-Watanabe & Senoo, 2009).

4.4.11 Harnessing and Extracting Knowledge for Innovation

Harnessing, extracting and mobilising knowledge is also noted as an important issue in relation to organisational sustainability (Mohamed et al. 2009) and for innovation⁷⁵. It is here where employee knowledge becomes an important resource to extract value (Wiig, 2000). Having a knowledgeable and capable workforce is emphasised as crucial to businesses' competitiveness and sustainability (Salisbury, 2003; Boxall & Purcell, 2016).

4.4.12 HRM Role and Knowledge Management

Whilst knowledge management (Lambe, 2011) and its background has roots in systems and information, more contemporary perspectives emphasise people and culture - two key domains influenced by HRM policies and approaches.

The realisation that knowledge management challenges are particularly relevant for global organisations (Kalkan, 2008) legitimises a role for HR and HRM, as a conduit, in KM given that knowledge management (Carter & Scarbrough, 2001) includes analyses of other aspects - not just knowledge or intellectual capital (Carlucci & Schiuma, 2012)⁷⁶.

Adding further complexity to the evolving nature of knowledge management, through Human Resources management (HRM) lens, is how KM is devolved and incorporated into employee roles, with diminishing centralist firm driven KM focuses (Kambil, 2009); this situation involves challenges, from a HRM perspective, and possible knowledge erosion and degradation risks.

⁷⁵ An emerging field within knowledge management literature is knowledge for innovation. This acknowledges that challenges exist in virtual environments to elicit innovations and new ideas (Madhavan & Grover, 1998). Whilst the continued recognition of the value of innovation in the new economy is observed within keynote organisations (Baily, 2000; Hargadon, 2015; World Economic Forum, 2017), especially relating to sustainability. See Appendix 4 notes for more details.

⁷⁶ This general debate includes the recent challenges in knowledge management practices for Non-Government Organisations (NGOs) (Soakell-Ho & Myers, 2011) that have strong HRM implications, as well as the role of Human Resources and intra-firm knowledge transfer in knowledge intensive environments (Kase, Paauwe & Zupan, 2009; Matsuo, 2015). Other considerations around HRM policies include employee socialisation, which is discussed in the 'Frameworks and Models' notes in Appendix 4.

It is acknowledged that HRM practices can support knowledge practices and processes (Papa, Dezi, Gregori, Mueller & Miglietta, 2018)⁷⁷ and that KM strategies support corporate and human strategies (Boxall & Purcell, 2015; Arunprasad, 2017). Moreover, having coherent KM practices to augment HRM given high attrition rates of IT specialists in project management contexts, is supported by empirical evidence imputes knowledge erosion and degradation risks given observable knowledge gaps in management of projects (Veena, Jigeesh & Bhat, 2019).

Conversely, other authors raise concerns that HRM practices are incongruent where knowledge management systems requiring review of knowledge and behaviours to enable innovation action (Andreeva, Vanhala, Sergeeva, Ritala & Kianto, 2017) and implementation (Chandhiok & Vashishtha, 2013). . However, it is important to acknowledge that the role of Human Resources within knowledge management is arguably not a static or simple interaction (Hafeez & Abdelmeguid, 2003).

HRM considerations include strategies to align with KM, so as to minimise loss of critical knowledge observed in the case study undertaken in the food sector (Durst, Zarelli, Vaz, Muran & Selig, 2015) or accommodate ageing workforce challenges (Leonard & Swap, 2004, p.90; Pollack, 2012).

A pivotal element within the field of HR and HRM is steering a more 'knowledge-centred' culture (Janz & Prasarnphanich, 2003), supporting KM and change (Rusly, Corner & Sun, 2012) by utilising knowledge champions as a useful mechanism to elaborate knowledge management (Jones, Herschel & Moesel, 2003). This subsequently, enables cultural embeddedness and more collaborative work cultures for knowledge (Buckman, 1999; Li, Tarafdar & Rao, 2012), and also engages employees (Menkhoff, Yian, Wah & Kee, 2011).

⁷⁷ Deployment of human resources services and practices can be a lever for applying knowledge (Berlade & Harman, 2000; Svetlik & Stavrou-Costea, 2007) and knowledge management systems (Lendzion, 2015), utilising effective HRM practices such as sourcing employees for information literacy. From a knowledge competency and capability perspective, matching people to job roles as a human resource management practice, can optimise chances for higher quality rather than degraded levels of knowledge (Li & Hung, 2010).

4.4.13 Knowledge Management Activities

Knowledge management also comprises knowledge management (KM activities) (Beesley & Cooper, 2008, p. 48) such as, knowledge creation, acquisition, and dissemination, knowledge transfer and, knowledge extension. It is argued that these activities are differentiated, and it is necessary to understand issues of knowledge access, data and information storage as well as trading and sharing (Beesley & Cooper 2008. p. 52). These activities are summarised in Table 4.2 below.

Table 4.2 Knowledge Activities

Knowledge Activity (KA)	Definition
Acquire	Identify and capture knowledge from source to a company. Sources include written form, physical objects, people, courses, cooperation between source and recipient, and outsourcing
Codify	Assess the value of knowledge, distil, refine and assemble into comprehensive format
Store	Store knowledge in an artefact e.g. system, document
Maintain	Update on continuous basis, as a result of additional acquisition activities
Transfer	Identify receiver, organize channel of communication and send
Create	New knowledge cultivated through knowledge transfer. Acquisition activities come into play as new knowledge is acquired

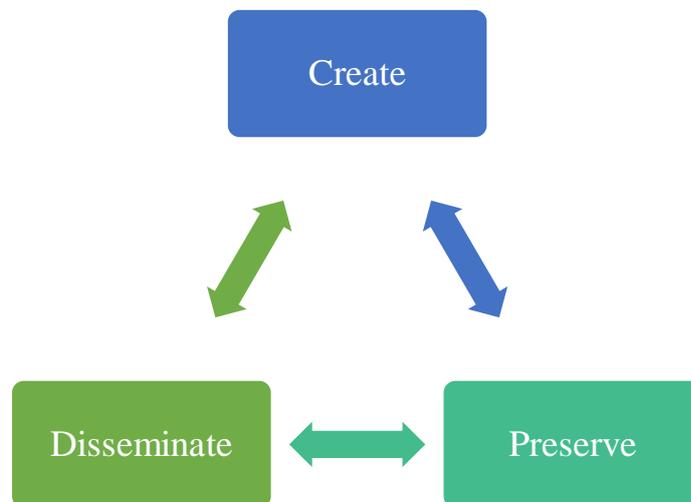
Source: (Information Resources Management Association, 2013)

Another view classifies clusters of value-adding knowledge activities namely: knowledge integration (KI), knowledge preservation (KP) and knowledge utilisation (KU); these activities form a concentration of processes that can generate efficiency, performance and innovation (Kabir, 2014, p. 3).

4.4.14 Knowledge Management Cycle

One model developed to support strategies for sustainable advantage, known as the Knowledge Management Cycle (Salisbury, 2003), requires organisations to develop and implement systems including policies and practices based on three cyclic elements (1) knowledge creation (2) knowledge preservation and (3) knowledge dissemination. See Figure 4.5.

Figure 4.5 Overall knowledge management cycle



Source: (Salisbury, 2003)

Create

The first stage of the cycle concerns how knowledge is gathered or created and the use of knowledge systems to capture existing knowledge using different methodologies and tools. Knowledge captured is that which serves a specific goal or purpose.

Preserve

The second stage concerns how knowledge can be preserved. This stage of the cycle requires organisations to ensure that past captured knowledge is kept up-to-date or maintained for currency. This ensures storage and transformation of knowledge. Preservation can also be supported by organisations making knowledge accessible to organisational members.

Disseminate

The third stage of the KM cycle concerns how knowledge can be put to use and provide value to organisations. For example, disseminating knowledge can improve problem-solving, although the underlying assumption is that disseminated knowledge is continually reused.

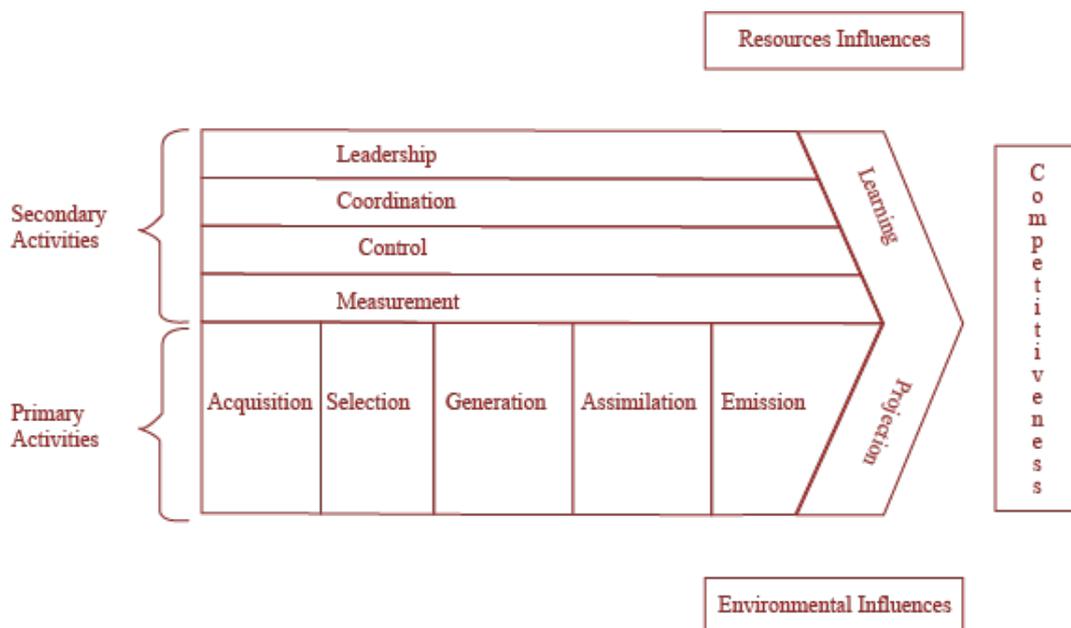
Another author expands on KM activities and identifies five context factors shaping them: (1) acquisition, (2) creation, (3) utilisation and sharing (Sun, 2010). This author examines two case organisations suggesting KM initiatives involve highly routinised activities reflective of

general organisational routines and relevant to absorptive capacity; this capability has four key components: (1) acquisition, (2) assimilation, (3) transformation and (4) exploitation (Sun, 2010, p. 508).

4.4.15 Knowledge Chain Model and Management Wheel

Other knowledge models and frameworks depict KM areas as activities. The knowledge chain model (Holsappale & Jones, 2004), see Figure 4.6 below, could be viewed as an adaptation of the value chain model (Porter, 1985) that distinguishes between primary and secondary activities. The later model purports that knowledge activities can be grouped into dimensions and that performance of these activities can lead to competitiveness. The five key dimensions include: (1) knowledge acquisition, (2) knowledge selection, (3) knowledge generation, (4) knowledge assimilation and (5) knowledge emission. A noticeable gap within this model is the area of knowledge retention.

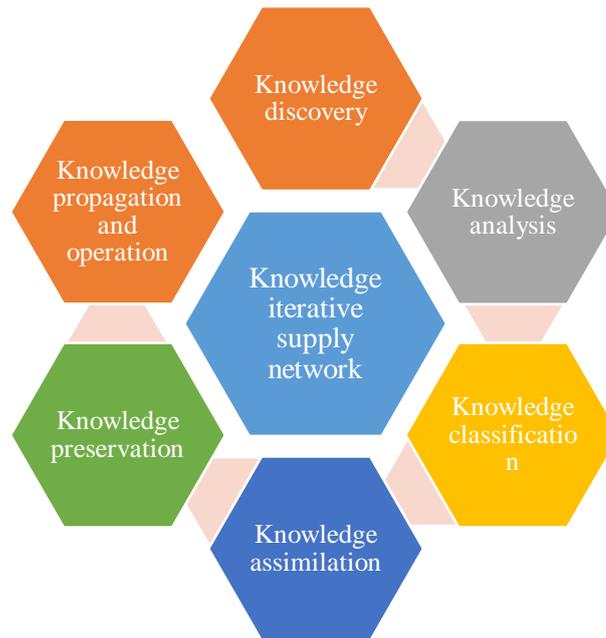
Figure 4.6 Knowledge Chain Model



Source: (Holsapple & Sign, 2000)

A conceptual model has been developed (see Figure 4.7 below) depicting knowledge preservation as an erosion risk, in the knowledge management wheel of practices. These knowledge management areas are discussed in other sections in more detail.

Figure 4.7 Knowledge Management Wheel



Source: (Mohamed, Stankosky & Mohamed, 2009)

4.5 Knowledge Management Systems (KMS)

Knowledge Management origins reflect the considerable attention levelled at socio-technical or systems perspectives (Biloslavo & Zornada, 2004; Revilla, Rodriguez-Prado & Prieto, 2009; Ali, Tretiakov, Whiddett & Hunter, 2017). Socio-technical systems, include data warehousing, data and information storage, and data retrieval. More recently, knowledge exploration systems denoted as Ecosystem Knowledge (EK) seek to reduce ambiguity and complexity navigating and exploring knowledge to reduce knowledge risk (Khademi, 2019).

Notably, a study of banks identified several key factors associated with knowledge management system implementation, and the value or importance placed upon KMS for organisational performance and competitiveness (Kridan & Goulding, 2006). Allowing for the many factors involved, Figure 4.8 (see below) summarises a general sequence for the implementation of KMS.

Earlier research highlighted links between knowledge management, expert systems and artificial intelligence (Liebowitz, 2001), with one author suggesting the value of enterprise systems (Davenport, 2000) to support knowledge management practices. Additionally, ICT is

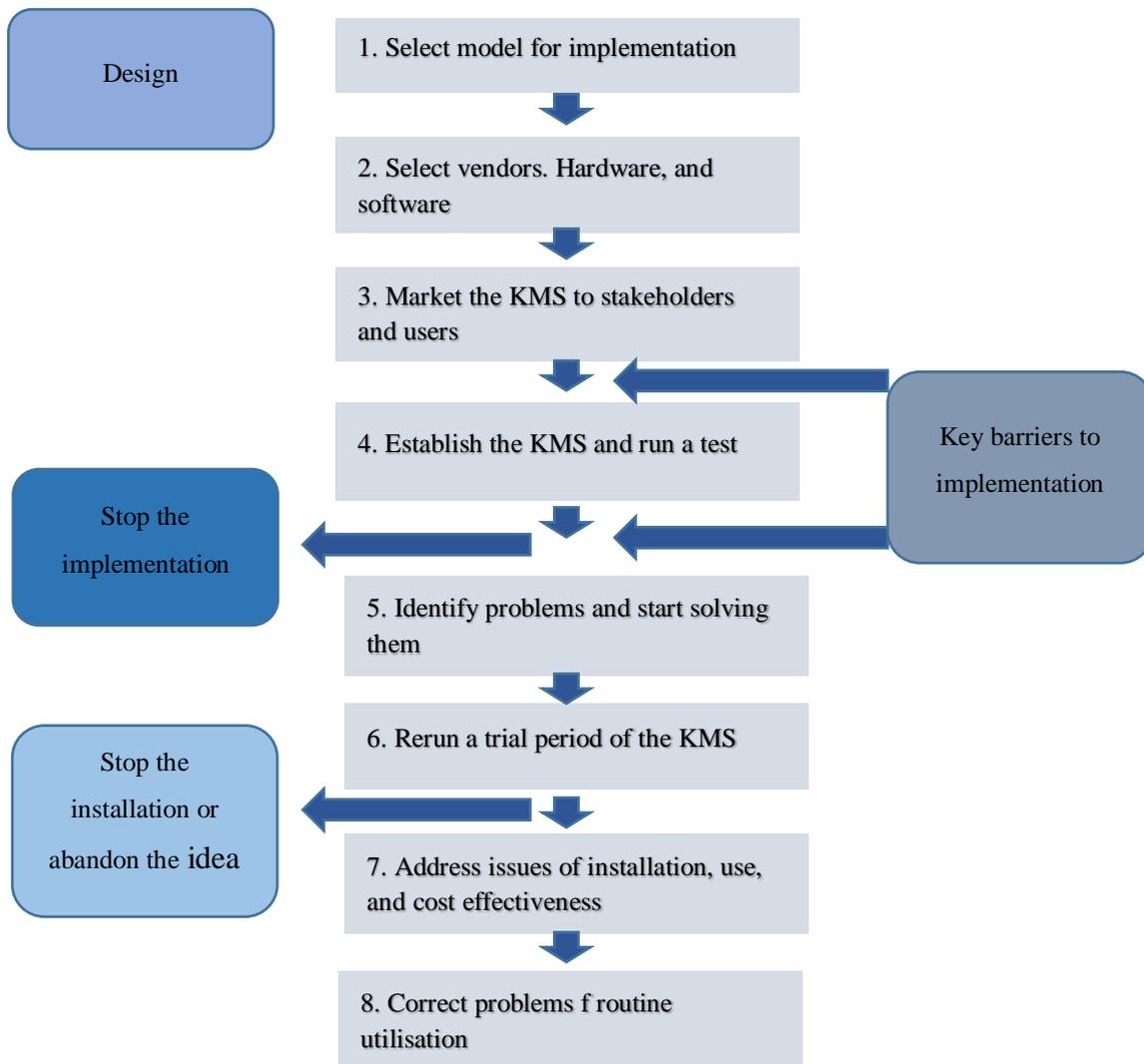
seen as a key lever within knowledge management and innovation; for example, the Zara Group have obtained advantages through use of technologies and systems (García-Álvarez, 2014) and knowledge repositories (Hoon & Sharif, 2015) supported by continuous systems development (Lopes, 2008; Diedrich & Guzman, 2015).

In contrast, companies such as IBM have developed diagnostic systems to manage the maturing workforce as a precursor to knowledge attrition and recognise the importance of loss of knowledge discussed later in this chapter. These initiatives address the need to effectively capture and share knowledge for business continuity purposes (Liebowitz, 2009).

Whilst it is acknowledged that most large organisations have some form of knowledge management system (KMS) to record explicit or codified knowledge, contemporary approaches to knowledge management also includes evolving mediums by which to upload and access information in organisations, including through use of social media platforms (Levy, 2013). Computer Supported Collaborative Learning (CSCL) is context specific to learners to share and build knowledge (Romero & Lambropoulos, 2012) as knowledge sharing levels⁷⁸. Allowing for the many factors involved, Figure 4.8 (below) summarises a general sequence for the implementation of KMS.

⁷⁸ Studies exist on the effectiveness of Twikis as open source online collaborative groupware systems for knowledge co-construction in (Chu, 2008). Wikis have been used as knowledge management tools to facilitate knowledge sharing and creation across the group projects. Notably, wikis have become increasingly used and applied in the fields of education and web based technology. However, some researchers highlight issues related to the use of wikis and a lack of interaction for exchange of ideas, questions or feedback (Choo, 2008, p. 747). A five-point scale was utilised to rate student perceptions on the use of TWiki and the value of shared online workspaces. Although viewed positively to build knowledge, some students considered knowledge as interchangeable with information. The importance of expert knowledge and its distribution and accessibility has also been an important aspect of facilitation of knowledge building and knowledge building communities (Heiskanen, 2004).

Figure 4.8 Illustrative Stage in the Process of Implementation of KMS



Source: (Geisler & Wickramasinghe, 2015)

4.5.1 Critiques of Knowledge Management Systems

There is also discussion of concerns about knowledge systems⁷⁹, with employee resistance to KM systems observed in studies of e-government portals (Behzadi, Isfandyari-Moghaddam &

⁷⁹ Working knowledge developed by Davenport and Prusak (1998) maintains that organisations need a balance between knowledge structure and system. Whilst having a knowledge repository, on one hand, it needs to be user-friendly and accessible, it also needs to be streamlined and not burdensome through detailed categorisation. Critical factors or knowledge management enablers (Theriou, Maditinos & Georgios, 2009) also need to be considered to influence successful knowledge management systems. Culture, strategy and leadership support are key examples.

Barratt-Pugh et al. (2011) examined barriers to use of KMS through a qualitative phenomenologically-based case analysis using a sample of technological oriented organisations. Whilst the case organisations were

Sanji, 2012; Li, Liu & Liu, 2016). Additionally, the context or reorganisation and devolution of services such as within healthcare and stakeholders' awareness levels of KM tools to leverage knowledge has presented notable risks and challenges for UK's National Health Service(NHS) (Baskaran, Johns, Bali, Naguib & Wickramasinghe, 2011). Another author (Brooks,2002), suggests how knowledge systems or structures are also shaped by levels of organisational commitment; this has implications for knowledge erosion and degradation, depending on the quality of knowledge inputs and outputs derived from the utility and perceived value of systems.

Criticism is often levelled at IT areas and their role in the development of knowledge sharing systems, where problems have arguably become a norm due to a tendency for falling into the 'folly of over-confidence' syndrome, by developers and stakeholders with a vested interest in knowledge systems uptake (Chua, 2009, p. 34). The author further asserts that reported efficiencies and successes, resulting from knowledge management systems, can be laden with 'unbridled optimism' (Chua, 2009, p. 34) and new knowledge management systems based on a replication formula can be risky.

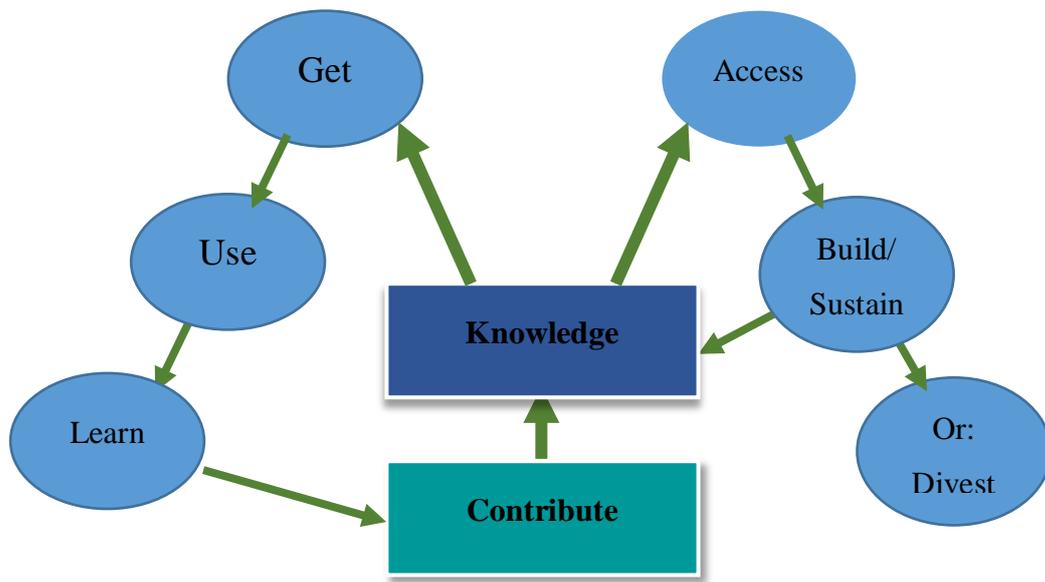
As Figure 4.8 shows there are a number of stages in establishing a KMS and it is important that sufficient time be allowed for implementation of a Knowledge Management Infrastructure (KMI) and framework (Wickramasinghe, 2010, p.1) for knowledge creation for sharing amongst workgroups and stakeholders, including suppliers and customers.

4.5.2 KM Processes and Knowledge Capture

Figures 4.9– 4.11 below summarise knowledge capture and KM processes that operate on an organisation's knowledge.

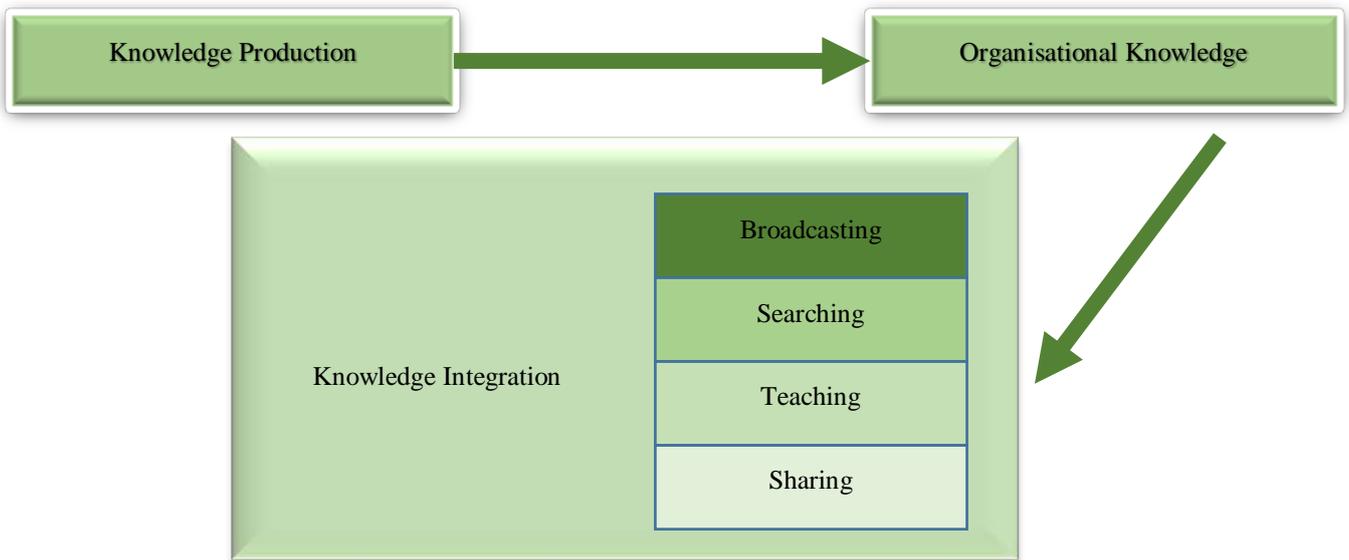
contrasting in size, structures and other variables, there were some common elements in their responses to knowledge management and knowledge sharing. Whilst knowledge sharing insures against loss of knowledge the study showed a negative reaction towards the imposition of KMS and IT controls, requiring more effective change management strategies.

Figure 4.9 Knowledge Management Processes



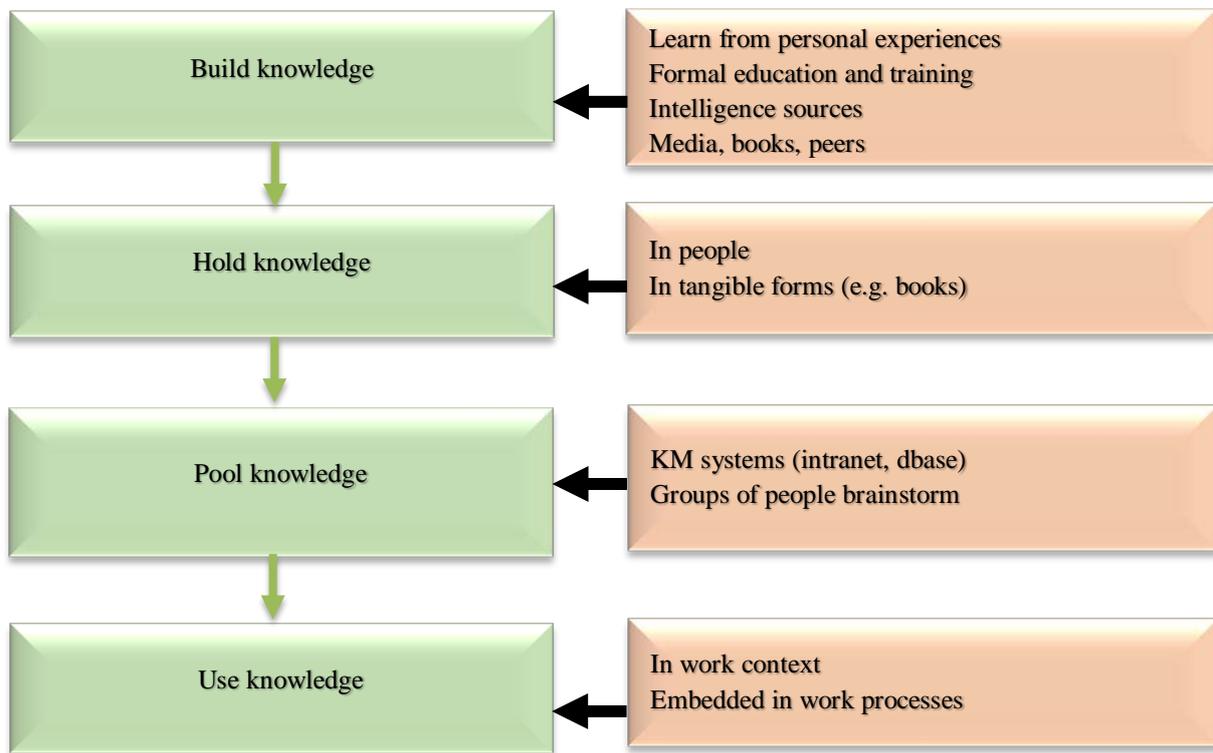
Source: (Bukowitz & Williams, 2000)

Figure 4.10 Knowledge Management Processes



Source: (McElroy, 2003)

Figure 4.11 Knowledge Management Processes



Source: (Wiig, 1993)

A number of processes contribute to collect information and to facilitate knowledge management in all organisations. However MNCs, as larger multi-business organisations, are noted for structured or systemised methods to capture knowledge (Foss & Pederson, 2004). Knowledge capture and sharing can also include a mechanism for updating knowledge through ‘weeding out dated or superseded knowledge’ (Bhatt, 2000).

A primary aspect of knowledge management is knowledge capture. Knowledge capture has implications for knowledge erosion and degradation, in that knowledge can be captured and transferred using various platforms, through which employees and contractors can access information deemed critical to assist with working in complex areas (Kivirak, Arslan, Dikmen & Birgonul, 2008). The quality of what goes into a system needs to be subject to appraisal.

Knowledge capture efficiency arguably is maximised through a Knowledge Management system (KMS), where enterprise portals enable knowledge capture (Fenz, 2012). The rationale

that systems enhance knowledge is founded on the premise of social actors and organisational members as rational participants.

4.5.3 Knowledge Governance

The need for governance mechanisms and systems to control learning and knowledge practice is clear (Mathrani & Parsons, 2012). Knowledge Management governance includes methods or techniques to guide and design rollout of knowledge management initiatives (Schroeder, Pauleen & Huff, 2012). A number of the processes outlined in Figure 4.11 are designed to filter and verify incoming data before they are used – this is part of KMS governance also extended to knowledge asset management. See Appendix 4 notes for details.

Knowledge governance can be formal or informal; examples of formal mechanisms include: Information Systems, reward systems, decision-making rights and authorisation levels. Informal mechanisms can include culture, networks and communities of practice (Foss, 2007). Research indicates that there needs to be some balance between governance issues and knowledge processes; however, there is a scarcity of empirical data on knowledge management governance (Foss & Mahoney, 2010; Kannabiran & Pandyan, 2010).

Corporate governance and knowledge governance have often been treated as two distinct areas, yet corporate governance theories and principles are transferrable. Knowledge governance is often centred on knowledge that is localised, specialised, dispersed and dynamic (Krafft & Ravix, 2008); in addition, it is considered that proper governance of knowledge and intellectual capital is critical for knowledge intensive organisations (Keenan & Aggestam, 2001).

Governance follows both agency theory and resource-based views of the firm, as well as the importance of trusting relationships for employees to contribute to firm specific knowledge activities (Pemsel & Müllerm, 2012). Furthermore, this need for prudence and knowledge probity also extends to contracts and third party service providers involved in large scale projects, as well as the reporting of information and knowledge practices.

Turner, Keegan and Crawford (2000) found that governance control processes can be impacted by size and number of projects, postulating the view of knowledge as more dynamic and localised or specific to context. A study showed that project managers and

project business offices (PBOs) tended to report effectively and on time using technology for governance purposes, but were more circumspect or reluctant to evaluate or document lessons learned⁸⁰.

4.6 Knowledge Management Models, Frameworks and Tools

Knowledge management models and frameworks assist in effective implementation of KM systems. Moreover, the need for and application of KM tools and techniques is also recognised within a context whereby industries such as healthcare arguably require more robust and sophisticated processes or techniques to manage a plethora of data and information (Wickramasinghe & Schaffer, 2006) as earmarked in Chapter 3. These authors pronounce the need to adopt more advance and frameworks within an Intelligence Continuum(IC) denoted as a ‘Mobius strip’ or amalgam (Wickramasinghe & Schaffer, 2006 p.164).

Comparative analyses also feature, highlighting differing areas (Bashir & Rehman, 2016) including more recent conceptual frameworks for KM (Farooq, 2019). See Figure 4.12 (below) for an example of an overall KM framework. A range of KM management techniques, tools and processes are discussed in Appendix 4.

There is an absence of frameworks on knowledge risk and erosion/and a need to create new conceptual frameworks to align knowledge erosion and degradation with knowledge domains. See Appendix 6 for new conceptual frameworks.

⁸⁰ Given higher levels of tacit and embedded knowledge in certain projects and project environments, it is not a simple exercise to capture knowledge through provision of explicit documents required for governance purposes. It follows that formal governance mechanisms or knowledge governance practices may be less effective than relational based methods in certain contexts. It is suggested (Ory, 2001) that the basis for appropriate knowledge governance mechanisms needs to extend beyond dealing with low complexity problems and knowledge; it needs to include project-based firms where the primary focus is on project outcomes and deliverables, and where processes have transactional or task driven knowledge implications. A distinction is made between categories of project business areas PBOs and subsidiary PPOs and approaches to knowledge and governance (Antonelli, 2006). This author suggests that PBOs often demonstrate more subtle knowledge governance practices. Subsidiary PPOs, located within multi-business environments, arguably are less focused on project management.

Figure 4.12 Knowledge Management Framework



Source: (Gronau, 2009)

4.6.1 Quality and Lean Framework and Practice

Lean approaches or practices (Piercy & Rich, 2015) continue to evolve and permeate numerous operations, including specific methods by which to extract knowledge to imbue principles for smarter and more efficient ways of working. Quality management (QM) frameworks and standards are used across various industries to enhance organisational performance and effectiveness. One premise is that QM is a significant lever to support competitive advantage and sustained performance whilst others critique such methods⁸¹.

⁸¹ Researchers who critique QM methods assert more rigid or bureaucratic structures accommodate QM approaches, arguably inhibiting knowledge building and innovation (Benner & Tushman in Asif, De Vries & Ahmad, 2013). In addition, these authors suggest relationships between QM and knowledge creation have not been fully operationalised. However, other authors perceive the potential to foster new knowledge through QM practices (Asif et al., 2013). Whilst other authors, discuss drivers behind knowledge to instil a culture of quality improvement (Mukherjee, Lapre & Van Wassenhove, 2005).

Alternatively, other authors in a systematic review of models and frameworks, note four categories or models: 'process, strategy, knowledge type and maturity' (Senseuse, & Cahyaningsih, 2018).

4.6.2 Knowledge Management Leadership

The role of leadership to enable organisations to become more knowledgeable requires a degree of agility (Mckenzie & Aitken, 2012). A major collaborative research project involving 14 large organisations, members of the Henley Knowledge Management Forum, identified a framework of leadership agility practices for creating conditions conducive to knowledge sharing, learning engagement and collaboration. Implications of this research are relevant for learning program design and how leaders might change their approaches⁸².

A variant on ‘leadership’, is discussion of ‘effective knowledge management leadership’. This includes knowledge sharing and best practices, assigning responsibilities for knowledge sharing, capturing and reusing past experiences, embedding knowledge in product service processes, producing knowledge as a product, driving knowledge generation for innovation, mapping networks of experts, building and mining customer knowledge bases, and understanding and measuring knowledge and leveraging intellectual assets (Holthouse, 1999).

One notable omission, from the knowledge management responsibilities mentioned above, is knowledge retention or preservation. The implications from leadership are that risk of knowledge erosion or degradation may reflect behaviours and actions, or inactions, of leaders as orchestrators of knowledge building and sharing environments below (Bloice & Burnett, 2016).

4.7 Knowledge Management and Organisational Performance

4.7.1 Organisational Performance and Effectiveness

Various authors consider the relationship between knowledge, knowledge management practices and organisational performance. A large scale survey of empirical studies found that

Based on the above and other research findings, there is a notable absence of models and frameworks for knowledge retention or knowledge erosion (Pun & Nathai- Baiksoon, 2011).

⁸² Leadership and leadership style is an important influence on employee learning (Bucic, Robinson & Ramburuth, 2009; Gong, Huang & Farh, 2009) and the emergence of leadership and empowering employees provides a pathway for knowledge management practices to be embedded in organisations (Kuo, Lai & Lee, 2011). These realisations also coincide with a shift from leadership to ‘learnship’, as an organisational development mindset shift (Cooksey, 2002), where organisations instil continuous learning to alter mindsets (Perkin & Abraham, 2017.) so normalising ongoing learning and the importance of knowledge building.

KM research relating to organisational performance is somewhat sparse, highlighting gaps within extant literatures (Kalling, 2003; McCann & Buckner, 2004; Tanriverdi 2009). While various studies acknowledge inconclusive connections between knowledge practices and performance deliverables, most authors do accept the legitimacy of knowledge management (Lee, Kim & Kim, 2014). Another author qualifies key elements that contribute to the effectiveness of knowledge management implementation that, in turn, affects performance outcomes. Absence of these external key factors, can impair predicted organisational performance success with effectiveness of knowledge management strategies substantially diminished (Guak, 2011).⁸³

It is also hypothesised that organisational knowledge is instrumental to organisational effectiveness; research results highlight strong links, particularly with cases of less successful organisations (Sitlington & Marshall, 2011, p. 123). Other studies indicate that KM practices can influence organisational outcomes (Seifu, Mekuanint & Negash, 2019). Antecedents to organisational performance have also been identified (Gold et al., 2001; Mohrman, Finegold & Mohrman, 2003) including knowledge processing behaviours, management practices and organisational culture considerations.

It is argued that organisations following a KM orientation are more likely to outperform rival firms that simply adopt a market orientation (DeTienne & Jackson, 2001). KM provides performance benefits if the organisation develops strategies for filtering knowledge and improving communication (Francisco & Guadamillis, 2002). Contrasting KM practices have been observed including: initiatives to continuously innovate (Gloet & Terziovski, 2004); and implementation with HR and IT practices to enhance innovation. Here, knowledge infrastructure practices and processes play a pivotal role to assist performance impacts (Gold et al., 2001).

Counter claims regarding KM meeting or exceeding performance expectations are within information management and broad knowledge management approaches, where it is suggested, there have been mixed results in delivering organisational performance (Bierly,

⁸³ This author further suggests that effectiveness of knowledge management practices is dependent upon organisational members' capabilities and attitudes to share knowledge and facilitate desired reference outcomes (Guak, 2011). Knowledge sharing and culture featured as key components influencing performance. Findings also indicate the need for resources and appropriate enabling systems, fostering knowledge sharing to enhance productivity and competitiveness.

Kessler & Christensen, 2000; Jashapara, 2005). Views also differ regarding conceptualisation and operationalisation of organisational performance and effectiveness (Quinn & Cameron, 1988 in Santra & Giri, 2008).

Numerous authors have investigated how knowledge management systems and practices have positive effects on organisational performance (Derakhshan, Ghorban Hosseini & Moradi Nasab, 2016). Others are interested in specific links between knowledge management and organisational performance, through quantifying links to differentiate levels of knowledge and organisational performance (Kruger & Johnson, 2011). Yet other researchers focus on organisational performance achieved by learning and knowledge methods (Kuo, 2011).

Other authors maintain there can be limitations in a knowledge management process orientation towards learning and organisational performance (Bierly et al., 2000; Cavaleri, 2004 in Allen & Thomas, 2006); concerns are raised about underlying assumptions of what constitutes knowledge and, subsequently, links to organisational performance are unclear.

Knowledge application is where problem-solving and decision-making, supported by knowledge management systems, can deliver operational benefits to the organisation; knowledge application can contribute towards increased efficiencies and cost reductions, thus impacting bottom-line performance (Davenport & Khar, 1998, p.3). Examples of such applications are healthcare functions where decision-making can be subject to complexity with 'information inferiority' a compounding risk, (imputed by examples from primary research of healthcare specialists in Chapter 3). Subsequently, a systematic effort is arguably called upon to enhance the efficacy of decision-making and to enable facility for key knowledge areas to be factored into processes and operations (Wickramasinghe, Bali, Gibbons, Choi & Schaffer, 2009 p.44).

There is a view that team structures, although increasingly common in organisations, do not automatically increase performance (Champy & Nohria, 1997). According to Barnes and Morgeson (2007, p. 260), performance can be differentiated; for example, maximal performance is distinct from suboptimal performance and what an individual *can do* differs from what an individual *will do* (Dubois, Sackett, Zedeck & Fogli, 1993). These distinctions have implications for knowledge erosion and degradation, especially if employee knowledge is evaluated.

4.7.2 Knowledge for Performance Improvement and Organisational Results

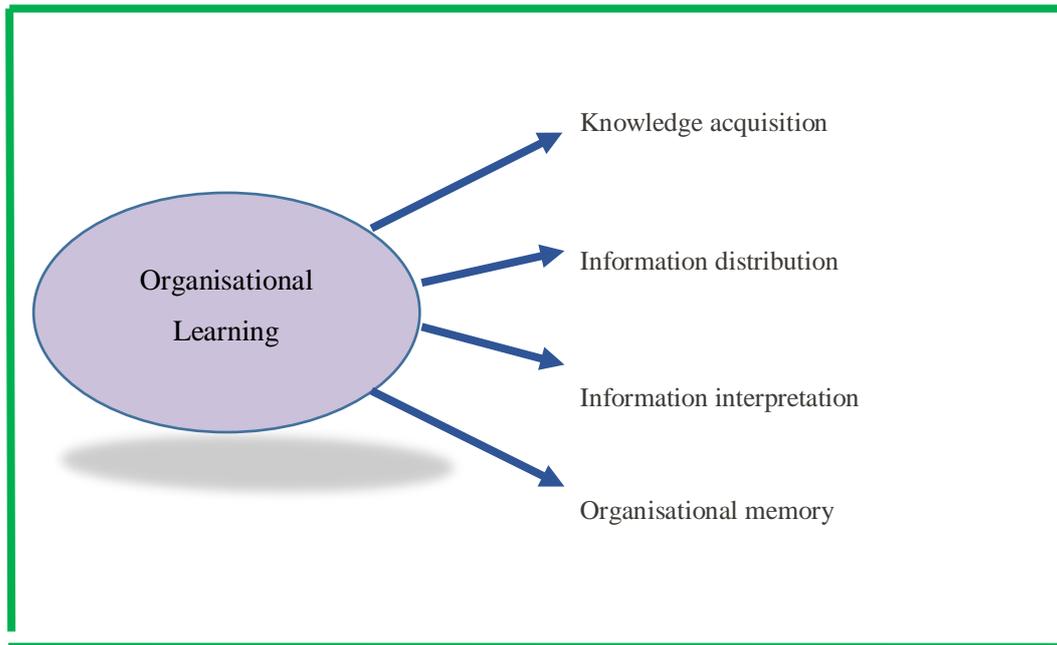
Other authors concede challenges demonstrating performance improvements through investments in knowledge and intellectual capital. This contested area has been tested to ascertain if organisational results (OR) and performance derived from intellectual capital (IC) are connected with knowledge practices (Lara, Palacios-Marques & Devece, 2012). These authors conducted a study that focused on knowledge intensive businesses and confirmed an association. It is further argued that sustainable competitive advantage, in future, will be through organisational knowledge creation and effective management (Drucker, 1992; Grant, 1996; Sino & Schiller, 1997; Hazlett, McFadden & Gallagher, 2005, 2010).

4.7.3 Organisational Learning and Knowledge Change

Organisational learning can be interpreted as changes in the state of knowledge (Lyles, 1992) and the roles of knowledge acquisition and dissemination refinement creation and implementation: the ability to acquire diverse information and share common understanding so that this knowledge can be utilised or leveraged (Fiol, 1994).

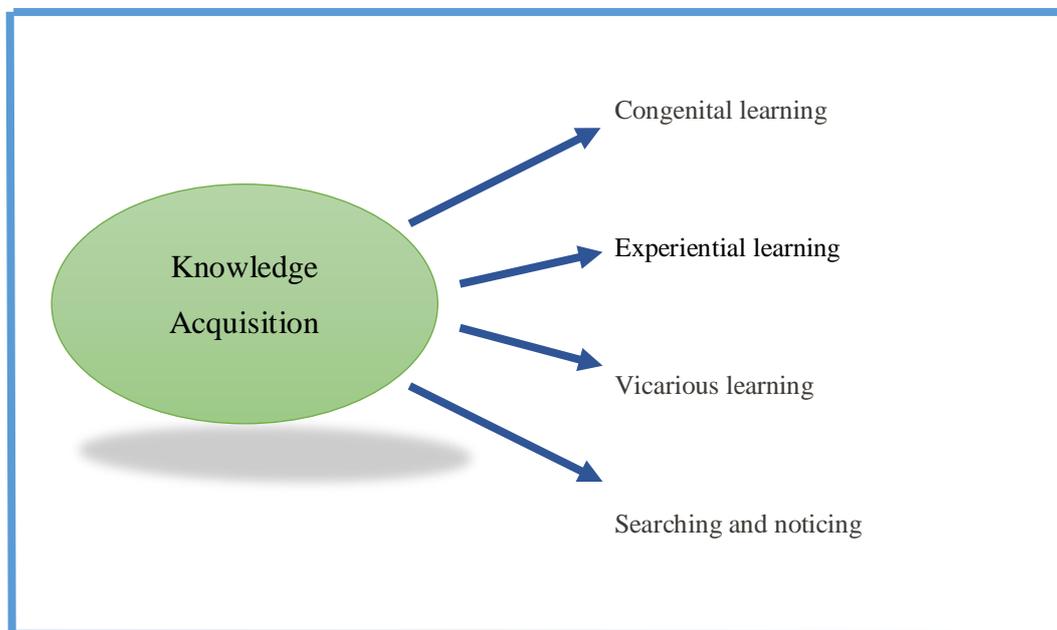
Organisational learning is viewed as learning to assist in transformation and improvement of an organisation (Dixon, 1999). Effective organisational learning arguably integrates, creates and applies knowledge for competitive advantage (Bierly, Kessler & Christensen, 2000) including approaches to integrate inter-firm and intra-firm knowledge to enhance learning experiences (Usman, Burgoyne & Ahmad, 2019). See Figures 4.13-4.14.

Figure 4.13 Organisational Learning Framework



Source: (Huber, 1991)

Figure 4.14 Knowledge Acquisition Constructs



Source: (Huber, 1991)

Much emphasis has been placed on organisational learning for continuous improvement, problem-solving and troubleshooting, and therefore being more procedurally based (Pedler, Burgoyne & Boydell, 1991; Buckler, 1996; Scarborough, Swan & Preston, 1999).

4.7.3.1 Learning and Profound Knowledge

There is an argument in the literature that for organisations to adapt to current changes within the operating environment, there is a need for a transformation in the process of learning and making a dramatic transition from 'doing to knowing, and having capacity of effort, having capacity of insight' (Allen & Thomas, 2006, p. 124). This supports calls for pursuit of 'profound knowledge' and a shift from being action oriented; the example used to verify this conclusion is that less than half of the top 500 companies are still in existence (House & Bell in Allen & Thomas, 2006). The proposition is that organisations need to rethink knowledge and people for sustainability.

There is also discussion concerning learning and complexity theory in organisations (Desai, 2010). Actor theory as a sociological construct is applied where organisational members are actors in the context of learning and organisational settings who collaborate in learning that extends the boundaries for value creation purposes and framed as a construct of co-created learning. Use of Complex Adaptive Systems (CAS) contributes towards an embeddedness of learning within organisations (McElroy, 2000; Snowden, 2002; Grant & Grant, 2008).

Furthermore, a distinction is made between complicated versus complex systems (Cilliers, 1998). Supposedly one cannot simply dissect elements or parts within a complex system which raises challenges from a knowledge management perspective and increases potential risk of unintended knowledge erosion and degradation.

Other authors warn of the risk of reliance on small numbers of experts or specialists and 'the blackout test' (Venkitachalam & Willmott, 2017, p. 315), as an indicator of an organisation's dependence on a few key people to source knowledge. See Appendix for more details.

4.7.3.2 Domain know-how, Competencies and T-shaped Skills

The call for 'Tshaped skills' (Abubakar et al., 2017) is based on the suggestion that organisational members need to extend their knowledge base outside of their own domain or specific area of knowhow to broaden understanding; this results in a broader repertoire or

more expansive skill sets to facilitate a greater breadth and depth of knowledge. This perspective also reinforces views about ‘relational interdependencies’ (Billet, 2008) and how knowledge work is converging. Knowledge can be vertical, to include interaction with others, or it can be horizontal as a process to acquire new information.

The above authors further explain how functional capabilities require more collaboration with other subject matter experts, with the need to capitalise on use of others’ knowledge for cross-fertilisation that ultimately enhances individual and work area specific knowledge. This has erosion and degradation implications if domain knowledge remains siloed.

4.7.3.3 Knowledge Management and Organisational Learning

Organisational learning and knowledge have a relationship (Lopez, Peon & Ordas, 2004; King, 2009) and the knowledge process and learning are also connected (Andrews & Delahaye, 2000) with organisational learning adapted to practice based knowledge (Gherardi, 2001).

Various terms used in this field include organisational learning (OL), organisational knowledge (OK) and learning organisation (LO); learning is viewed as a social process and is socially based and strongly embedded in culture.

More recent discussion focuses on KM approaches shaping organisation learning (Barao, De Vasconcelos, Rocha & Pereira, 2017) and how knowledge and learning arguably can strengthen and improve learning capacity such as observed in school environments (Cheng, 2013) and organisations (Dutrenit, 2000).

Various authors have sought to unravel links between knowledge management and organisational learning OL) (Bengoa, Kaufmann & Vrontis, 2012). Furthermore, the role of learning contributes towards building capabilities to further enhance knowledge management performance (Easterby-Smith & Prieto, 2008).

Learning like knowledge starts with the individual Wang and Ahmed (2003) and Nonaka and Takeuchi (1995) also argue that knowledge is created by individuals (see the earlier discussion of tacit knowledge). However, other authors suggest that organisational learning and knowledge germinate at three different levels: individual, group and organisational (Senge in Bontis, 1999).

Individual learning and knowledge acquisition, does not automatically translate into, or necessarily guarantee, overall organisational learning: resulting in calls for systems thinking practices ‘personal mastery’ and high levels of reasoning or intuition (Senge, 1990 p.167) that are consistent with knowledge management practices. Three conditions facilitate organisational learning: (1) the presence of new ideas; (2) the combination of doubt in existing knowledge and strategies; and (3) the development and transfer of knowledge among institutional actors (Bauman, 2005, p. 28).

For a learning organisation (Davis & Daley, 2008) it is useful to identify factors facilitating learning in the work environment, employee experiences (Jacob & Ebrahimpur, 2001; Prugsamatz, 2010; Malik, Rosenberger III, Fitzgerald & Houlcroft, 2016) and the contrasting experiences of novice workers (Krauss & Guat, 2008). A different view, emphasises utility of learning from a behavioural and network structure perspective (Petruzzelli, Albino, Carbonara & Rotolo, 2010, p. 635). These authors suggest capitalising on learning processes, using appropriate networks and systems can contribute to better performance outcomes for knowledge gatekeepers (custodians of knowledge).

Furthermore, recognition of the need to for ‘intelligent’ systems such as healthcare is observed as optimising knowledge assets through creating greater linkages between organisational learning and KM and to the continual generative process requiring people not simply systems (Wickramasinghe, 2008).

4.8 Knowledge Management Areas

4.8.1 Knowledge Acquisition

An area related to knowledge spillovers and absorptive capacity is knowledge acquisition, as a focus of knowledge management practice; it relates to how an organisation facilitates internal managers and staff acquiring and accessing knowledge to support them in day-to-day work roles and operations. Knowledge acquisition has many forms in a formal structural sense, where there is a degree of order and method, as well as more informal mechanisms (Hoe & McShane, 2010). Relevance of input and source credibility can be integral factors affecting the quality of knowledge acquisition systems and practices as well as use of such information (Pacharapha & Ractham, 2012). Moreover, knowledge acquisition is associated

with improved innovation performance augmented by human resource management strategies and practices (Papa, Dezi, Gregori, Mueller & Migletta, 2018).

Knowledge acquisition and application is another field within KM that emphasises processes and methodologies for sourcing or developing knowledge, knowledge transfer and diffusion, and willingness or capacity for engagement of organisational members. Knowledge acquisition and knowledge sharing can be for specific situational purposes, to achieve organisational performance or for problem-solving purposes. It should be noted that this latter view of knowledge acquisition is particularly directed at organisational specific needs (Tiwana, 2003). As previously observed, absence of knowledge management may lead to 'missed opportunities' (Castrogiovanni, Ribeiro-Soriano, Mas-Tur & Roig-Tierno, 2016, p. 1812). A study in the financial sector demonstrated that acquiring knowledge can involve a very systematised and coordinated process Rastogi (2000).

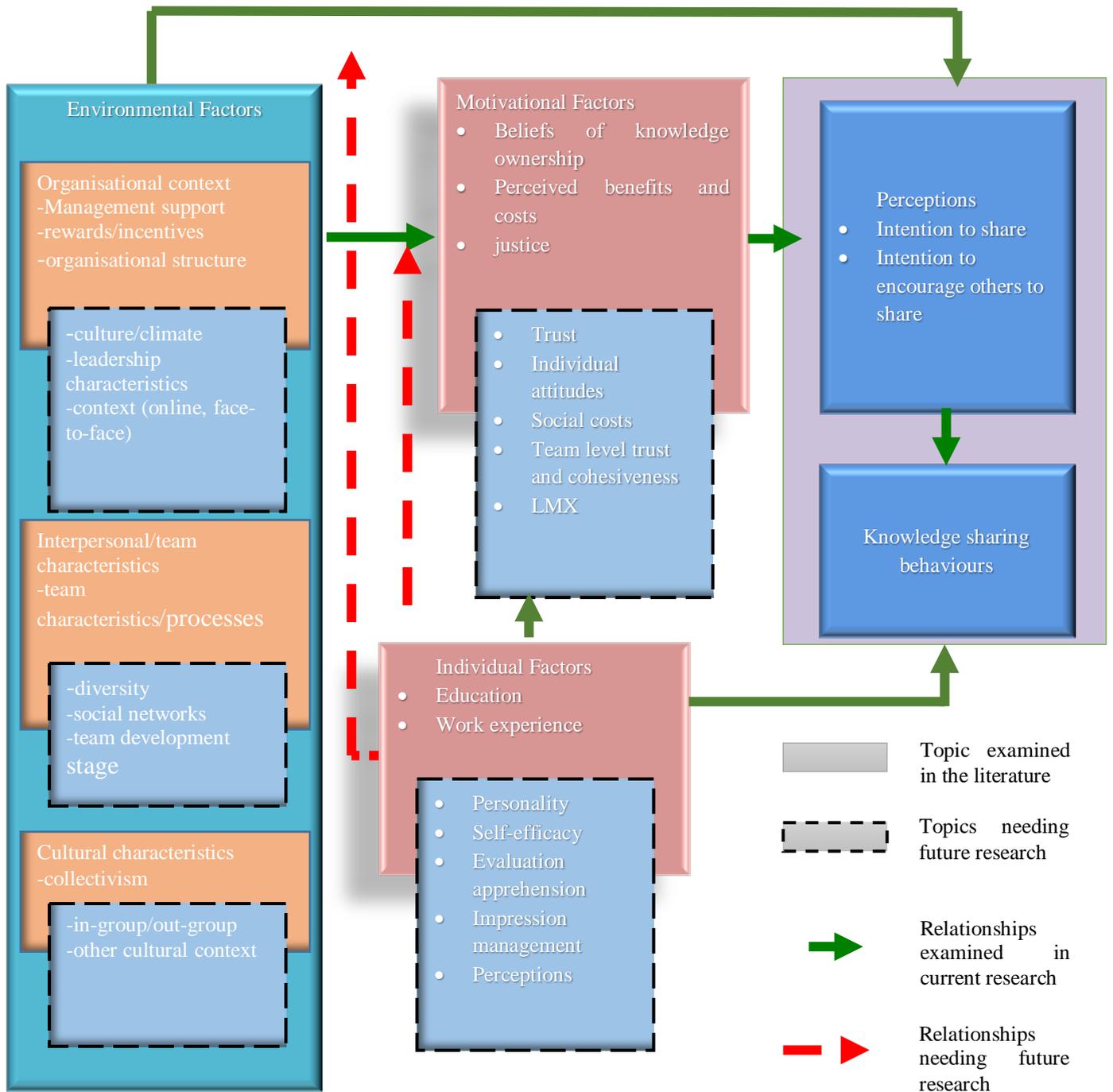
4.8.2 Knowledge Sharing, Culture and Data Assessment

The importance of knowledge sharing in knowledge intensive firms is strongly acknowledged (Stewart & Kinnie, 2003; Gupta & Michailova, 2004) and a distinction is made where intensive knowledge sharing suggests greater depth of knowledge is needed, such as in a research-based organisation (Boer, 2005; Usoro & Majewski, 2011). Moreover, the contrast between interpersonal versus less personalised forms of knowledge sharing, such as in databases, is also a subject of evaluation in terms of quality and utility (Bordia, Irmer & Abusah, 2006).

Dysfunctional knowledge sharing can reflect goals and rewards. In a case study analysis of reward systems, contributions by employees were found to lack quality information with information perceived to be meaningless (Cockerill & Stone, 2010, p. 841). These authors referred to 'pseudo knowledge' as input that is not quality knowledge but can be proffered in industry and organisational contexts.

This leads to the acknowledgement that knowledge sharing can also be thwarted by conscious deception - deliberate provision of useless or masked knowledge (Cockerill & Stone, 2010, p. 842). This has stimulated discussion of the triple helix model, which drives knowledge and knowledge production to meet goals in industries and organisations based on a differentiation of knowledge cultures and motivational issues. Refer Figure 4.15 below.

Figure 4.15 Wang and Noe Knowledge Sharing Model



Source: (Wang & Noe, 2010)

4.8.3 Knowledge and Organisational Culture

This concept of culture continues to be a key concern shaping and influencing the degree of knowledge sharing in organisations (Choi & Lee, 2003). A knowledge centred culture is can impact the degree of exploration and knowledge effectiveness. Other authors emphasise the importance of designing a conducive organisational culture as a prerequisite or cornerstone for knowledge enablement (Ndelera, 2001). Furthermore, the notion of non-linear thinking styles to foster an innovation culture also ties in with knowledge management practices (Vance, Zell & Groves, 2008).

4.8.3.1 Need-to-Know Knowledge - Knowledge for Disclosure

The idea of a need-to-know culture and context specific knowledge (Deverell & Burnett, 2012, p. 131) is accepted. Certain knowledge and information obligations and disclosures mandate sharing of knowledge or information that might, or might not, be construed as valuable information from an erosion and degradation perspective.

The study by Deverell and Burnett (2012) investigated connections between integration of practices, transparency, corporate governance and levels of knowledge sharing within the UK local government sector. Terms such as “need to share” or “responsibility to provide” prevail within regulated public sector environments.

The findings of this UK study suggest that local government bodies will more likely focus on information management strategies rather than wider KM approaches (Deverell & Burnett, 2012). This supports the stereotypic premise that government organisations lean towards knowledge management from an information management and auditing stance (Jones, 2005).

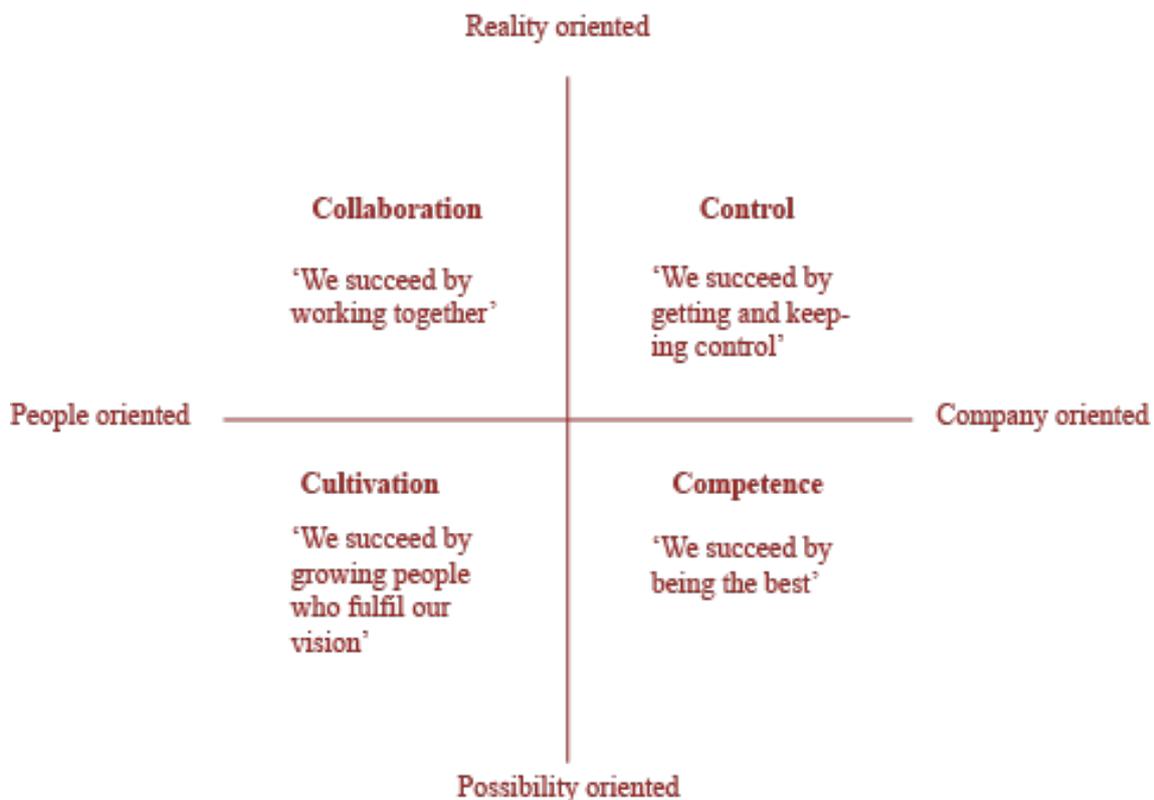
4.8.3.2 Cultural Archetypes, Knowledge Receptiveness Useless and Evasive Knowledge

The extent to which knowledge management is associated with organisational culture, rather than demographic and other factors, is emphasised in more recent studies (Chidambaranathan & Swarooprani Rani, 2016). These authors found organisational culture types (refer Figure 4.16 below), such as clan and market culture types, are the two most compatible cultures that facilitate knowledge management; whereas adhocracy and hierarchy are more likely to obstruct knowledge management initiatives, such as within government institutions. Previous studies (Kangas, 2005; Cameron & Quinn, 2011) conclude that rigid or bureaucratic structures can be impediments to knowledge management effectiveness.

A model developed by William Schneider (Schneider,1994 in Perkin & Abraham, 2018 p.203) using an agile frame of reference, maps four contrasting domains namely: collaboration, control, cultivation and competence, also creating a matrix that positions an organisation in terms of how people versus company oriented and reality versus possibility oriented construes how knowledge practices might be designed and applied.

This model demonstrates cultures more likely to share knowledge and participate in knowledge creation will orient to collaboration and cultivation, whilst control and competence spheres may orient to more to an informational rather than knowledge focus. Perkin& Abraham (2017 p.203) warn of cultural conflicts and mismatches, emphasising the need to deploy managers to counter threats of ‘antibodies’ and counter status quo thinking that might stifle new work methods including knowledge creation.

Figure 4.16 Schneider’s two-by-two matrix of organisational culture types



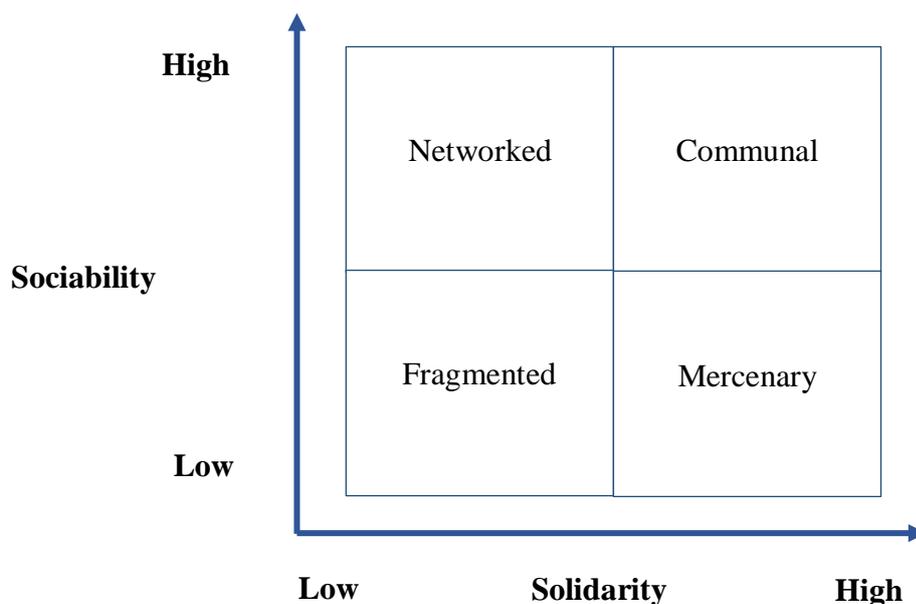
Source: (Schneider, 1994)

Another model of contrasting organisational cultural archetypes (see Figure 4.17 below) highlights different degrees of sociability versus solidarity and marked contrasts in how knowledge might be viewed and practised according to the particular archetypal orientation. Highly networked and sociable organisations are more likely to have conducive environments for knowledge sharing where there is openness to social exchange.

In contrast, a highly communal organisation structures knowledge around aligned communities of interest, whereas a highly fragmented organisation culture faces considerable challenges in developing and disseminating knowledge because of low levels of social connectedness amongst organisational members; that type of situation may also create fragmented knowledge.

The mercenary archetype is focused on highly individualist and self-interested behaviours, where issues around knowledge and power are involved. Additionally, several authors concur that value systems and individuals such as those adopting more competitive styles, can lean more towards knowledge hoarding (DeTienne, Dyer, Hoopes & Harris, 2004; De Long & Fahey, 2000) or a more recently coined term-knowledge hiding that creates evasive knowledge as shown in a study of higher education where academic knowledge in a competitive and pressurised context mooted in Chapter 3, has enabled less prosocial knowledge sharing behaviours(Hernaus,Cerne,Connelly, Vokic & Skerlavaj, 2018).

Figure 4.17 Organisational culture archetypes



Source: (Goffee & Jones, 2009)

A final note on receptiveness to knowledge relates to institutional factors that can have an impact or bearing on the efficacy of knowledge sharing capabilities in organisations (Klein, Ziegert, Knight & Xiao, 2006). Possible erosion or degradation risks surround cultural phenomena endemic within industries and the propensity for generating ‘useless’ or ‘pseudo-knowledge’ (Cameron Cockrell & Stone, 2010).

4.8.3.3 Attitudes, Behaviours, Motivational Factors and Self-determination Theory

Attitudes towards knowledge sharing, across work groups or teams, can be either barriers or enablers for knowledge sharing interactions (Zhang & Ng, 2012).

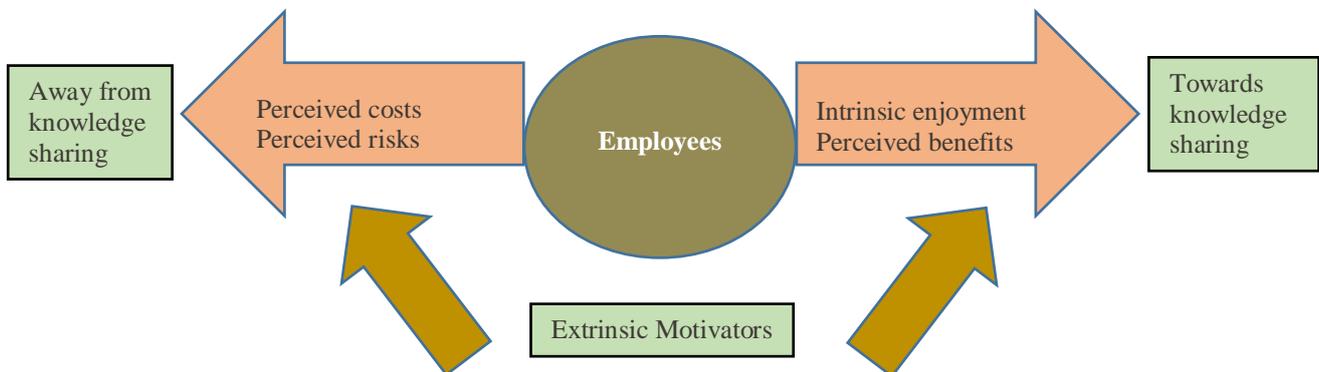
The dissemination and sharing process concerns transferring of knowledge between individuals, groups and across operational areas (Alavi & Leidner, 2001); this includes arterial knowledge in the form of knowledge flows through specific knowledge behaviours and exchange mechanisms, designated as knowledge sharing behaviours (KSBs). These behaviours, considered as a ‘soft issue’ (Abubakar, Elrehail, Alatailat & Elçi, 2017) in knowledge management practice, can be a key lever for knowledge.

Knowledge sharing can be perceived as an additional workload⁸⁴. Organisational citizenship behaviours (OCBs) see workers taking on extra role behaviours, and these types of employees are more likely to have job attitudes supportive of knowledge sharing due to a value orientation and organisational commitment.

Figure 4.18 (below) shows a psychological framework of employee tensions towards knowledge sharing.

⁸⁴ Various types of motivations can shape knowledge sharing behaviours (Siemsen, 2007; Galia, 2008; Swift, Balkin & Matusik, 2009; Vuori & Okkonen, 2012; Law, Chan & Ozer, 2017) including ‘soft rewards’, to induce more altruistic practices thus potentially affecting the quality of knowledge sharing.

Figure 4.18 Psychological Framework of Employees' Tensions Towards KS



Source: Adapted from Law, Chan & Ozer, (2017), p.1494.

Self-determination theory (Osterloh & Frey, 2000) examines influences of motivation and task and job performance and how these might relate to quality of knowledge and knowledge sharing. Motivation is viewed as a major driver of knowledge sharing and knowledge enhancement (Osterloh & Frey, 2000)⁸⁵. This is supported by other research showing links with motivations, rewards and behaviours (Tan & Lim & Ng, 2009).

4.8.3.4 Closed Information Environments

Knowledge sharing in closed environments, or within close proximity, can also be problematic if the environment is a somewhat 'closed information environment' (Goh, Hong & Hooper, 2009). Barriers can exist in specific sectors or settings (Bloice & Burnett, 2016). One barrier concerns endeavours to facilitate knowledge sharing, where the culture that is not conducive to it (Goh, Hong & Hooper, 2009), which may reflect a cultural form of erosion and degradation. Several authors discuss insights around such environments and the importance of governance and leadership and organisations reflecting corporate values and practices (Katila, Rosenberger & Eisenhardt, 2008).

⁸⁵ This area connects tasks, levels of job involvement and job satisfaction in relation to knowledge sharing behaviours (Kucharska & Bedford, 2019). A qualitative study of IT professionals found strong relationships between levels of job involvement and satisfaction and, the propensity for knowledge sharing (Teh & Sun, 2012). Self-efficacy and role of Human Resources (HR) also arguably contribute towards engendering knowledge sharing, given how challenges and problems manifest within work roles (Runhaar & Sanders, 2016; Matošková & Směšná, 2017).

4.8.3.5 Determinants of Knowledge Sharing

Other authors focus on social and trust factors influencing knowledge sharing (Islam, Ahmad & Mahtab, 2010; Ho, Kuo & Lin, 2012; Ling, 2012), as well as the importance of teams and culture (Mueller, 2012) where involvement levels and work methods (Flinchbaugh, Li, Luth & Chadwick, 2016) include inter unit interaction; the quality of these interactions and interpersonal relationships can reinforce social ties to build social capital (Leinonen & Bluemink, 2007; Johnson et al., 2007; Makela & Brewster, 2009).

Case studies of knowledge sharing determinants are documented from electronic manufacturing and defence organisations (Fathi, Eze & Goh, 2011; Suppiah & Sandhu, 2011; Long, 2012). MNCs operating within host country contexts also highlight cross cultural contrasts in relation to knowledge sharing (Ling, Sandhu & Jain, 2009). In addition, it has been shown that organisational culture and relational styles, including socialised roles and power issues in bureaucratic institutions such as universities, can influence efficacy of knowledge sharing (Fullwood & Rowley, 2017).

4.8.4 Knowledge Creation

Another theme within KM concerns knowledge creation. (Bouchez, 2016). In fact, knowledge creation leads to knowledge sharing and assists in competitive advantage (Carlsson, Elsayi, Eriksson & Raven, 1996). Knowledge harvesting is one example of a knowledge management practice that encourages, stimulates and generates knowledge (Heath, 2003; Aboelmaged, 2012).

The conceptualisation of knowledge creation through existing organisational theories is discussed (Chen, 2008) with reference to three elements: “Ba” (a building block), technical and evolutionary elements (Nonaka & Nishiguchi, 2001).

Varying approaches are used to furnish knowledge (Tsoukas, 2009) including consideration of where knowledge nests, or the real ‘locus of knowledge’ (Felin & Hesterly, 2007) and the dynamic nature of how knowledge is created (Fong, Hills & Hayles, 2007). Additionally, identifying factors that affect or induce knowledge creation is also explored in empirical research within university sectors (Siadat, Hoveida, Abbaszadeh & Moghtadaie, 2012) contrasted with Total Quality Management (TQM) Methods, such as Six Sigma, used in

automotive industries (Wu & Lin, 2009) and other strategies and methods (Un & Cuervo-Cazurraw, 2004) have also been identified.

The merits of knowledge creation for TQM, are evidence supporting economic advantage for organisations (Machlup, 1980) and being a key factor driving competitive advantage (Matusik & Hill, 1998). A contrasting view on the importance of knowledge creation relates to enhancing reliability of knowledge, such as in emergency management of major disasters (Kruke & Olsen, 2012).

4.8.5 Knowledge Transfer

The subject of transfer is a cornerstone of knowledge management and also an area of considerable discussion (Jones, 2007) and research (Mathew & Kavitha, 2008; Kumar & Ganesh, 2009; Tuan, 2012). Knowledge transfer is viewed as essential to successful third-party service arrangements (Al-Salti & Hackney, 2011) and contributing towards competitive advantage (Argote & Ingram, 2000; Lin & Chen, 2008), including effective technology transfer between educational institutions and firms (Arvanitis, Kubli, Sydow & Woerter, 2007) as well as entrepreneurial initiatives (Burns, Acar & Datta, 2011). This information transfer covers diverse locations and dispersed units (Sapsed, Gann, Marshall & Salter, 2005; Schleimer & Riege, 2007).

Additionally, knowledge transfer is particularly noteworthy within cross cultural contexts (Hubig, Jonen & Lingnau, 2008), where effective transfer would be associated with leveraging of social capital (Inkpen & Tsang, 2005; Zhou, Siu & Wang, 2009; Taplin, 2011). See Appendix for details on cross cultural perspectives.

The ability to be nimble in rapidly changing environments, also signifies the need to transfer knowledge rapidly before it erodes or degrades (Jones & Mahon, 2012). However, the pace of knowledge transfer brings risks of erosion or degradation. An example, relates to outsourcing projects. When third parties take over work of internal employees the knowledge transfer is not ideal. This is largely due to the exchanging and transferring of knowledge being very rapid, only permitting time for transference of surface level knowledge (Danese, Romano & Boscari, 2017).

Other authors discuss knowledge transfer challenges in relation to employee generational differences and how organisational members need to have tailored approaches (Lam, Lambermont & McNichols, 2010). Still others have researched knowledge retention and transfer in universal settings (Miller, McAdam, Moffett & Brennan, 2011).

The idea of ‘disseminating capacity’ raises another erosion and degradation challenge in how organisations and managers meet expectations using quality knowledge transfer practices (Minbaeva & Michailova, 2004 which might also include effective reverse capability transfer (Schotter & Bontis, 2009) associated with knowledge exchange of a transactional nature.

The implications from empirical research that motivational and reward systems may influence whether knowledge is at risk of being eroded or degraded again raised issues as to the role of HRM, leadership and cultural issues.

4.8.5.1 Shared Cognitive Ground, Social Ties and Knowledge

Strengthening cross cultural ties between organisational members, including host country nationals (HCNs) and expatriates, by using common processes and practices with shared views as well as motivational drivers (Wang & Noe, 2010) enhanced quality relationships and ties to provide a ‘greater shared cognitive ground’ as an enabler for knowledge (Gonzalez & Chakraborty, 2014, p. 305). The above situation illustrates the idea of shared cognitive ground for enhanced knowledge, complementing the concept of trans-activity for enhanced social ties that is explained by Van der Meijden (2005).

Knowledge transfer is considered linked to the extent of social ties (Zhou, Siu & Wang, 2010). These authors investigated the importance of social ties in knowledge transfer processes and how to distinguish between high and low tacit knowledge. The researchers question whether transfer of general knowledge can be facilitated through instrumental rather than expressive interpersonal means (Zhou, Siu & Wang, 2010, p. 449).

Organisational knowledge transfer continues to be a subject of ongoing review and research (Easterby-Smith, Lyles & Tsang, 2008), especially systems that enable more practical approaches to knowledge transfer and facilitate more seamless uptake (Fernandes & Raja, 2002). Collaborative, cooperative behaviours and practices need to become normalised to embed knowledge (Nahapiet, Gratton & O’Rocha, 2005).

4.8.5.2 Information Foraging

An example of knowledge extension, broadening the ecosystem view of the firm is how individuals forage for information (Stephens & Krebs, 1986). Individuals from varying specialist roles, will have a contrasting set of lenses through which to seek information and knowledge. Managers, aside from knowledge management responsibilities, can apply various methods to influence knowledge seeking including examining knowledge inflows and sources that can be multidirectional (Mom, Van Den Bosch & Volbera, 2007). In addition, psychological perspectives consider behavioural and perceptual factors in how individuals explore, seize upon and apply knowledge (Gibson, 1988).

4.8.5.3 Cross-Cultural Knowledge Transfer

This discussion focuses on the utility of instrumental versus expressive motivators in knowledge transfer and questions which approaches are more likely to be effective in facilitating tacit knowledge transfer in comparison with instrumental motivators used for transfer of explicit knowledge (Cruz, Perez & Cantero, 2009, p. 453). These authors found three factors in knowledge transfer processes involving: ego knowledge, sources of trust between the transferor and transferee, and the modus operandi of knowledge. This study emphasised the importance of the mediating role of trust in the course of knowledge transfer.

Different types of organisation encounter and view knowledge transfer in different ways. For example, MNCs might see differentiation across subsidiary operations (Foss & Pedersen, 2002; Liu, Pucel & Bartlett, 2006), whereas knowledge transfer can also drive project teams for performance and operational improvements (Lapre & Van Wassenhove, 2001; Frank & Echeveste, 2012), in cooperation with alliance partners (Kamesh & Jolly, 2008).

4.8.5.4 Knowledge Attractiveness and Transfer

An adaption of the strategic VRIN model (Barney, 1991) classifies knowledge into four forms: (1) Valuable knowledge, (2) Rare knowledge, (3) Inimitable knowledge, and (4) Non-substitutable knowledge (Perez-Nordtvedt, Kedia, Datta & Rasheed, 2008, p. 719). These characteristics reputedly affect recipients' perceptions and receptiveness towards acquiring transferred knowledge; they also influence attitudes to sources and appeal, combined with 'recipient' learning intent, quality of relationship and other variables (Perez-Nordtvedt et al., 2008, p. 719).

4.8.5.5 Knowledge Transfer Strategies and Processes

Designing knowledge transfer strategies can be influenced by contextualism (McBeath, 2012), such as within specific areas of operations in manufacturing (Madsen, Riis & Waehrens, 2008). The calls for understanding of characteristics of knowledge are to enable participants to maximise effectiveness of transfer practices (Garforth et al., 2004) and improve interaction with stakeholders of varying backgrounds (Gera, 2012); however, it is noted that in a context of acquisitions, unlearning may also be an important element within the knowledge transfer process (Tsang, 2008).

Another perspective emphasises the need to understand knowledge transfer processes to stimulate technological innovation (Gilbert & Cordey-Hayes, 1996). Whilst other authors demonstrate how diminished feedback can affect knowledge transfer in a training context; attitudes can also be shaped about adoption of knowledge transfer (Gururajan & Fink, 2010) which can reflect motivational issues (Martín Cruz, Martín Pérez & Trevilla Cantero, 2009).

In a different view, the role of expertise and its impacts on knowledge transfer is noted (Hinds, Patterson & Pfeffer, 2001; Linderman, Baker & Bosacker, 2011; Mateo, Tanco & Santos, 2011); in some instances a preference for experience ('implicit understanding') over expertise is observed in empirical case studies (Jacob & Ebrahimpur, 2001; Wilkesmann & Wilkesmann, 2011).

4.8.5.6 Knowledge Translation and Transfer

Knowledge translation concerns issues around how knowledge is communicated and subsequently interpreted (Liyanage, Elhag & Ballal, 2009); methods can vary in terms of efficacy (Prevot, 2008) for knowledge transfer. Knowledge translation (Estabrooks, Thompson, Lovely & Hofmeyer, 2006) features as an important layer within knowledge management. A number of authors consider barriers to knowledge management and knowledge systems fluidity another focus in the context of knowledge transfer (Paulin & Suneson, 2012). Yet others conceptualise knowledge transfer and communication using frameworks and models (Rhodes, Lok, Hung & Fang, 2008; Ward, House & Hamer, 2009; Sazali, Haslinda & Raduan, 2009), including reverting to classic communication-sender-receiver frameworks (Lin, Geng & Whinston, 2005) for sense making (Drazin, Glynn & Kazanjian, 1999).

4.8.5.7 Social Network Analysis and Knowledge Transfer

Other perspectives incorporate more informal forms of knowledge transfer, where transfer is from a social network (Liebowitz, 2005)⁸⁶.

One social network construct is social network analysis (SNA) and its role within knowledge management. Medium or strong social ties connect groups across an organisation and Intermediate ties also enable a degree of connection across different organisations. See Figure 4.13-4.14.

The degree of intimacy between social actors in organisations and building trust is important for knowledge transfers; for example, the distinction between acquaintanceship and friendship can affect the propensity or willingness to exchange knowledge (Haythornwaite & Wellman, 1998, p. 1103). Weak ties reduce frequency of knowledge uptake to ad hoc situations or specific social events. However, there is also an argument legitimising weak ties in certain circumstances, such as eliciting new information through externally sourced resources (Granovetter, 1973).

Extending discussion of the importance of social interaction for knowledge transfer and sharing, other authors consider elements to differentiate effective versus less effective forms of social interactions (Eddy, D'Abate, Tannenbaum, Givens-Skeaton & Robinson, 2006), implying how knowledge quality might deteriorate with more eroded or distant forms of social interactions.

A final aspect of social knowledge transfer relates to the 'triological' approach. This is an approach to knowledge creation via a type of learning involving collaboration and knowledge opportunities to 'reproduce ideas' (Reynolds & Camilleri, 2010, p. 2). This type of knowledge building incorporates cultural, historical, and actual theory and knowledge management practices. Emphasis is on collaborative creation, contrasting with 'dialogical learning' (Reynolds & Camilleri, 2010, p. 2).

⁸⁶ Knowledge sharing networks provide avenues for knowledge exchange (Verburg & Andriessen, 2011) and the key focal area is community networks and practices (Wenger & Snyder, 2000a, 2000b) - as an alternative for knowledge management within organisations (Aljuwaiber, 2016).

4.8.6 Knowledge and Communities

A community-based perspective suggests knowledge relies on community; ‘a world we can find in common’ (Sithi, in Farrell, 2004) and a socially constructed view of organisations and participants enveloped in self-organised systems. This is a cultural reframe modelled on biological systems (Bolsani, di & Scarsi, 2018). The emergence of communities of practice (CoPs) including virtual communities of practice (VCoPs) (Ogbamichael & Warden, (2018), has been one medium of social formation of knowledge. Elements affecting communities of practice include: the size and scale of organisation; the degree of ‘transversance’; and the degree of governance and centralisation vs decentralisation (Scarso, Bolisani & Salvador, 2009). The importance of communication mediums and Cops is a subject of review(Nowak.2017) Ultimately, managing knowledge is viewed as essential and requires significant organisational capability to collect, categorise, store, distribute and share good practice (Hannabuss, 1987, p. 1492).

Levels of trust (O’Neill & Adya, 2007) can be a product of the psychological contract between employer and employees, making planned contributions; however, ways for the facility to share knowledge in a meaningful way diminish if there are expectation gaps between employees and their managers or employer (Boxall & Purcell, 2015). This concept of psychological status can extend to feelings of fear that can affect knowledge sharing and knowledge dissemination (Renzl, 2008).

Diagnosing an organisation’s culture and readiness for knowledge sharing raises challenges for managers driving such change (Taylor & Wright, 2004). Organisational climate and other contextual or contingent factors play an instrumental role (Van den Hooff & De Ridder, 2004) and individuals’ affective and behavioural states can also be predictors for knowledge sharing capabilities (Van den Hooff, Schouten & Simonovski, 2012).

Numerous authors question community practices as ideal social mechanisms for sharing knowledge (Roberts, 2006); limitations highlighted include whether groups have beholden rights to certain community generated knowledge (Miller, 2015) which may influence whether such knowledge is broadcast.

The concern about community of practices (COP) is the risk to dominant forms and structures that monopolise knowledge creation and the impact of transfer to cohesive groups which can become exclusive and closed domains (Chua, 2009). Other authors air concerns about groups' potential to block 'unwelcome knowledge' (Sligo, Tilley & Murray, 2011) - this mirrors concerns levelled at social media. This idea of excluding knowledge can be deemed as a form of erosion or degradation. See Appendix 4 for more details.

4.9 Knowledge Erosion and Degradation

Reference to knowledge erosion and degradation is virtually non-existent and the limited existing discussion is largely confined to loss of expertise in specific tasks within narrow contexts (Kidron & Dreyfus, 2010) including procedural knowledge (Brannon & Koubek, 2001). Degradation resides within ecological discourses (Weiskel & Gray, 1990) and, with reference to cultural erosion or loss of knowledge, the focus is on local communities (Brosi et al., 2007).

One view of knowledge erosion is the gradual loss of local knowledge as it is transferred down from generation to generation. Another view suggests knowledge erosion occurs where there is disagreement about what constitutes knowledge.

A context for the study of knowledge erosion is the case of medicinal plant knowledge (Srithi, Balslev, Wangpakapattanawong, Srisanga & Trisonthi, 2009, p. 335) where the process of degradation / loss has been influenced by modernised practices superseding the need for local knowledge practices and deferring to other expert sources or practices by which to extract information. Another aspect is demonstrated in a Brazilian study where erosion is implied due to selectivity. Albuquerque (2006) points out that there can be preferred versus 'non-preferred species' in plant selection, indicating that categorisation and grouping of what appear to be more important species can bypass other knowledge.

Even pre-internet it was observed that commodification of knowledge and faddism permeated management attitudes towards accessing and valuing knowledge, resulting in compromised or degraded forms of knowledge on the basis of status or selectivity (Fincham, 1995). This author cites how managerial knowledge has increasingly been shaped and directed by experts

or consultants to produce a pre-packaged form of tangible knowledge that can be easily purchased.

In contemporary cases, such as Samsung and its brand reputation damage as well as VW with its product safety recalls, the question arises as to whether there is a form of knowledge erosion or degradation that has contributed towards companies' exposure to product risk for consumers or customers, based on knowledge used in the production process.

4.9.1 Knowledge Obsolescence, Depreciation and Stripping

The decision of when it is appropriate to rely on *existing knowledge* or where learning for new ideas is required, or whether to continue using available knowledge is a considered risk. In light of recent organisational performance or current success, it may be tempting to continue use *existing knowledge*; however with ongoing external environmental changes and other factors, certain knowledge may become obsolete, requiring updating capabilities and skill sets where knowledge can depreciate over time.

There are also possible risks associated with discarding older knowledge. Examples include research and professional disciplines, with the gradual disappearance or overlapping of knowledge domains which can involve knowledge stripping (Pickle, 2015).

4.9.2 Knowledge Fragmentation and Complexity

Large-scale projects within multi-technology and multi-business domains, demonstrate where projects can be quite sophisticated and complex, with expertise drawn from various organisational boundaries and stakeholders. The myriad of complex arrangements and sets of relationships requires intricate and detailed communications when procuring and using knowledge. Knowledge work can become fragmented given diverse client goals. This fragmentation and complexity can make it difficult for organisations to absorb, assimilate and value knowledge across projects given multiple cross border constituencies, varying professional identities and mindsets. This type of situation is discussed by Natarajarathinam, Capar and Narayanan (2009). The area of fragmentation and the capacity to manage incomplete datasets, is considered quintessential for effective organisational knowledge management in technical and IT areas (Borjigin & An, 2016).

The above authors narrow the focus to knowledge management practices in relation to quality assurance and connectivity, with knowledge application for continuous improvement and procedures for effective KM. There is also reference to knowledge lifecycles and fragmented knowledge that can arise during different lifecycle stages from creating, disseminating, tracking, interlinking, validating, integrating to storing knowledge.

4.9.3 Knowledge Leakage and Seepage

Knowledge leakage is another loss perspective that closely aligns with knowledge erosion and degradation and has been open to operationalisation and various interpretations (Kaplinsky et al., 2006; Chan et al., 2007; Coles et al., 2007). The key element within the risk of knowledge leakage is around people (Mohamed, Mynors, Grantham, Walsh & Chan, 2006a, 2006b); from an organisational knowledge management perspective it is important to identify possible weaknesses within knowledge management systems and make sense of key drivers behind such forms of leakage (Mynors et al., 2007).

Leakage can take different forms in part due to specific behaviours demonstrated by employees that breach organisational codes of conduct, such as revealing information to competitors of a sensitive commercial nature. This form of leakage clearly relates to corporate governance controls and human resource management practices. Another form of information leakage, concerns material distributed or communicated internally by different actors, where dissemination has not been duly authorised.

Knowledge leakage occurs when information that should have remained specifically within an organisation's boundaries becomes accessible outside it (Frishammar, Ericsson & Patel, 2015). This concept of leakage accommodates the distinction between core or pivotal and non-core knowledge within a firm or organisation and how leakage of core knowledge is a serious problem.

An example of knowledge leakage is private or confidential knowledge transferred to other parties that compromises the integrity of internal knowledge assets and capabilities that could result in diminished competitive advantage. However, it should be noted that critical knowledge might be perceived differently by different stakeholders in terms of what is core or key knowledge or its value to another organisation.

In some instances some benefits, rather than negatives, can result from leakage. Positive leakage occurs with knowledge spillovers between partners or stakeholders working in cooperation rather than competition. Although, organisations it is contended, need to be mindful of challenges faced from knowledge leakage and potential effects on productivity and competitive advantage (Ahmad, Bosua & Scheepers, 2014). The case of key people leaving organisations is one example of risk associated with knowledge leakage and some triggers of knowledge leakage can be due to major organisational realignments (Treleaven & Sykes, 2005; Sitlington & Marshall, 2011).

Some authors note the importance of having a balance between the degree of knowledge sharing and leakage when, for example, dealing with strategic alliances or operating within the supply chain (Norman, 2004; Oxley & Wada, 2009; Jiang, Li, Gao, Bao & Jiang, 2013). Determining types of knowledge suitable for knowledge sharing and forms of knowledge that need protection is a complex area both strategically and operationally, which may require different forms of knowledge governance (Durst et al., 2015).

In a recent review of empirical articles (Durst, Aggestam & Aisenberg Ferenhof, 2015), the researchers noted previous views of connections between knowledge leakage and knowledge sharing (Bock, Zmud, Kim & Lee, 2005), as well as degree of willingness by individuals to share, acquire or create knowledge; the findings reinforce how collaboration for knowledge sharing supports organisations in achieving overarching goals for competitiveness.

Another study examined why the managerial risks vary across organisational levels and locations (Olander & Hurmelinna-Laukkanen, 2015). Cultural values, norms and beliefs can influence cognition and motivation of people in groups and other countries regarding knowledge assets (Chiu & Hong, 2006). Additionally, the extent of High Involvement Work Systems (HWS) and approaches to empowerment and employee participation are significant factors (Su & Wright, 2012). Understanding levels of detection by organisational participants is also an important factor in safeguarding and protecting knowledge from loss or leakage.

4.9.4 Knowledge Safety and Risk, and Ecological Perspective

The theme of knowledge safety has recently emerged within the literature and the prime risks identified are attrition, oblivion and theft (Zieba, 2016, p. 984). This study focuses on the SME sector, given the stereotypic degree of less systems and processes to codify and transfer

knowledge normally associated with larger organisations. Knowledge loss can affect productivity and continuity in such businesses, with the loss of critical employee knowledge seriously impairing intellectual capital, resulting in breaks in social ties or relationships between key people, customers and other stakeholders (Ordóñez de Pablos, 2002).

Acceptance of the logic of knowledge as an asset has led to the emergence of knowledge risk management (KRM) (Durst, Bruns & Henschel, 2016); however, recent publications have focussed on frameworks and methodologies and concluded that this field is still in its 'infancy' (Durst et al., 2016, p. 25).

Knowledge management is designed to increase demand for knowledge intensive products and services, in rapidly changing business environments, which generate continuous opportunities but also create numerous and complex risks. Logically, organisations continue to seek ways to minimise and manage risk requiring a whole of business or corporate approach. Knowledge risk management embodies various tools and methodologies for the effective analysis response to risks from an organisational knowledge domains perspective.

There has been a perceived gap in the research regarding management of risks from a knowledge perspective (Trkman & Desouza, 2012). Knowledge needs to be managed for various situations and knowledge dissipation or 'disappearance' can lead to 'knowledge risk' (Durst et al., 2016, p. 20). These authors identify clusters of risk, such as: human resource related risks, with staff or key person departures due to voluntary turnover; relational risks, which may have consequences for reduced cooperation or self-interest; and other behaviours adopted by strategic partners that may impair competitive advantage (Coraş & Tantau, 2013).

Knowledge risk can also manifest in decision-making regarding strategy markets and products and services (Newell & Marabelli, 2012). Additionally, knowledge risks relate to knowledge gaps and misalignments between what organisations claim as known, contrasted with what is actually known. Such inconsistencies, can potentially impair organisational performance (Stewart, 1997; Perrott, 2007).

Knowledge risks can be specific to context such as service delivery or outsourcing of business activities (Durst, Edvardsson & Bruns, 2015). Knowledge risks can relate to leakage

of key knowledge that needs preservation within the organisation (Frishammar, Ericsson & Patel, 2015, p. 85).

From an ecological perspective, knowledge is construed as an ‘endangered species’ by some authors (Edvardsson, 2006, 2009; Hutchinson & Quintas, 2008). Knowledge safety is depicted as applying knowledge retention and protection methods and practices. A hazards analysis approach is one way to quantify whether knowledge becomes endangered or not. In general, knowledge safety utilises principles and practices similar to those enacted through Risk Management and Occupational Health & Safety (OH&S).

Review findings reinforced that there was not one homogenous view of knowledge safety and it was, at times, categorised either from a technical versus human orientation. A notable observation was the apparent low level of concern about knowledge safety and potential hazards, as well as assumptions that employees shared mutual tasks and functions which would counteract the possible risk of knowledge loss. Another complacent view was that knowledge safety problems were “something to live with”, rather than taking appropriate measures to prevent knowledge safety exposure (Zieba, 2016, p. 990).

One form of risk is reliance upon tacit knowledge that can leave a business, such as a SME, more vulnerable when key individuals leave taking their knowledge with them, resulting in negative repercussions due to exposure to business or financial viability risk (Watson, 2000; Durst & Wilhelm, 2011). This risk can also amplified if organisation owners or decision-makers have low awareness of the importance of knowledge management practices (Levy, 2011).

A narrow aspect of the field of knowledge risk and safety is demonstrated in medical and healthcare environments, where risks relate to medication errors can lead to harm to patients (Kavanagh, 2017, p. 159). Medication management is viewed as a knowledge intensive activity and governance to ensure instilling a culture of safety continues to be challenging. Three error categories were identified medication error, personality or personal factors and knowledge base or levels. Therefore, the need to maintain currency of knowledge in lieu more degraded knowledge and support systems to facilitate knowledge continues to be of paramount importance.

Additional studies report on the risks and challenges associated with knowledge retention and knowledge decline, supporting previous views about the importance of keeping specialised knowledge updated (Bukiran, Erdur, Ozen, Bozkurt, Aydin & Denizli, 2014). Here, knowledge levels are influenced by frequency and ratios of training to work levels and professional experience. Having safeguards is also an important aspect of knowledge management to ensure knowledge security (Ryan, 2006).

4.9.5 Safeguarding Critical Knowledge

De Long (2004) attributes knowledge loss to two key drivers: (1) ageing population with changing demographic and generational shifts; and (2) complexity of knowledge linked to technological advancement. This author further contends that possible impacts of demographic trends, coupled with labour shortages, exacerbate ‘knowledge shortages’ at ‘unprecedented rates’ adding complexity to human resource practices, planning and business continuity management.

Therefore, safeguarding *critical knowledge*, determining knowledge for sustainability and future performance involves methods of identifying sources of critical knowledge. The author cites examples of knowledge loss impacts on companies such as Texas Instruments whose quality control systems were seriously compromised, due to the loss of key technical specialists, contributing to a decline in revenues. Another example of employee knowledge loss, combined with erratic product demand, causing production disruptions and substantial revenue losses related to the Boeing Corporation (De Long, 2004, p. 18-19).

Key activities embed into organisational routines where there are dependencies from various stakeholders, highlights the importance of safeguarding ‘institutional knowledge’ given the degree of mastery surrounding ingrained routines and performance expectations and rigours measures from internal and external parties (Diriye, 2019). The author points to risks of organisational and routines being attached to individuals and being at the behest of staff members’ availability.

Considering the above, and acknowledging more recent automotive industry rationalisation examples, it is postulated that knowledge erosion and degradation can manifest through prevailing knowledge paradigms exercised through power based knowledge repositories including engineers and experts.

4.9.6 Knowledge Loss and Retention

Knowledge loss amongst managers is a key area of concern (Girard, 2006). The potential exodus of knowledge embedded within particular key roles, combined with the transition or emigration of key individuals to other areas can contribute to *organisational amnesia* (Hashim & Othman, 2004).

The theme of knowledge loss as a form of erosion and degradation is entrenched in the KM literature, in terms of the loss of organisational effectiveness and other impacts on competitive advantage. Knowledge loss can be interpreted from different angles. Loss of breadth and depth of knowledge can have substantive negative impacts on technical operations (Moorthy, & Polley, 2009). This section focuses on discussion of barriers to knowledge retention as an erosion and degradation risk.

The connection between retention of key expertise and talent is so strong in areas like IT that it continues to be a subject of importance, given the highly specialised knowledge within functional areas (Bairi, Manohar & Kundu, 2011) as well as career mobility and global project work (Bender & Fish, 2000).

Other authors emphasise the importance of investigating factors that influence organisational capabilities to retain knowledge and how systems and psychological behavioural elements come into play (Martins & Meyer, 2012).

Authors such as Leonard (2016) advocate cross transfer of knowledge to circumvent such risks and ensure that knowledge practices are well ingrained within organisations.

Still other researchers suggest it is vital to make sense of reasons contributing towards knowledge loss for effective management and mitigation of such risks (Daghfous, Belkhodja & Angell, 2013). Processes to safeguard knowledge in the event of loss of key talent in experts from highly specialised knowledge intensive roles (Joe, Yoong & Patel, 2013), are noted within the Oil and Gas industry (Sumbal, Tsui, See-to & Barendrecht, 2017), highlighting the importance of knowledge and knowledge loss strategies (McQuade, Sjoer, Fabian, Nascimento & Shroeder, 2007).

4.9.7 Agency Theory and Knowledge Erosion and Degradation Risk

Agency theory observed as an aspect of management control also relates to *knowledge asymmetry* (Phelps, 1992) such as with knowledge worker exchanges. Utilitarian and scientific management principles also frame agency models and how reciprocity and commitment in social and business exchange (Mitchell & Meacham, 2011). Research indicates that capitalising on knowledge expertise, which falls within a framework of principal agent exchanges, may present challenges in sharing or cultivating knowledge; normative influence valence rewards act as alternative managerial control mechanisms to influence knowledge work effectiveness.

Agency theory is a strongly founded economic theory concerning the nature of contractual relationships (Eisenhardt, 1999; Jensen & Meckling, 1976). Agency theory normally applies to professionals, or a particular category of identified knowledge workers (Sharma, 1997) and relationships as knowledge asymmetry (Phelps, 1992). The underpinning premise of agency theory is how relationships are convened and realised with the principal (employer) designating certain tasks and decisions through an agent, such as an employee or third party such as contractors. Agency behaviours can create interests or paths to pursue their own goals, which might negatively impact the organisation. The agency relationship also can precipitate *information asymmetry* (an imperfect distribution of knowledge).

The challenge for organisations in viewing relationships between management and employees through this lens is safeguarding against self-interest and cultivating organisational cultures that are more goal oriented. Having strict monitoring and contract driven exchange relationships can be bureaucratic and industry driven. However, this technocratic approach to control and the need for standardisation of processes, through direct supervision, can be counteractive when trying to cultivate knowledge work. There is an assumption with agency theory there comes some opportunistic behaviour and potential for self-interest conflicts between the principal and organisation, which in turn can also generate *information asymmetry* which clearly has knowledge erosion and degradation implications.

4.10 Knowledge Erosion and Degradation Barriers and Risks

Overcoming barriers to KM, such as use of systems, also features as an important issue in relation to KM implementation and, accordingly, raised at recent international forums

(Hacker, Bodendorf & Lorenz, 2017). The following sections consider examples of KM related barriers with risk implications for erosion and degradation.

4.10.1 Knowledge Capture

Buckley and Carter (2004) suggest organisations face challenges in capturing and retaining profound knowledge, and employees may be disinclined to share the extent of their knowledge (Leonard & Swap, 2004; Thomas-Hunt, Ogden, & Neal 2003; Minbaeva, Pedersen, Björkman, Fey & Park, 2003).

There is added complexity associated with capturing knowledge (Senge, 1990). There are additional challenges associated with rapidly changing job roles and technical knowhow, due to external forces and other factors such as technology change. Subsequently, in a fast changing environment, generating and updating new knowledge can be particularly challenging and problematic (Almeida & Kogut, 1999; Argote, 1999; Song, Almeida, & Wu, 2003).

4.10.2 Knowledge Acquisition, Building and Creation

4.10.2.1 Absorptive Capacity

Whilst the absorptive capacity term suggests an individual capacity to absorb and retain information, it can also be used in broader knowledge management to describe the capacity for organisations to import, retain and create knowledge (Andersén, 2012).

Absorptive capacity concerns organisations and their capabilities to absorb external market information and knowledge for organisational performance (Cohen & Levinthal, 1990). More recently absorptive capacity has been associated with digitalisation and data analytics to guide decisions (Wang & Byrd, 2017).

Absorptive capacity, as a construct, is also construed in terms of how an organisation identifies, absorbs, assimilates and uses knowledge, having also considered what forms of knowledge need absorption. Absorptive capacity concerns inbound forms of knowledge transfer and involves identification of what is deemed as ‘valuable external knowledge’ (Lichtenthaler & Lichtenthaler, 2009). Additionally, this knowledge management area,

involves assessing the effectiveness of assimilating, integrating and applying such knowledge (Cohen & Levinthal, 1990).

Other studies exist where absorptive capacity is explored in relation to the experience of expatriates and expatriate knowledge utilisation (EKU) (Gonzalez & Chakraborty, 2014, p. 305). Expatriate knowledge utilisation method garners data through subsidiary organisations' capacity to absorb key information, interpret the knowledge and assimilate it into organisational systems and processes. Whilst organisational knowledge represents an asset or stock of renewal knowledge, absorptive capacity relates to inflows of knowledge from external entities that includes head office or other strategic partners (Gonzalez & Chakraborty, 2014, p. 305).

Absorptive Capacity, as a key knowledge management term, continues to be subject to reinterpretation (Todorova & Durisin, 2007). The implications for knowledge erosion and degradation when there are perceived barriers (Kuznetsov & Yakavenka, 2005) relate to how organisations effectively manage intellectual property (IP) and integrate knowledge (Kuznetsov & Yakavenka, 2005). The potential problem of cultural inertia may impair readiness to absorb new knowledge (Godkin, 2010). Where organisations are experiencing turbulent environments, knowledge requirements can quickly change (Lichtenthaler, 2009), and organisational endeavours to standardise or infuse knowledge into operations may not mesh with the complex conditions (Minguela-Rata, Rodríguez-Benavides & López-Sánchez, 2012).

More recent approaches to absorptive capacity focus on risks, given interactions across and outside organisations, and extend to multiple capacity sources, including desorptive capacity. Desorptive capacity is where organisations can source or require knowledge for commercial benefits such as with the transfer of IP (Denford & Ferris 2018 p. 1425).

Additionally, absorptive capacity encompasses a system to build deeper reservoirs of knowledge that can contribute towards competitive advantage. However, not all organisations have the same capabilities or commitment levels, resources or infrastructure to leverage such forms of knowledge leading to the possibility of knowledge erosion and degradation.

4.10.2.2 Knowledge Building, Construction and Learning Partner Challenges

The concept of a 'knowledge building community' (Bereiter & Scardamalia, 1993 in Heiskanen, 2004, p. 370) raises challenges with use of dialogues across different professions, given that a study of Finish professionals indicated different perspectives acted as barriers to knowledge sharing. Managing divergent views can be barriers for discourse and discussion. Barriers can exist amongst professionals due to learning paradigm differences and assumptions (Argyris, 1991, p. 382).

Following from the previous discussion of domain centred knowledge, knowledge construction can be viewed as a joint exercise between learning partners, and reflecting the types of learning interactions between partners. In addition, developmental relatedness concerns the interaction between learners or learning colleagues and partners (Higgins & Kram, 2001). There are various factors that can either stimulate or inhibit work-related learning (Eraut, 1998; Ellinger, 2005) divided into personal characteristics, relational characteristics and work related characteristics (Billett, 2002).

4.10.2.3 Tacit Knowledge Conversion and Elicitation

Sharma and Lenka (2019) voice cautious views about management and organisational capabilities to extract or access knowledge from employees. Here, the implications for eroded or degraded knowledge lie in the capacity to elicit quality knowledge given its somewhat vague or subjective nature.

This challenge facing managers seeking to convert and disseminate tacit to explicit knowledge involves overcoming roadblocks (Woo, 2019) observes the challenges in a contract management context and the complex information conveyed and required across participant organisations and employees. Approaches by earlier researchers, such as Nonaka and Takeuchi (1995) with the SECI model, include tailored individualised approaches with metaphors, dialogue and other communication mediums.

The individual orientation to extracting tacit knowledge raises motivational and other human behavioural challenges, and the Motivation Opportunity and Ability (MOA) framework developed by Blumberg and Pringle (1982) considers barriers to knowledge elicitation. This process involves reaching out to 'knowledge owners', who may be less inclined or disposed to share comprehensive knowledge.

An additional barrier, the second element from the MOA framework, is opportunity and knowledge may be constrained through issues of infrastructure such as lack of pathways to transition knowledge or work structures and communication platforms. Additionally, individual capabilities vary and the effectiveness of knowledge communication and sharing may be inconsistent.

The emergence of Knowledge Engineering (KE) is an extension from intelligent systems and is a rational attempt to circumvent some of the individual factors and idiosyncrasies raised, where people are time-poor and where face-to-face interactions are less feasible due to work pressure demands.

Accordingly, knowledge elicitation is primarily viewed as a mechanism for knowledge acquisition, with objectivist connotations. Other terms used to refer to this rational and objectivist approach include data capture and knowledge extraction (Gavrilova & Andreeva, 2012, p. 527); however, this qualitative gap has implications for what types of knowledge might be sought and risks abrogation of knowledge in rational systems.

The above authors explain further how the KE area has two distinct roles namely expert and analyst, with the former owning or possessing 'valuable knowledge' (Gavrilova & Andreeva, 2012, p. 527) whereas the latter is responsible for enacting elicitation methods. Traditional KM practice does not feature the analyst role and relies more on the processes to inure knowledge owners to impart their knowledge.

The KE approach is less dependent on one form of sourcing knowledge from individuals; it can utilise a variety of techniques including interviews, roundtable and other collaborative methods (Gavrilova & Andreeva, 2012, p. 528). Other authors have discussed elicitation techniques for knowledge exchange with project partners (Elezi & Bamber, 2018). These authors considered higher education institution settings and bridging gaps with commercial partners, where less prescriptive elicitation and exchange methods are possible.

As indicated above, numerous factors and inconsistencies can influence knowledge transfer and contribute to erosion and degradation. Some of these potential problems or risks can be addressed by a tripartite methodology for knowledge elicitation that includes a questionnaire,

an expert panel and facilitation. However, some authors observe risks of individual experts having variable expertise and recommend the use of multiple experts provides safeguards to minimise risk (Berdai, Tahan & Gagnon, 2019). These authors considered elicitation techniques to minimise variations across experts. A combination of direct and indirect techniques were compared, including statistical analysis, rational models and expert beliefs. One possible erosion and degradation implication was reliance on quantitative approaches that might bypass expert wisdom, which resulted in missed opportunities for solving problems. Enabling knowledge creation from tacit information is a mysterious journey (Von Krogh, Ichijo & Nonaka, 2000) that involves using elicitation techniques such as storytelling (Whyte & Classen, 2012) and other innovative systems (Spraggon & Bodolica, 2017).

4.10.3 Knowledge Sharing and Contribution

Barriers to extracting and sharing knowledge can prevail in business structures such as franchising and other situations with strategic partners where trust and risk factors limit or potentially downgrade such knowledge (Dixon, 2002; Becerra, Lunnan & Huemer, 2008).

4.10.3.1 Knowledge Contributions and Knowledge Repositories

Verifying or validating the worth of knowledge and knowledge management processes may affect the degree of knowledge input or contributions by organisational members (Durchjikova & Gary, 2009). This section focuses on views about the quality of knowledge and knowledge repositories. It is also important to understand possible effects of rigorous standards acting as possible disincentives or demotivators for knowledge contributors, and where there can be a risk of ‘choking’ of knowledge flows from expert determination in screening processes. The signalling theory (Durchjikova & Gray, 2009, p. 84) assists in knowledge management to help determine what constitutes quality knowledge. Stringent upholding of validation processes can minimise poor input problems, however signalling problems can arise where employees become cautious about using a repository system; this may be due to a lack of confidence that the knowledge will be useful or of quality, even though the system might be designed to filter out low quality inputs.

4.10.3.2 Collaboration and Accumulative Knowledge

Although, collaborating in continuously changing environments raises other knowledge challenges, it is part of the reality of living in an ‘impermanent world’ (Gadman & Cooper,

2005). Changing knowledge management approaches, reflect the need for stronger intra-organisational collaborations rather than the quarantined, siloed functional approach to knowledge (Cricelli & Grimaldi, 2010). Lack of collaboration affects performance when knowledge is not accumulated. For example, lack of ‘accumulative knowledge’ between stakeholders, customers and suppliers can impact organisational effectiveness, as leveraging knowledge of key people can be value adding

4.10.3.3 Knowledge Integration

Managing the voluminous information and knowledge can present challenges for sectors such as local government. This situation compounds with problems associated with orchestrating systems severely lacking and in need of business process reform (Kamal, 2001).

This process of integrating knowledge (Akbar, 2003) for competitive advantage (Lin & Chen, 2008) is on-going amidst changing organisational structures and operating within new supply chain configurations relying on collaboration through use of technologies (Adams, Richey, Autry, Morgan & Gabler, 2014; Bhakoo, Prakash & Chia, 2015; Muntaka, Haruna, Mensah, 2017) and informal mechanisms (Moreno-Luzon & Begona Lloria, 2008). Vertical integration is one sophisticated form; this is differentiated from outsourcing as a means of integration, which may complexity to an organisation’s operations and knowledge integration (Broeder, Kinkel & Lay, 2009).

Different approaches are deployed to understand knowledge integration across domains (Curzi & Reis, 2012) as well as risks around knowledge integration in the context of ‘corporate disintegration’; weak or non-existent knowledge management practices clearly pose erosion and degradation threats (Hall, Nousala & Kilpatrick, 2009). An additional threat to effective knowledge integration is the type of approach termed as ‘coerced integration’ (Deitz, Hansen & Richey, 2009).

Organisational design is an important element in supporting knowledge management to enable positive flow on effects (Barratt-Pugh, Kennett & Bahn, 2011). Operations management within organisations must also align with knowledge management (Magnier-Watanabe, 2011). Additionally the importance of diversity management, within sharing and integration processes has also been examined, as it relates to Multi-National Firms (MNFs) (Jacquier-Roux & Paraponaris, 2012).

There is discussion about how organisations want to conduct reconfiguration (Palmer, Benveniste & Dunford, 2007; Williams et al., 2012) to integrate more intelligent systems (Bennet & Bennet, 2005a) and to facilitate knowledge usage (Martin-Perez, Martin-Cruz & Estrada-Vaquero, 2011). Other authors expound the importance of collaboration using anthropological methodologies (Peinado, 2014), but a distinction is made between technocratic and anthropological forms of knowledge (Riles, 2004).

Knowledge integration also fits within other KM practices including KM audits to identify gaps and areas for improvement (Gloet, 2002).

4.10.3.4 Knowledge Hoarding versus Sharing Risks

In contrast with the KM systems perspective, human and organisational cultural considerations are also a key focus of KM (Ruggles, 1998), reflected in knowledge based practices such as ‘patient safety’ (Waring & Currie, 2009, p. 760). Amidst concerns about risk, more accountable systems in healthcare and cultural changes within medical and healthcare professional fields are evolving, where knowledge can be quarantined and encoded with a strong emphasis on ‘*bureaucratic knowledge*’ (Waring & Currie, 2009, p. 760).

An ethnographic study undertaken within a major hospital examined KM practices as well as medical culture and fraternity. Findings noted situations where professionals tended to ‘control’ or hoard knowledge (Waring & Currie, 2009, p. 774). Although, other sectors are not immune from such knowledge barriers.⁸⁷

There are various reasons why certain individuals or employees may seek to share knowledge more than is appropriate or permitted (Bulgurcu, Cavusoglu & Benbasat, 2010) and confidentiality issues are relevant here. Leaks and spillovers can occur for a variety of reasons, such as: having shared to resolve a problem; mistakenly leaving confidential documents unsecured on desks; or accidentally forwarding information that is classified (Herath & Rao, 2009).

⁸⁷ Barriers can exist with endeavours to generate, share or create knowledge (Calhoun & Starbuck, 2003) also observed in other empirical studies of owners and managers within SMEs (Demirbas, Hussain & Matlay, 2011). Other barriers can be invisible, such as in the case of high-tech MNCs (Teagarden, Meyer & Jones, 2008) and R&D areas in the pharmaceutical sector (Lilleoere & Hansen, 2011); furthermore, challenges surround ‘protected functional niches’ (Gastaldi, et al., 2012).

4.10.4 Organisational Realignment Impacts

4.10.4.1 Changing Organisational Forms, Social Relations and Knowledge

Organisational realignment and changing organisational forms, such as focus on project structures or more specific units of activity (Haanes & Lowendahl, 1997; March, 2007), extends outside rational organisational styles and structures but also indicates how knowledge can become more siloed. Permeable organisational designs such as in call centre environments can raise even further challenges, as multiple levels of knowledge are required to meet the needs of varied clients (Rubery, Carroll, Cooke, Grugulis & Earnshaw, 2004).

Such changes can impact the organisational culture and social fabric, disrupting social relations and networks in the course of ‘recomposition’ (Hopkins & Hopkins, 2002 p. 292). Whilst such cultural renewal might provide opportunities to facilitate new knowledge, there is also risk of knowledge loss due to the fracture of social or relational based knowledge.

4.10.4.2 Downsizing, Structural Realignment Impacts and ‘deknowledging’ of the firm

The impact of strategic alignment and structural downsizing has also been explored in relation to knowledge effectiveness. Downsizing is one specific example of realignment with possible negative effects and ramifications. One study considered perceptions of after-effects of strategic downsizing in the context of knowledge retention (Sitlington & Marshall, 2011). Some results of this type of knowledge loss include ‘reinventing the wheel’ through sourcing or re-hiring people as well as reintroducing ideas and practices (Gregory, 1999). Other negative effects can include inability to trace or find key information. Reflecting a ‘deknowledging’ of the firm (Littler & Innes, 2003)⁸⁸ where organisations encountered lost productivity, inefficiencies and errors as well as reduced quality of work resulting from loss of key knowledge and personnel. There was also reference to diminished access to ‘*necessary knowledge*’ (Sitlington & Marshall, 2011, p. 118).

⁸⁸ From a knowledge erosion and degradation perspective, downsizing strategy may have mixed performance outcomes with a dramatic exodus and increased knowledge emigration rates. Numerous researchers argue that downsizing has resulted in hampered performance, and that ‘convergent’ downsizing organisations, are more susceptible to knowledge loss than organisations adopting a ‘reorientation’ (learning) strategy (Farrell & Mavondo, 2004). This loss of key skills and knowledge has been typologised in a knowledge degradation sense as a ‘de-knowledging’ of the firm (Littler & Innes, 2003).

Appelbaum, Patton and Shapiro (2003) suggest that neglecting the social fabric and its interconnectedness, for creating strong knowledge linkages coupled with diminution of core competencies arising from downsizing, can be a factor affecting maintenance of organisation or corporate memory. The deconstruction of organisational culture and cooperation are potential risks to safeguarding organisational knowledge.

The business environment is continually changing and organisational downsizing is a form of erosion or deconstruction of established communities, which subsequently impacts on the maintenance of the depth of knowledge due to social disruption that is continually occurring particularly in western organisations.

4.10.4.3 Delaying, Mergers, Knowledge and 'Reciprocity Wariness'

Impacts from restructuring and associated delaying can also create social dislocation and disrupt knowledge exchange as a result of management rationalisation (Littler, Weisner & Dunford, 2003). Such structural readjustments can have far-reaching consequences across institutional sectors, with eroded forms of knowledge exchange due to loss of commitment or trust leading to 'reciprocity wariness' (Shore, Bommer, Rao & Seo, 2009, p. 701) in contrast with the view on value creation and returns from knowledge exchange (Saide, et al., 2019).

For knowledge creation to be effective, organisations need to manage organisational memory (Hashim & Othman, 2004). Chou (2005) suggests that there are three key elements to this: individual knowledge creation - capability to absorb and share knowledge; operational learning and organisational knowledge; and strengths and relevant capabilities. This researcher further suggests that levels of organisational knowledge exchange greatly affect knowledge creation and acknowledges cultural factors may inhibit knowledge sharing and knowledge production. Research across public and private agencies highlights the importance of knowledge combined with experience, where the value of expertise and contextual considerations need to be considered in relation to knowledge sharing for competitive advantage (Bradley, 1991; Rivera-Vazquez, Ortiz-Fournier & Flores, 2009).

Bartlett and Ghoshal (1998) suggest middle managers play a central role in knowledge creation. But potential flaws with this theory include the lack of a definition of middle managers and the acknowledgement that many organisations have undertaken delaying and removed middle management tiers.

Additionally, employee input and identification can be altered with structural realignment (Bartels, Pruyn & de Jong, 2009) which can determine whether knowledge sharing or knowledge withholding practices most likely result. However, a diminished sense of identification may have consequences for levels of engagement and subsequent effort in knowledge practices.

4.10.5 Organisational Performance Pressures

Organisational pressures also have implications for how knowledge is managed which, in turn, influence the risks around how knowledge is created, shared, distributed and preserved, as discussed below.

4.10.5.1 Results Driven Focus

Ongoing pressures to focus on results and better performance within organisations has observable influences on behaviours and management practices, shaped by more rational systems oriented methods (Hyten, 2009; James, 2009). Adoption of such methodologies has implications for how knowledge is perceived or valued; this includes encouraging ways to extract and develop forms of knowledge that logically correlate with producing business results. This performative type of knowledge is noted in public sector management and is a rationalist approach (Sundström, 2006).

4.10.5.2 Action Fixation and Extreme Action Teams and Improvisation

The compulsive drive for action, titled 'action fixation', is viewed as a major blockage to learning (Garratt, 1997, p. 24). A related concept is that of 'extreme action teams' (Klein et al., 2006) that describes an unusual context for knowledge sharing, where highly skilled personnel are working under conditions of tight deadlines within short timeframes, with urgent tasks to perform and constantly changing team structures.

Such conditions necessitate high levels of co-operation to share knowledge whilst, paradoxically, operating with constantly changing demands and continuously changing goal posts. This means that knowledge is at risk of being diluted or disregarded as such teams require 'collective improvisation', and the risk of decisions made on the run is not dissimilar to the reality of working at breakneck speed - a concept introduced in Chapter 3. Ultimately these work conditions can blur the boundary of knowledge (Melkonian & Picq, 2010).

4.10.5.3 Organisational Ambidexterity and Swift Decisions

Organisational ambidexterity, following principles of agile thinking, is a more recent cultural aspiration that is driving organisations to be more responsive and flexible in operations (Simsek, 2009; Perkin & Abraham, 2017). Implications for knowledge arise in relation to quickly responding to customer needs and being adaptive, where there is no time for deep knowledge and there is risk of knowledge being eroded or degraded to meet the agile ethos.

Because 'swift decisions' (Collin & Valleala, 2005, p. 402) are sometimes called for in organisations, a greater depth of knowledge is required rather than technical or formal competencies derived from training including and having effective knowledge management capabilities, building sustainable knowledge networks and maximising knowledge preservation throughout network members (Abbasi, Hosnavi & Tabrizi, 2013)..

4.10.6 The Changing Nature of Work and Workforce

Organisations through globalisation are increasingly more dispersed as work places 'geographically, temporally and culturally' (Farrell, 2004, p.479). Additionally, contemporary organisations are noticing the effects of fragmentation of work into specific parts with 'repeatable procedures' (Pall, 2000, p. 101). For example, the substitution of people with automated answering systems may be considered more efficient but has led to a dilution of personal contact with customers. See Appendix 4 notes for more details.

4.10.6.1 Knowledge Flows and 'Brain Drain'

Knowledge flows arguably have positive and negative connotations as evidenced in the experience of expatriates (Harvey, 2012) across multinational corporations (Gupta & Govindarajan, 2000). The literature also warns of threats of 'knowledge drain', arising from knowledge flows, as a possible form of knowledge erosion and degradation (Lee, Suh & Lee, 2014). Using network analysis, these authors measured dependencies between organisations and considered the risks of key members, as knowledge contributors, leaving respective organisations.

Other authors investigating links between knowledge flows and brain drain, point to the risk of 'brain drain' where professionals pursue offshore career opportunities - with impacts on organisations as well as a country's labour market (Gungor & Tansel, 2008). Other studies

discuss changing labour mobility due to globalisation and impacts on knowledge more generally (Agrawal, Kapur & McHale, 2006).

4.10.6.2 Work Disruption Impacts and Temporary Workers

Following on from discussions in Chapter 3 about organisational challenges, the reality of continuous disruption to work (Jett & George, 2003) has ramifications for knowledge and knowledge management practices when employees continually face interruptions and changing work demands; this means knowledge is subject to plasticity leading to risks of erosion and degradation.

Another author considers antecedents for knowledge management stages through an empirical study of managers from various companies (Lin, 2011); the antecedent factors were divided into categories, including: self-efficacy, open communication, reciprocity, senior management support and rewards. Lin (2011), invokes the idea that if knowledge management benefits are not communicated, then this leads to sub optimal exploitation of knowledge and knowledge management practices. The author went on to develop a model to test relationships using statistical analysis.

Additionally, organisations need to manage knowledge collected from previous disruptive contexts as well as more stable environments; however, operating in rapidly changing contexts calls for more organisational improvisation (Crossan, Cunha, Vera & Cunha, 2005). It should also be noted that decision-making capabilities can be marred due to numerous factors where past practices are not axiomatic with current and future strategies (Finkelstein, Whitehead & Campbell, 2009) - judgement can be subject to bias as argued within the context of supply chain management(Carter, Kaufmann & Michel, 2007).

Implications for knowledge erosion and degradation also result from changing organisational and human resource management policies, through use of temporary workers and increased reliance on the contingent workforce; these changes may impact on underlying motives for such employment practices (De Jong, De Cuyper, De Witt, Silla & Bernhard-Oettel, 2009) and how organisations perceive the value of knowledge.

4.10.7 Learning and Knowledge Barriers

Problems and barriers towards learning and knowledge attainment are shaped by various situational factors associated with learning in organisations together with the development of individuals (West, 1994, p. 32). Other literature focuses on barriers to learning and knowledge sharing (Darling, 1996).

Senge (1990) suggests organisations may be susceptible to a form of learning disability based on design and management where how individuals perceive themselves within organisational systems and as social actors adopt a sense of identity and particular functional role can limit their potential because it is based on self-conceptions and organisational definitions of roles this could extend to implementing a form of knowledge embargo meaning ideas and knowledge are quarantined or restricted to specific job roles.

Senge (1990, p. 123) questions the idea of learning or acquiring knowledge purely from experience as a superior form of knowledge and suggests that quality learning can have its roots in outside direct experience.

4.10.7.1 Learning Myopia

‘Learning myopia’ is another factor that may affect organisational performance (Yeo, 2003). It had previously been suggested that learning myopia was due to being focussed on the short term and not able to see the big picture or ignoring failures (Levinthal & March, 1993). It was also argued that performance measurement needed to be considered from an objective as well as a subjective viewpoint to ensure all forms of knowledge are considered, including broader contextual and other learning variables (Hedges, 1997), to prevent knowledge erosion and degradation risk.

4.10.7.2 Unlearning, Relearning and Obsolete Knowledge Risks

Organisational learning is steeped within an organisation’s identity and purpose (Kogut, 1996). Amidst shifting approaches for sustainability (Edwards, 2009; Tilbury & Ryan, 2011) that include a complexity perspective (Espinosa & Porter, 2011).

Organisational Learning is conceptualised in different ways from ideas of learning and continuous improvement (Oliver, 2009) through to connections with Total Quality management or TQM (Konidari & Abernot, 2006) and operations management perspectives.

The move towards building learning organisations (West, 1994; Konidari & Abernot, 2006; Weldy & Gillis, 2010; Bui & Baruch, 2010; Huang & Shih, 2011) further reifies a continuous improvement ethos, which has implications for a cultural perspective around learning and knowledge (Browaeys & Baets, 2003).

Other authors depict organisational unlearning within the framework of learning, unlearning and relearning (or LUR) (Sharma & Lenka, 2019), amidst a myriad of definitions (Becker, 2019; Sharma & Lenka 2019). Becker (2019, p.5) voices concerns around ‘nomenclature’, with certain terms and constructs imported from conventional psychology arenas (Howells & Scoholderer, 2016 in Klammer & Gueldenberg, 2019, p. 1461).

The underlying purpose for such unlearning is to generate ‘new knowledge’ (Sharma & Lenka, 2019). Relearning adaptation and continuous improvement through learning suggest the need to disband former routines, beliefs and knowledge to enable change and improvement in organisations; this raises implications for discarding knowledge.

The main discourses around unlearning fall into two main domains. The first where unlearning concerns extinguishing ‘*obsolete knowledge*’, by quashing behaviours and practices at odds with the new desired state; and the second focus is on replacing old knowledge with new knowledge through knowledge acquisition and dramatically revising work methods or organisational routines. Neither of the approaches is clear-cut about processes and where boundaries can also be blurred (Wang, 2019).

Unlearning has more recently been investigated through empirical studies, where agile methods have been implemented and intentional organisational forgetting appears warranted to ensure different knowledge evolves (Vollard, 2019 in Becker, 2019).

From a knowledge erosion and degradation perspective, relearning resulting from unlearning can lead to misconstrued perceptions around what knowledge needs to be discarded; there are also risks of knowledge seepage, where key knowledge is bypassed or lost as a result of adopting new operational approaches.

Whilst researchers examine unlearning within hyper-competitive environments and how this relates to organisational forgetting at a more micro level of new product development teams

(NPDs) (Klammer & Gueldenberg, 2019); these authors observe how innovation knowledge and practice can be hindered by a lack of capability.

Knowledge loss, rather than being implicated as a risk related to erosion and degradation, is viewed as critical and ‘purposeful’; although such ‘intentional knowledge loss’ may also be construed as a form of ‘involuntary knowledge loss’ (Klammer & Gueldenberg, 2019). Moreover, these authors warn of negative consequences associated with unlearning of all knowledge, where disassembling of forms of knowledge can impact other organisational sectors meaning that simply abandoning knowledge could lead to impacts on business continuity in operations and risk concerns such as the unforeseen leakage of critical knowledge. This issue raises knowledge management questions as to types of methods used for assessing or determining when knowledge needs to be superseded (Klammer & Gueldenberg, 2019, p. 1462).

4.10.7.3 Learning Communities and Risks

Concerns around communities and learning are considered as at risk of abeyance to dominant power forces (Huzzard, 2004) and the manipulation of knowledge building. Such forms of risk can further lead to concerns of knowledge being eroded or degraded (Barkema & Vermeulen, 1998).

The notion of communities and learning extends to the workplace and consideration of the nature of workplace learning, situated learning and knowledge in context (Capaldo, Iandoli & Zollo, 2006; Gibbs, 2008) and how having access to knowledge is an integrational component (Li et al., 2008).

The social constrictions and nature of organisations (Child & Heavens, 2003) can influence social interactions and alter types of work and learning (Bogrenrieder & Nooteboom, 2004) as well as how networks develop (Bessant & Tsekouras, 2001; Garrety, 2014).

Blended learning (Teng, Bonk & Kim, 2009) draws on various forms of learning (Pokharel & Hult, 2010) and phases (Patrick, 2010). Organisational lifecycle (Phelps, Adams & Bessant, 2007) and other factors need to also be taken into consideration underlying feasible perception and experiences from highly specialised people (Collin, 2004; Stround & Fairbrother, 2006).

The importance of understanding ways in which people learn and respond to learning or knowledge is an ongoing theme, where empirical investigations seek to understand variations across organisations in learning dimensions (Weldy & Gillis, 2010) and how people learn in this context (Dyck, Starke, Mischke & Mauws, 2005).

A case study of a Not-for-Profit Organisation focused on knowledge sharing in the context of volunteers being encouraged to share ‘lessons learned’ (Chua, 2009, p. 36) and use of an After Action Review (AAR) process through digital solutions showed the following. This model for knowledge sharing, with budget and system constraints, led to discarding of ideas and knowledge generated from stakeholders as well as withholding of resources. In contrast, a Higher Education Institution (HEI) demonstrates knowledge management practices through its Community of Practice (COP) susceptible to ‘two syndromes’: the first representing dogmatism through the imposition of preferred tools and approaches reflective of entrenched viewpoints, and the second representing social alienation with corresponding lack of engagement.

4.10.7.4 Adult Attention Deficit Syndrome

Expanding earlier discussion in this chapter, another noticeable knowledge challenge that organisations are facing is Adult Attention Deficit Syndrome known as AADS (Coetzer, 2016). Empirical studies have examined how work and task functions can be affected by pressures compounding stress levels; more recent studies posit connections between highly pressured roles, such as Project leaders, in outcome driven contexts. The risks around attention deficit, where individuals have minimal time to focus on detail and absorb information in management functions, can have serious implications. When key information is missed or not acted on, errors can result or other operations related problems arise. In turn, this can impair operational effectiveness.

4.10.8 Organisational and Culture, Management and Leadership

Considerations

Numerous organisational and cultural barriers can be impediments and risks for quality knowledge. Managerial thinking and practices can also be possible knowledge barriers or risks as outlined below.

4.10.8.1 Institutional Theory and Knowledge

Institutional theory as an evolving theory (Kostova, Roth & Dacin, 2008), is an interpretation of how organisations may be susceptible to isomorphism mentioned earlier and where knowledge can be at risk of erosion or degradation.

The authors below cite Lipietz (1992, p.41) and tailored environments, where employees use cognitive and analytical skills that might not surface. Experts, such as engineers or managers, can determine the need for cognitive skills from 'operative', workers and so task knowledge remains in the shadows (Thompson, Warhurst & Callaghan, 2001, p. 929).

4.10.8.2 Path Dependency, Self-referent Knowledge Risks and Bounded Awareness

Path dependency is an example of practice, following a rationalistic model developed by Paul (1993), which has been subject to review and the need for a reappraisal of decisions and organisational approaches, with a premise of reliance on extant and past knowledge and thinking.

Organisations can have a tendency to be culturally stagnant, where managers are not able to challenge emerging knowledge and 'old knowledge' (Antonacopoulou, 1999) carries over to deal with new situations described as 'learning by knowing the same' and building knowledge on existing paradigms culturally, institutionally ideationally ingrained (Hedberg, 1981 in Antonacopoulou, 1999).

An alternative view counters the idea of tacit knowledge necessarily being the source of value adding knowledge, and suggests noting 'bounded awareness' risk (Kumar & Chakrabarti, 2012). These authors cite examples of a pharmaceutical company overlooking key information regarding health risks from use, through 'self-relevant' information, as a perceived cognitive or social block. There can also be endemic problems associated with past dependent forms of tacit knowledge, that have led to past practices within the firm and shapes bias in the internal context, which ultimately affects decision-making.

4.10.8.3 Gendered Management Practices and Managerialism

The issue of gender features in management practice (Miller, 2009) as an extension of discussion about managerialism and how managers, in exerting authority and control, may influence how people of differing genders approach knowledge.

In a different vein, also critiquing possible managerialism and management styles, another perspective considers conventional materialist and individualist orientations that may also affect or shape the development of knowledge compared with more spiritual and ethical managerial principles (Dyck & Schroeder, 2005).

Knowledge within organisations is contestable and can be valued by different paradigms in what constitutes organisationally warranted knowledge, where power influences as to what seems real and legitimate knowledge within “male hierarchies” (Farrell, 2004, p. 482). The legitimisation of knowledge is a social practice that relies on some people within an organisation having formal power to say that one set of practices represent real knowledge, while another set of practices does not.

More tangible or observable behaviours in relation to knowledge creation can be lack of employee engagement or ‘employee silence’ (Morrison & Milliken, 2000; Milliken & Morrison, 2003; Premeaux, Fontenot & Arthur, 2003; Ziegen, Macfarlane & Descombre, 2008). This lack of employee participation may result from a number of factors, such as gender or exclusion from knowledge processes. This can also parallel challenges of diversity management (Wentling, 2004).

The issue of power was noted in Chapter 3. Knowledge and power have a strong connection and authors espouse the need for knowledge management practices to prevent influences or forces that might infiltrate knowledge and knowledge practices through use or misuse of power (Kelly, 2007). Power can also manifest in how knowledge may be held, used or distributed. Interestingly, power may also be exerted in the form of functional controls such as required efficiencies in manufacturing sectors (Vasquez, 2006; Shields & Malhotra, 2008).

4.10.8.4 Dominant Logic and Knowledge Blocking

Following managerialism lines, a blocking effect on knowledge and learning can be due to the practices and attitudes of senior management operating under a ‘dominant logic’ (Gourlay, 2002). Other examples of dominant logic as a knowledge erosion and degradation risk and organisations aligning knowledge to strategies and plans, concern strategy being overtaken by a ‘dominant logic’ or mindset (Bettis & Prahalad, 1995). In this situation types of knowledge, sources, or organisational assumptions related to capabilities (Anderson, Ruike

& Zaheer 2000; Eisenhardt & Martin, 2000) may be based on fallacious thinking. Dominant logic is an arguable contributor to 'knowledge blocking' barriers and can mar knowledge endeavours (Gourlay, 2004, p. S98).

4.10.8.5 Hubris, Harmatia and Dogmatism

Factors that can have negative impacts on an organisation's knowledge capabilities include 'hubris', suggesting an inability to acknowledge one's weaknesses or limitations in relation to knowledge. Another barrier can be 'harmatia' suggesting psychological characteristics or traits that display degrees of dogmatism or limited perceptions (Ford, 2006, p. 483). See Appendix 4 note for details.

Managers for example can become reliant on their own source of self-referent knowledge and use of knowledge from limited sources can affect organisational performance.

4.10.8.6 Collective Mind/ Mindfulness and Heedfulness

The concept of 'collective mind' (Weick & Roberts, 1993, p. 357) as a cultural imperative is another construct that has implications for knowledge. These authors link collective mind to the nature of organisational performance and conditions where there is a need for 'continuous operational reliability' (Weick & Roberts, 1993, p. 357). The nature of organisations suggests intricately connected social systems, where heedfulness and mindfulness as individual and organisational responses, are more likely to reduce or prevent errors in operations⁸⁹.

Weick and Roberts (1993) elaborated a more connectionist perspective and posited the notion of 'distributed processing' to counteract against possible errors that reside in specific work units. This perspective also frames the view from (Hutchins 1990 in Weick & Roberts, 1993, p. 360) that postulates how overlapping, rather than mutually exclusive task knowledge, can contribute to greater input and contribution by organisational members that is likely to reduce operational risk.

⁸⁹ The context of flight operations is a situation where the likelihood exists for multiple accidents; the risks are minimised through application of 'mindful attention' and 'heedful action' and organisations having extensive cognitive and mental processing capabilities. These capabilities together with "smart systems", augmented by interdependent teams working collaboratively with strong know-how, is a stark contradiction to the Challenger situation discussed above.

4.10.8.7 Intentionality and Thirst for Knowledge versus Cynicism

Following similar perspectives, conscious reflection constitutes intentionality (Marsick & Watkins, 1990). Intentionality ascertains the extent to which employees are acutely aware of, or consciously engaged in, functions and initiatives to acquire new knowledge and skills. The intentionality also reflects the degree of conscientiousness and thirst for knowledge by organisational members. The challenge to engender organisational cultures to value knowledge, reflects the organisation's 'thirst for knowledge' (McCune, 1999, p. 10), which predicates organisations actively seeking to replenish new learning and knowledge acknowledging the perennial nature of knowledge. This intentionality and thirst for knowledge is an erosion and degradation risk where a state of low conscientiousness and adaption to change prevails.

Extending the discussion of employee commitment, one factor with implications for knowledge erosion and degradation concerns the risk of a malaise, conceptualised as 'organisational cynicism' (Thomas & Gupta 2018); this can result from organisational realignment seeping into organisational culture and being reflected in employee responses to knowledge behaviours and practices. The authors argue that managers need to have finely tuned radars to discern such a climate and initiate appropriate responses.

4.10.8.8 Contagion Effects

An example of where culture can be a factor that might erode and degrade knowledge is contagion groups (Bissell & Keim, 2008)⁹⁰ and intractability (Choo, 2006). Other authors also propose detection of possible dysfunctional systems or behaviours (Greenberg & Baron, 2008).that can impact organisations' goals or strategies, such as knowledge management strategies. Contagion effects can manifest with increased stress level and employee burnout and other manifestations such as workload intensity (Burke, Singh & Fiksenbaum, 2008) which, in part, can be counteracted by more flexible work practices (Carlson, Grzywacz & Cacar, 2008).

⁹⁰ Employee responses that can influence others include employee commitment levels due to job insecurity (Hallier & Lyon, 1996) contrasted with responses to discovery and collaboration (Hardy, Lawrence & Grant, 2005). These examples demonstrate how mood and affective states can infiltrate environments (Neumann, Seibt & Strack, 2001). For employers to navigate work steeped in complexity confusion and chaos speak (Fitzgerald & van Eijnatten, 2002, p. 412) there is increased risk of triggering extreme reactions and responses (Paton, 2009).

Organisational culture it is noted, is shaped by rituals and routines (Deal & Kennedy, 1982). Other authors discuss links between organisational culture and organisational effectiveness (Denison & Mishra, 1995). Accordingly, interest extends more specifically to links between quality and productivity (Mathew, 2007) and socialisation factors (Taormina, 2009). These organisational culture considerations affect knowledge and knowledge management practice optimisation.

4.10.8.9 Managerial Obsolescence and Knowledge

The challenge for managers to acquire new knowledge and skills and for managers to shift particular beliefs and values continues to be relevant (Antonacopoulou, 1999). An associated problem is the ongoing threat to knowledge due to managerial obsolescence or the need to maintain currency and replenish knowledge (Jones & Cooper, 1980, p. 8 in Antonacopoulou, 1999). This obsolescence threat, raises questions of relevancy, sufficiency and what is determined as important and current knowledge.

Experiences of knowledge loss and impacts transcend major organisations. An historic example is that of the National Aeronautics and Space Administration (NASA) and specialised knowledge from flying to the moon. The resultant effects led to major cost blowouts and strategic and other risks (De Long, 2004). NASA had to introduce lessons learned initiatives.

Another example of knowledge loss impacting organisational performance and effectiveness was raised by an 'acute threat' noted in forecasting retirement of American Federal government employees, due to an ageing workforce (Beazley, Boenisch & Harden, 2002, p. 2). These authors advocate for knowledge retention and knowledge management to ensure business continuity in the form of 'continuity management' as a critical organisational capability.

4.10.9 Employee/Individual Considerations and Knowledge Barriers and/or Risks

Additionally, when considering employee performance one construct concerns maximal performance (Barnes & Morgeson, 2007, p. 260). A further delineation of performance lies

between what an individual can do contrasted with what an individual will do (Dubois et al., 1993).

Employment commitment levels align with KM antecedents for success (Malhotra & Galletta, 2003; Spagnoli & Caetano, 2012). An underlying factor affecting employee pushback is low self-efficiency (Pierce & Gardner, 2009), reinforcing earlier views amplifying the importance of employee involvement for organisational and knowledge management effectiveness (Riordan, Vandenberg & Richardson, 2005). This is particularly challenging given organisational complexity (Robertson, 2004), the need for management to work with employee differences (Rolfhus & Ackerman, 1999) and to optimise knowledge by demonstrating supportive behaviour and practices (Tansky & Cohen, 2001; Roper & Crone, 2003). Critical factors surrounding employee knowledge include temporary workers (Svensson & Wolven, 2009; Svensson & Wolven, 2010, p. 786) and professional contractors (McKeown & Cochrane, 2012), with the risk of knowledge erosion and degradation.

4.10.9.1 Knowledge Laziness Risk

An author warns that organisations may default to a minimal option of ‘a few proven approaches’ (Levitt 1997 in Chua, 2009, p. 37) that can generate short-term positive results. A secondary concern is diminished problem-solving ability, that can be compounded by information overload and culture issues with risk of creating a ‘breeding ground’ for ‘mental indolence’ (Chua, 2009, p. 37).

Addressing problems, to engineers, can be a shortcut method where organisational pressures exemplify forms of knowledge erosion and degradation. When a cadre of engineers is needed to develop solutions that can diminish problem-solving abilities. The engineers arguably ‘ceased to think’ independently by relying on a few other experts to do the thinking for them (Chua, 2009, p. 37); this can reflect a form of knowledge erosion and degradation that in part is shaped by HRM practices, such as reward systems.

4.10.9.2 The Psychological Contract and Emotional Exhaustion

The psychological contract, as an unspoken contract, can also infiltrate team structures and team working (Berlin, 2014) where incentivisation extends beyond the individual thus potentially having a bearing on knowledge and teams.

The area of HR practices and emotional exhaustion at work has gained some attention (Sun & Pan, 2008). Conservation of Resources (COR) theory was applied in a study undertaken to examine the effects of emotional exhaustion on work performance. Emotional exhaustion is an area within the field discussed by researchers such as Brewer and Clippard (2002), Brewer and Shapard (2004), Witt, Andrews and Carlson (2004), Wright and Bonett (1997, p. 56).

Emotional exhaustion concerns feelings that individuals display due to extended burn out (being both physically and psychologically fatigued or feeling drained) (Wright & Cropanzano, 1998). COR theory maintains that resource loss or a threat of resources being lost in the workplace, can have severe impacts on employee performance including worker contributions such as knowledge sharing. Research indicates that emotional exhaustion impairs organisational objectives and effective functioning. What is imputed is how knowledge quality can be diminished due to the inability to conserve resources, such as people, within the organisation.

4.10.9.3 Low Conscientiousness and Immunity to Change Theory

A number of authors have considered specific challenges, such as method to enhance learning approaches to influence attitudes and behaviours of novice workers (Krauss & Guat, 2008) or trainees who have low conscientiousness (Cheremie & Simmering, 2010). It is argued that the risk of this form of knowledge erosion and degradation does not just apply to novices and, in addition, low conscientiousness may mask other psychological and social factors. This aspect surrounds attitudes to learning and the challenge of immunity to change as a complex phenomenon that may limit an individual's capacity to learn or be open to new knowledge (Molina & Callahan, 2009; Jacks, Wallace & Nemati, 2012).

Additionally, this issue of reflection may portray the type of learning environment (Ellstrom, Ekholm & Ellstrom 2008) and the extent to which managers, such as CEOs, can shape learning (García-Morales, Verdú-Jover & Lloréns, 2009)⁹¹. These areas also highlight how tensions can arise as to approaches to learning and knowledge (Easterbury-Smith, Crossan & Nicolini, 2000) and how focusing primarily on knowledge for purely competitive reasons (Edmondson, 2008) and what represents 'inclusive' versus exclusive learning and knowledge

⁹¹ The need for reflection and contemplation has been established and can greatly assist with absorption of knowledge (Hoyrup, 2004; Rogers, 2012; Pelech & Pelech, 2014). However, knowledge erosion and degradation threats are likely given the changing nature of world and other pressures noted in Chapter 3 and in this chapter – many of which reduce or eliminate time for reflection.

(Ballé, Chaize & Jones, 2015) pose risks of eroded and degraded forms of learning and knowledge.

4.10.9.4 Cognitive Uncertainty, Knowledge and Error Risks

Another perspective having possible connotations for knowledge erosion and degradation concerns the construct of ‘cognitive uncertainty’ (Michel, 2007; Simosi, 2008). This author focuses on a two year ethnographic account of newcomers appointed to bank officer roles (Rudie, 2005). The focus on cognition learning and knowledge in this instance highlights how new employees entering new job roles can have lower confidence levels and minimal expert knowledge (Schmidt, Hunter & Outerbridge, 1986; Dane, 2010). Knowledge for decision-making is situation specific (Weekley & Ployhart, 2005) calling for the exercise of judgement where there is uncertainty. Having important or relevant information to support problem solving can therefore be challenging and problematic, particularly for newer employees where knowledge is less accessible.

However, some organisations such as Google, have deliberately created environments adept at operating under condition of uncertainty, such as with Google’s chaos by design (Lashingsky, 2006 p. 86 in Michel, 2007). The study explores contrasting approaches as to how industries and organisations address problems and learning given different cognition styles. Another view, addressing the issue of decision-making and judgement where uncertainties prevailed, observes how hindsight can contribute to knowledge realisation as outcome knowledge (Fischhoff, 1975).

The question of how one sources and navigates knowledge (Hall & Chiarello, 1996) can also reflect one’s judgement and level of cognitive outlook or discernment. Other rational and factual perspectives of knowledge quantify knowledge quality degradation, by identifying and minimising or extinguishing knowledge errors through use of conventional psychological techniques that focus on cognitive facility (Lane, Roussel, Villa & Morita, 2007) augmented by smart machines as detailed in Chapter 3.

4.10.10 Knowledge Transfer and Knowledge Spillovers Risks

Several authors suggest that with innovation development there has been increased complexity surrounding ‘technology transfer and technological knowledge (Lichenthaler & Lichenthaler, 2010, p. 156). This view is further supported by other authors who comment on

the scale and complexity due in part to organisation size and more complex information processing, when transferring knowledge (Burton & Obel, 1998).

4.10.10.1 Knowledge Inheritance and Diffusion Risks

The concept of *knowledge inheritance* places this construct as *parent firm knowledge* (technological and managerial know-how), diffused across foreign operations and global industries (Berry, 2015). Knowledge inheritance and its impact on performance of foreign subsidiaries forms is a major knowledge interest within multinational corporations (MNCs). Research examined data from a panel of US multinational corporations using a set of models to check for indigeneity (Berry, 2016, p. 1438). The findings suggest inconsistencies concerning the imparting of knowledge due to various factors as well as how perceived value of knowledge and performance differs across subsidiary locations.

4.10.11 Knowledge Retention, Explicit knowledge Loss and Organisational Forgetting Barriers and Risks

4.10.11.1 Knowledge Retention and Knowledge Loss

Barriers to knowledge retention are attributed to numerous factors including addressing challenges of minimising incidents of knowledge hoarding (Liebowitz, 2009). The author further argues that it is important to capture and retain “critical at risk knowledge” which cannot be acquired in a short time span suggesting that knowledge accumulation being culturally, psychologically and systemically embedded. A methodology is suggested here using a taxonomy of knowledge to determine what is important to capture. However, this approach to knowledge capture fits with more explicit or codified as well as a criterion-based view of what is considered as ‘valuable knowledge’ (American Productivity and Quality Center (APQC, 2002 in Liebowitz, 2009). The APQC undertook a major study titled “Retaining valuable knowledge” including case companies such as Siemens and Xerox and their knowledge retention practices.

4.10.11.2 Organisational Memory

The importance of organisational memory for capturing and retaining corporate knowledge has been flagged and investigated to consider the implications of cross-border and cross-cultural considerations (Bengoa, Kaufmann & Vrontis, 2012).

Risks concerning loss of organisational memory or ‘organisational forgetting’, are examples of forms of knowledge erosion or degradation where there can be a gradual and covert process resulting in the organisation losing key knowledge and information. Forms of organisational memory loss can be a result from conscious or deliberate decisions (Girard, 2005).

A contrasting perspective is a study undertaken in a local government organisation finding that learning and unplanned staff movements further fuelled by poor records management and lack of codified information led to a systematic decline in organisational knowledge preservation (Bukari Zakaria & Mamman, (2015).

4.10.11.3 Explicit Knowledge Loss

Explicit knowledge, introduced earlier in this chapter, is one example of knowledge that is generalised within the literature as retrievable or transferrable. It can be subject to risk of extinction as a form of erosion and degradation with organisational change, including mergers, restructures and new systems superseding previous systems or archiving (Dieng-Kuntz & Matta, 2002).⁹² Additionally, contemporary organisations facing instability and constant change, as normalised conditions, are exposed to greater risk of loss of explicit information and knowledge.

Conversely, Organisations need to be mindful of reliance on past knowledge and practices when confronted with challenges for organisational renewal or innovation and susceptibility to be selective or use outdated explicit knowledge. Knowledge, including explicit knowledge needs to be continuously updated and utilised (Scarborough, Swan & Preston, 1999).

Organisational memory loss can be complex to interpret and unravel (DeHolan & Philips, 2004) and numerous empirical studies note various causes (Fernandez & Sune, 2009). This form of knowledge erosion or degradation falls within the remit of organisations and managers as well as the extent to which robust knowledge management frameworks and

⁹² Explicit knowledge is not merely materials extracted from other sources such as numeric data, but also includes records of artefacts and intellectual assets to support maintenance of organisational memories. Organisational memories include past artefacts and symbols including historical records reflecting an organisation’s evolution and change. The idea of organisational memory discussed later in this chapter is a key management challenge fitting within the preservation of corporate knowledge. Whilst discussion centres around the importance of extracting tacit knowledge to support organisational effectiveness, explicit knowledge depicted by Dieng-Kuntz and Matta (2002) can be vast and multidimensional extending beyond documents to include statements and conceptual models.

practices exist (Martin de Holan, Phillips & Lawrence, 2004). Specific initiatives include learning methodologies (Gubbins et al., 2012), facilitation of remembrance rituals for memories of past events and knowledge preservation (Martin de Holan & Phillips, 2004). Hargreaves derides modern society for the lack of adequate reflection of the past.

Organisational memory loss can be far-reaching such as with the exodus of key leaders (Lahaie, 2005). Furthermore, organisational memory crosses knowledge domains knowledge acquisition through to knowledge retrieval (Abecker & Decker, 2000) arguably reflective of the quality or effectiveness of knowledge management practices (Abecker, Decker & Maurer, 2000). Organisational memory loss risk, is influenced by review of systems (Ackerman & Halverson, 2000) including enhancing the quality and utility of knowledge transfer practices (Harvey, 2012) through capabilities to better verbalise knowledge (Sanderson, 1989).

Self-knowledge it is postulated, can be constrained by repression, suppression and forgetting. Factors can perceptual, motor learning, personality attitudes and self-esteem related each that may constitute reasons for broader forms of organisational forgetting and knowledge loss. Additionally, maintaining knowledge of complex subject nature such as technical knowledge or medical safety practices can with time lead to errors and knowledge decline (Smith, Gray, Atherton, Pirie & Jepson, 2013). Repression and suppression and forgetting sees people containing thoughts feelings within and removed from a conscious state (Kihlstrom, 2002). This represents a defence mechanism that can suppress thoughts consciously removed (Crandall & Eshleman, 2003). A distinction is made between intentional verses unintentional forgetting (Desai, 2010).

4.11 Knowledge Erosion and Degradation Risk Mitigation and Prevention Strategies

There is considerable discussion in the literature concerning knowledge barriers and enablers, including context specific case study investigations such as with manufacturing (Martini & Pellegrini, 2005). These authors concur that the role of knowledge audit can be eliciting useful information (Levy, Hadar, Greenspan & Hadar, 2008), as well as unearthing drawbacks and issues around knowledge creation, relating to technology or systems limitations and paradigms (Desouza, 2003) and strategies to overcome or address such barriers (Vazquez, Ortiz-Fournier & Flores, 2009).

4.11.1 Past Knowledge, Legacies and Preserving Key Information

Preventing risk of erosion and degradation of organisational knowledge includes acknowledgement of strategies of knowledge legacies such as those noted in the US power industry (Ashworth, 2006). Conversely, knowledge preservation presents challenges when organisations are operating in less certain environments (Cavusgil, Calantone & Zhao, 2003), where knowledge can quickly be superseded and other factors create challenges when managing knowledge in dynamic conditions.

Another view acknowledges the role of managers and organisations in capturing the past, while recognising that such revelations might be from eroded or degraded or selective data - depending on what is viewed as significant to recollect. This can include contrasting claims or accounts, and ‘uses of the past’ can be susceptible to limited capture relating to how history is told for organisational memory purposes. This contrasts with history as lived and experienced (Lubinski, 2018, p. 1799). Historical sources might elicit ‘shards of the past’ (Lubinski, 2018, p. 1735) that derive from organisational knowledge with current managers navigating a dearth of informal and multifarious interpretations.

Prevention of erosion of such historical knowledge encompasses complex methods to effectively disseminate knowledge including a myriad of interactions (Suddaby, Foster & Quinn-Trank, 2016). Recognition of the importance of drawing on historical knowledge is noted with the large conglomerate Procter and Gamble (P&G) and its story of growth and expansion.

Another parallel that can be made using an ecological approach concerns ascertaining what is information or knowledge that needs to be preserved. This is an aspect of the subject of this study. One Australian Government Department has developed a platform to facilitate management of information⁹³. The issue here is people accessing the information, what people do with the information and how this information becomes knowledge.

⁹³ The Public Service Commission NSW has a Workforce Information Warehouse (WIW) as a ‘single source of truth’ - www.psc.nsw.gov.au › *Reports & Data* to use when developing and reporting its workforce profile.

4.12 Bridging the Research Void or Gap

The literature review has highlighted how the topic of knowledge erosion and degradation does specifically feature within the academic researches aside a few sprinklings of articles such on procedural knowledge degradation noted earlier or anthropological studies that feature discussion of degradation or loss of local and general knowledge such as loss of knowledge of canoemaking noted earlier. The broad area of knowledge loss features but focuses on employee departures from organisations such as abrupt or planned rather than an ongoing less visible form of erosion and degradation.

Additionally more recent focus on risks and knowledge discussed in this literature review have emerged and the recognition of the value of knowledge preservation does feature in some quarters as an important arm of knowledge management practices but arguably not a dominant theme in conceptual frameworks as noted and illustrated in the frameworks discussion.

Where this researcher seeks to fill a void or research gap relates to the original research tenet to understand if knowledge erosion and degradation as a phenomenon does exist as seen through the lens and experiences of organisational participants. Moreover, the varying areas covered in this review chapter parallel perceptions and stories shared by participants through rich textual descriptions and contrasting themes discussed in Chapter 6.

This phenomenological shaped approach permits scope to explore a myriad of perspectives as seen by the organisational employees and multifarious elements that extends outside of more conventional knowledge loss and other KM approaches including, focus on a sector such as grocery and wholesale which from the research undertaken has scarce research adopting this perspective.

4.13 Summary

This chapter has explained how knowledge is nuanced and open to interpretation, and that knowledge management in organisations can follow particular paradigms that may direct how

knowledge is perceived and valued. The rational and resource based view classifies knowledge as an asset to be leveraged for value creation and competitive advantage. Knowledge erosion and degradation is not directly referenced within the knowledge management literatures but fits within cognate disciplines, also nesting within the knowledge loss and knowledge preservation domains.

The next chapter outlines the methodology used to explore participant perceptions and experiences within a single case organisation, as well as the barriers and challenges and observable impacts on organisational effectiveness or performance.

Chapter 5 – Research Methodology

5.1 Introduction

Having reviewed the origins of knowledge, contextual social influences and organisational perspectives on loss or degradation, the purpose of this chapter is to explain the research approach, design, methods as well as research study parameters and considerations including suggested best fit and justification. The methodology is discussed in the following sections. It should be noted that aspects of theoretical methodology have been discussed in previous chapters and background summaries of research paradigms are included in Appendix 5.

5.2 Influences on Design, Research Philosophy and Paradigm

5.2.1 Literature Review Findings

Firstly, an influence for the proposed research design was the literature review previously discussed in Chapter 4 eliciting several notable insights requiring further investigation, such as types of knowledge paradigms. When a research topic is not readily accessible in the extant literature then it can be surmised as more exploratory than explanatory in nature (Bell & Bryman, 2007).

Furthermore, the literature review findings reaffirmed, that the chosen study fitted within to the knowledge-loss literature. This stage also presented as contextual and multifaceted from social actors' perspectives in relation to an unknown *phenomenon*. Sense making with a phenomenon such as knowledge erosion and degradation, is steeped in *causal ambiguity* and *complexity*⁹⁴ thereby justifying a qualitative design.

The many influences that can shape research design are discussed elsewhere (e.g. Chapter 4), but as it spans several fields, a qualitative design is justified. As the research design unfolded,

⁹⁴ Causal ambiguity introduced in earlier chapters, refers to the problems associated with demonstrating cause and effect between variables. In this methodological context, it is imputed that broad phenomenon contains multiple layers to unravel meaning and that a category association between a phenomenon such as organisational knowledge erosion and its direct causes, could prove difficult to explain. Complexity theory also introduced in earlier chapters, corresponds with these causal ambiguity precepts by casting organisations as complex and changing and that sense-making of an organisational phenomenon, shaped by dynamic external environmental forces, means a quantitative analysis of causal effects might not be deduced even through use of sophisticated and complex modelling techniques. Additionally, in-depth insights into such a phenomenon and ways to address its prevalence therefore are less attainable through this structured and linear cause and effect analysis.

the study called for a suitable research design on a relatively unreported phenomenon (Groenwald, 2004).

Underlying the research philosophy are paradigms⁹⁵ and the methodology from a panorama of choices (Karami, Rowley & Analoui, 2006) that require congruence (Lincoln & Guba, 1985, 1995, 2013; Carter & Little 2007)). Although, confluences (Lincoln, Lynham & Guba, 2013; Holden & Lynch, 2004) can also reflect boundary softening in research design. The five assumptions for congruence identified are: epistemology, ontology, generalisability, causality and axiology⁹⁶. These topics are discussed in more detail in Chapter 2 and Appendix 5. The researcher opted for an interpretivist⁹⁷ paradigm and a qualitative methodology.

5.2.2 Epistemology

Chapter 2 introduced the concept of epistemology⁹⁸ and views of knowledge from contrasting theoretical and philosophical positions (Morton, 2000).

⁹⁵ A paradigm is a stance or worldview (Stanage, 1987; Kuhn, 1997). Denzin and Lincoln (2018) purport that paradigms or worldviews can shape how researchers subscribe to principles and methodological practices. Additionally, reviewing paradigms can engender tensions (Shepherd & Challenger, 2013).

⁹⁶ Axiology within this approach includes *reflexivity* and not being fully detached or *value free* elaborated later in this chapter (Saunders et al., 2016, p. 129). This research study naturally aligned with my personal values as a researcher. I communicated an informal statement of values to academic peers during the research process. Being explicit with values can influence and shape the approach methodology

⁹⁷ The interpretivist paradigm as an epistemological position rather than focussing on seeking common patterns across groups of people, acknowledges the nuances and variations in response from individuals influenced by their respective social and cultural worlds (Cherutz & Swanson, 1986) and unique sets of experiences shaped by social interaction. Accordingly, the interpretivist orientation used a qualitative methodology augmented by ‘hunches’ which emerged during the study process reflecting ‘incommensurate paradigm’ (Bryant & Lasky, 2007 in Lee et al., subjectivist interpretivist paradigm forms an important core within the research study. This research study applied some nuanced aspects of a critical realist epistemology through “seeking an understanding of the organisational context, where organisations are social systems requiring discernment in identifying and unpacking phenomena (Bhaskar, 1989). Additionally, the interpretive paradigm seeks understanding derived through organisational members’ ‘frames of reference’ and responses to day-to-day work situations. Analysis is of particular socio-cultural settings, integrating various sociological and ethnographic theoretical concepts including participants’, ‘social construction of reality’ (Berger & Luckmann, 1975) and how participants perceive reality around them (Block, 2012).

⁹⁸ Epistemology covers the theory of knowledge and its development and, knowledge sources. An individual’s view of reality frames or determines whether truth or falsity is feasible. A researcher’s epistemology assists in determining how particular social phenomena are to be studied (Creswell, 1994, 2006, 2009; Mason, 1996; Holloway, 1997).

This study supports an epistemological diversity position⁹⁹ (Tarlier, 2005) and supports insights gleaned from participant perspectives requiring more collaborative and softer data-gathering approaches (McCabe, 2014).

This researcher therefore did not subscribe to an absolute truths position reifying that the role of a researcher extends beyond just uncovering, reporting and commentating on facts (Murphy, 1998, p. 65) for a more transcendent epistemology (Bryant & Charmaz, 2010).

The research onion model (Saunders, Lewis & Thornhill, 2016) assisted in navigating a pathway towards a choice of paradigm. Complexity noted within organisational related epistemology, signalled a need to progress outside traditional epistemological categories (Voelpel & Meyer, 2006; Williams, 2008). As a researcher, I did not subscribe to an either/or approach and philosophy and opted for a more pluralist (Spender, 1998) and holistic paradigm that meshed with the research topic and questions under investigation and fitted within the management field although less from design science (van Aken, 2004).

5.2.2 Ontology

The study ontology¹⁰⁰ oriented towards a subjectivist rather than objectivist approach¹⁰¹, on the premise that organisational member perceptions and social actions can shape reality.

⁹⁹ Modern organisational research methods are seeing multiple paradigms and degrees of ‘methodological inventiveness’ (Buchanan & Bryman, 2007, p. 486) also denoted as ‘paradigmatic (Buchanan & Bryman, 2007, p. 483), whereby paradigms can extend outside conventional boundaries (Willmott, 1990) hence supporting more diverse management research studies (Bartunek, Bobko & Venkatraman, 1983). However, there is also a caution as to paradigmatic choice and potential ‘contradictions’ (Guba & Lincoln, 2005). Furthermore, contemporary methods arguably need not see researchers metaphorically handcuffed to research aims requiring adherence to a strict or rigid epistemological stance. Multiple factors and contextual influences also shape methods choice. The above authors, supporting (Teddlie & Tashakkuri, 2010), suggest generic methods and research design are being superseded by more bespoke designs.

¹⁰⁰ Ontology reflects the notion of reality and how researchers, frame or conceive the external world. Here, participants are separate or distinct entities from the external world known as *objectivism*. In contrast, *subjectivism* denotes social participants as enmeshed in and, shaped by their environments with less separation from the external world and reality is more permeable and nuanced according to the individual. This study, reifies the view of transcendence of multiple realities in the minds of the participants confirming the need for a more holistic and multi-lens or multi-ontology perspective (Snowden, 2005) whereby, reality as situational based, resides within individual or participant minds. Although, it is recognised here can be philosophical challenges around ontology (Davey & Tatnall, 2004; McLachlan & Garcia, 2015).

¹⁰¹ Objectivism as an ontological position portrays organisations largely as rational entities and observable phenomena connotes as being more tangible and observable. The objectivist standpoint therefore denotes an objective reality whereby participants operate within highly structured and ordered environments (Bryman et al., 2018). In contrast, subjectivism, posits that phenomena extends from the perceptions, experiences and social actions of individuals. Hence, unlike objectivism, subjectivism portrays reality as less of an object and more intangible and less quantifiable. Moreover, subjectivism coincides with a more contemporary

Accordingly, this study depicts knowledge elicited from various social realities, such as participants' workplaces acknowledging contextualisation and individualised meanings ascribed to knowledge erosion and degradation as a possible phenomenon. This study adopted a subjectivist, relativist and social constructivist¹⁰² approach in its fit for research purposes.

Subsequently, this study depicts knowledge elicited from various social realities, such as participants' workplaces acknowledging contextualisation and individualised meanings ascribed to knowledge erosion and degradation as a possible phenomenon.

Social structures are dynamic and complex rather than rational and static. In this situation, reality can be malleable and subject to construction and reconstruction (Becker, 1982, p. 521).

Considering performance of social actors and the extent to which their work roles ascribe or constrain, means observing social settings such as work area functions and environments, requires deeper insights reflecting a constructivist approach (Goffman, 1959).

Additionally, recognising that knowledge erosion and or degradation relates to individuals within their immediate work context, further legitimised the need for a qualitative, subjectivist and constructivist approach.

This research design accommodating a pluralist approach includes aspects of pragmatism and axiology. Pragmatism is prefaced in Chapter 2. Here, the research problem is the epicentre for the research and a pragmatist shaped design is not bound by one dominant paradigm. The research study would not be a simple fact finding mission, signalling a path outside of scientific or objective structured research where perceptions and experiences shape representation of data. The researcher noted the delineation between a positivist rather than

ontological perspective or worldview of constructivism or constructionism (Berger & Luckmann, 1975). Additionally, a qualitative approach addresses the more subjectivist aspect whereas a quantitative approach leans more towards objectivism (Jootun, McGee & Marland, 2009).

¹⁰² Social constructivism (Charmaz, 2000) elevates the importance of social interactions amongst organisational participants, where multiple layers and meanings prevail within social structures¹⁰². Extending discussion of Goffman, the notion of an 'underlife' Goffman contends prevails in organisations (Manning, 2008, p. 685).

interpretivist stance and considered whether to adopt a realistic or pragmatist position enumerated in Appendix 5.

This researcher embraced several tenets from pragmatism. Firstly, the research study needs to be of interest (Tashakkori & Teddlie, 2003, 2010) and to the researcher such as compatible with the researcher's skill sets. Secondly, the question of distance between researcher and participant need not be totally arm's-length thereby enabling greater interaction between researcher and participant to enhance engagement between both parties as fertile ground for knowledge co-creation (Finchane, 2002).. Thirdly, the research philosophy or paradigm needs to be practicable and aligned to the research question(s) (Darke, Shanks & Broadbent, 1998) and assist management in formulating policies and strategies (Mays, Pope & Popay, 2005).

This study, recognising the humanistic perspective (Bartolome 1994; Gloet & Berrell, 2003), suggests participant perceptions and experiences regarding relating to knowledge, including safeguarding of knowledge and strategies, can be of inherent value to an organisation and perceptions of knowledge management practices (Mason & Pauleen, 2003) and pursuit of a level of innovation in management research (Bartunek, Bobko & Venkatraman, 1993).

Another justification for departing from functionalist or post functionalist (Ragsdell, 2009) and field tested management research (Tranfield, Denyer & Smart, 2003; van Aken, 2004), is due to the level of complexity within the scope of the research topic requiring multiple variables, in depth analysis and adoption of qualitative analysis techniques.

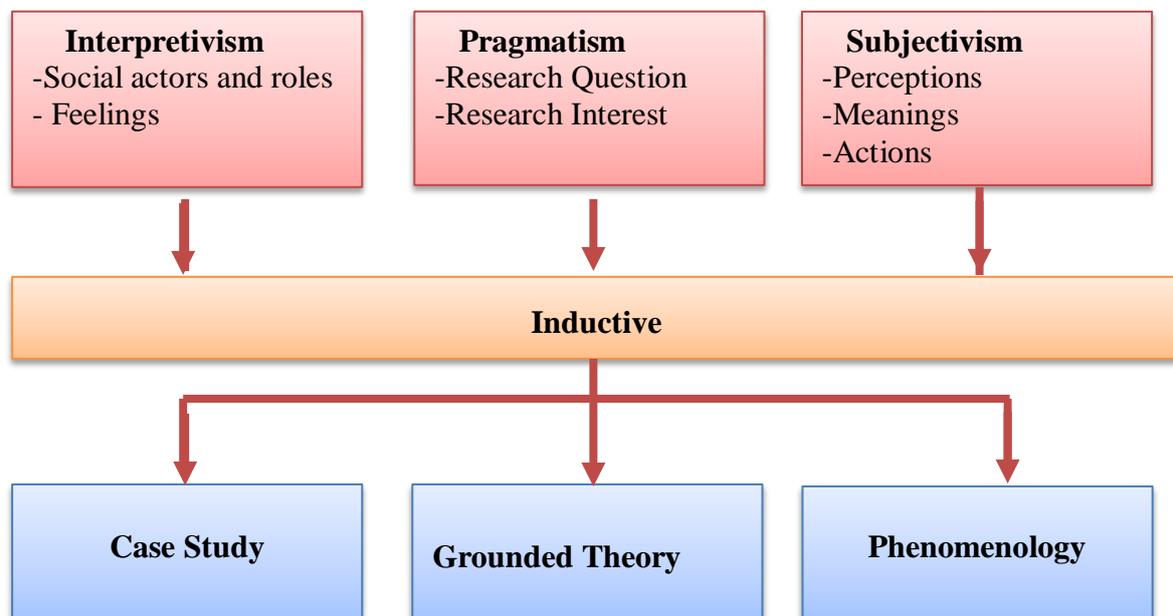
This study incorporated phenomenology and description of various phenomena¹⁰³. Elements of Grounded Theory principles that seemed in synchronisation were adapted to the study (Glaser & Strauss; 1967, 1978, 2007; Glaser, 1992; Langley, 1999; Charmaz, 2000, 2006; Bryant & Charmaz, 2007; Denzin & Lincoln, 2000, 2004, 2013, 2015; Birks & Mills, 2011). Notably, Grounded Theory, applies within the field of Knowledge Management (Vasconcelos & Cox, 2011).

¹⁰³ Phenomenology highlights immediate experience pronounces reality through individual consciousness (Eagleton, 1993; Fouch, 1993) and, how through such reality, one construes and articulates a 'phenomena'. Heidegger (1962) and Husserl (1962, 1971, 1999) reflects the 'lived -world'. Other views flag the lived-ordinary world and suggest numerous forms of meaning (Vandenberg, 1997).

Seeking understanding of how individuals operate in their work contexts and job roles, can add texture to a study (Yin, 2016). Additionally, interpretation of word choice and constructs such as erosion and degradation supported by voice inflection and body language provide additional layers of meaning derived through qualitative research.

This research study infused elements from multiple paradigms (Dzurek, 1989; Meredith, Raturi, Amoako-Gyampah & Kaplan, 1989; Hassard, 1994; Coulehan, 2009.; Correa, 2013). This is summarised in Figure 5.1 below, which demonstrates the selected paradigm contrasted against other paradigms including sociological inherited paradigms and frameworks (Burrell & Moran, 1979; Blumer, 1984; Arksey & O'Malley, 2005).

Figure 5.1. Summary of Fused Research Approach Paradigm



Source: (Author, 2019)

This study followed a more interpretive, subjectivist and social constructivist approach infused with pragmatism principles and an inductive rather than deductive approach. Further details are of the differences between these are enumerated in Appendix 5.

This researcher maintains that allowing data from participants’ lived experiences to unfold can illuminate a richer portrayed and possible model of what knowledge erosion and degradation might represent. Accordingly, the study sought to avoid ‘dichotomisation’.

Recognising there might be several determining causes affecting knowledge erosion or degradation, and organisational impacts, the study avoided following the scientific premise of a probabilistic and deterministic relationship; the researcher drew partial inferences or implications from research findings. This study did not have a desired goal to arrive at a definitive conclusion or explanation. A less formal and more interpersonal approach was opted to seek understanding through discovery and meaning behind descriptors surrounding knowledge and what this meant in the minds of the participants.

5.3 Qualitative Research Design, Framework and Process

Given the observed gaps within the literature and minimal reference to knowledge erosion and degradation, the research presented has to be considered as exploratory¹⁰⁴ but cannot be simply categorised or demarcated, given the pluralist and fused nature of the design with accessible elements (Stern & Porr, 2011).

This research followed a nuanced design, considering the investigation as both descriptive (Stone, 1988) and interpretive given: (a) the phenomena of knowledge erosion and degradation from respective participants perspectives and (b) habituation in social settings and how participants actually perform in their functional roles (Greene, 1997; Holloway, 1997; Robinson & Reed, 1998; Gubrium & Holstein, 2000; Maypole & Davies, 2001).

This study included operationalisation of key concepts, including definitions of erosion and degradation. This study examined (1) impressions of prevailing attitudes and perceptions of organisational participants and their respective views on knowledge from a cross-functional perspective, (2) review of the research design including interview and interview method and (3) refinement of research questions and scope arising from insights revealed.

During the research design process, the researcher considered a more integrative solution using *mixed methods*¹⁰⁵ (Bryman, 2006) to determine why certain phenomena might have occurred.

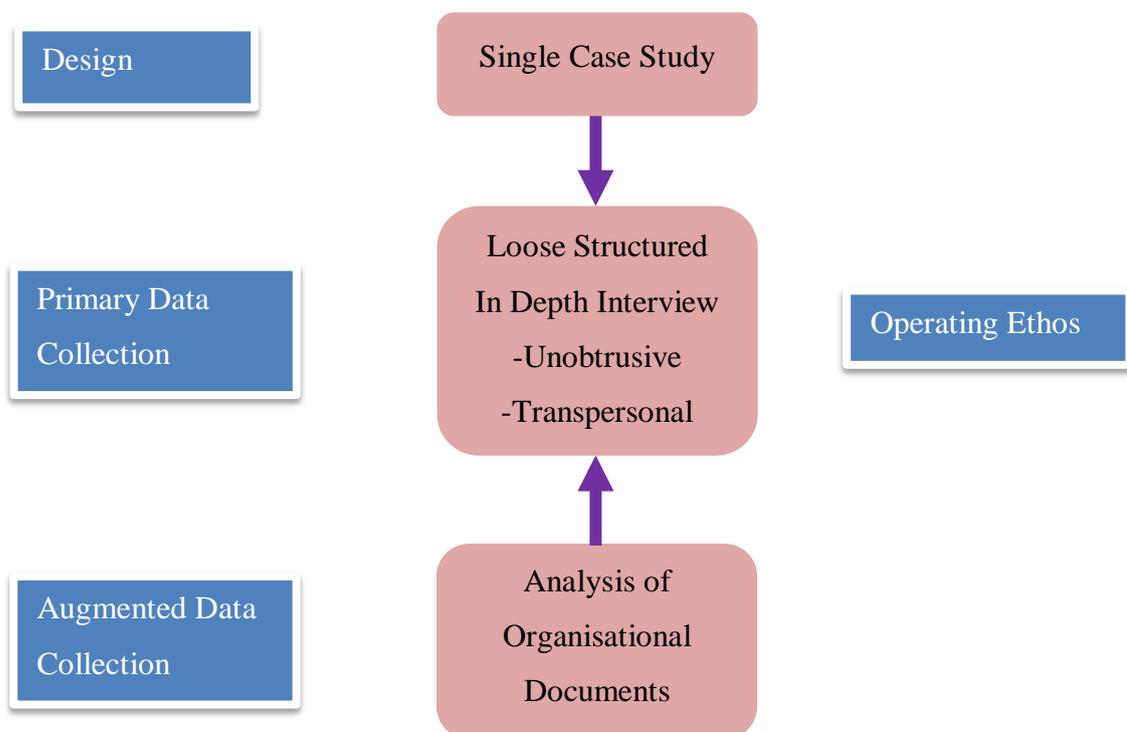
¹⁰⁴ Being exploratory or a newer field is perhaps perceived as less pejorative from a qualitative orientation and does not arguably lessen but potentially magnifies the significance of this research particularly if the research such as in the management and knowledge management domain is deemed to have value (Bartunek, Rynes & Ireland, 2006) heralding new research frontiers.

¹⁰⁵ Mixed methods arguably provides a rebalancing and complementarity in contemporary research (Onwuegbuzie, Leech & Collins, 2011). Guidance by mentors, confirmed an in-depth qualitative based case study analysis as a legitimate epistemological approach for operational management contexts (Adler,

The qualitative research design(Veal & Ticehurst, 2000; Patton, 2002; Marshall & Rossman, 2010)followed a more of a ‘bottom up’ rather than ‘top down’ approach as described by Steenhuis 2015 in Strang, 2015) complementing an emergent and iterative approach (Anderson, 1981; Orton, 1997;Veal,2005; Willis, 2007; Keegan, 2009).

The Research Design Framework depicts the single case study design, primary and augmented data collection methods including the authors’ concept of an operating ethos driving the design depicted in Figure 5.2 below.

Figure 5.2 Summary of Research Design Framework



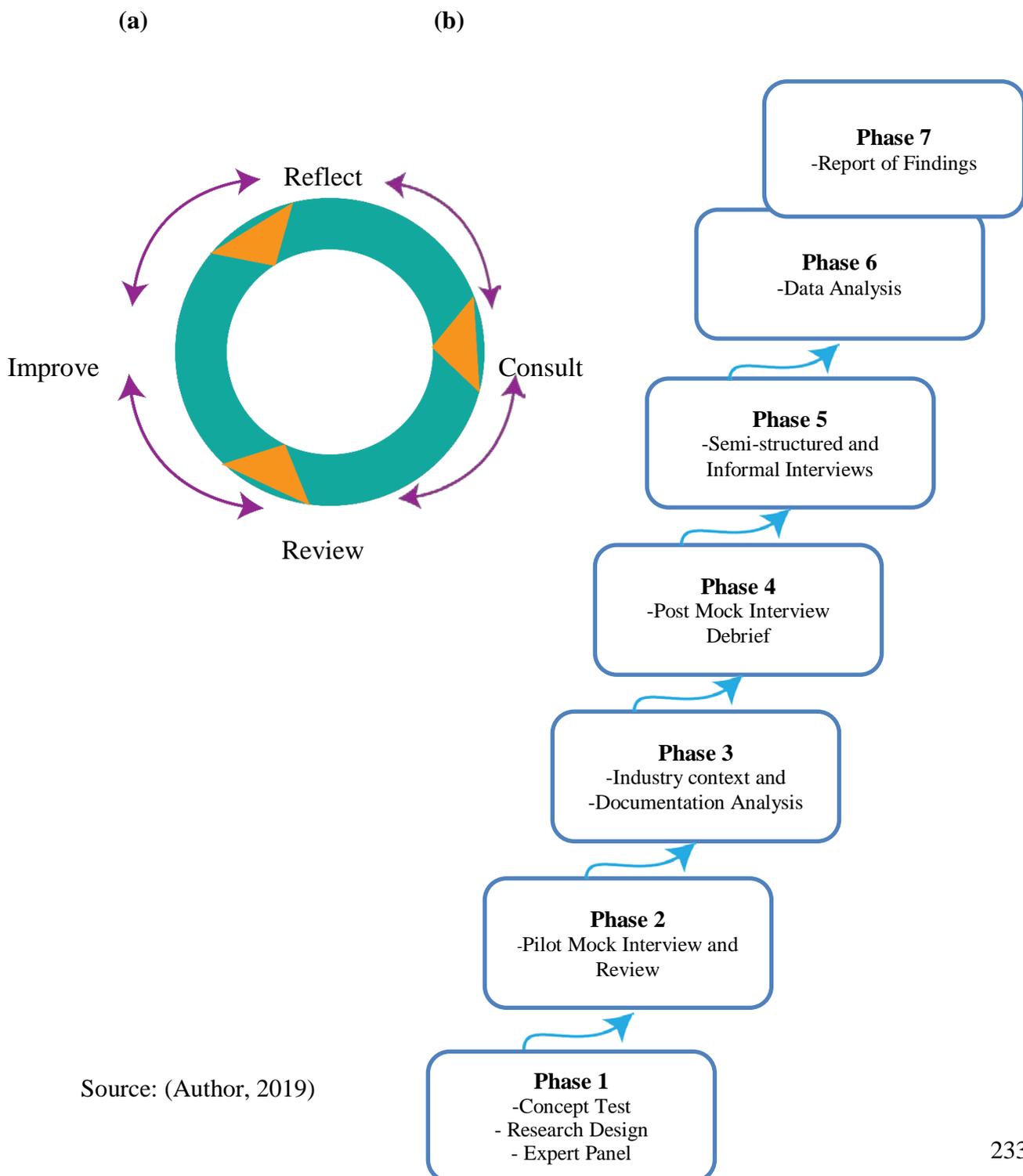
Adapted from De Vaus (2013 p.10)

Following the research design, the research process involved several components (1) research plan, (2) literature review, (3) research strategy, (4) interview preparation, (5) conduct of

Goldoftas & Levine, 1999; Aastrup & Halldorsson, 2008; Bamford & Griffin, 2008; Cheung, Li Shek, Lee, & Tsang, 2007) would more than suffice given the proposed scale and type of study. Whilst mixed methods hold credence in organisational and management research (Molina & Cameron, 2010) such methods are not devoid of problems (Bryman, 2007) and arguably are beneficial in longitudinal research (van Ness, Fried & Gill 2011). Although, mixed methods has relevance to social inquiry, and types of studies such as this study (Greene, 2007; Munyua & Stillwell, 2009).Quantitative methods whilst useful in providing statistical analysis, arguably restricts facility to explore themes and participant perspectives (Venkatesh et al., 2013). Furthermore, a scientific method driven by numerics and quantification of facts would be less functional to enable understanding and meaning obtained from within a case organisation context.

semi-structured interviews, (6) Data analyses (7) research findings. An iterative process can draw out new insights during the various phases (Finlay, 2013), leading to further refinement of the research questions. Figure 5.3 below depicts the cyclic and recurrent nature of the research project and fluid relationship throughout phases accompanied by Table 5.1 detailing the phases. Further detail is provided in Appendix 5.

Figure 5.3 Summary of Research Process: (a) recurring Overall cycle; (b) more detailed phases



Source: (Author, 2019)

Table 5.1 Summary of Phases followed in this research study

PHASE	TITLE & DESCRIPTION
Phase 1	<p>Concept test of research strategy, design and research questions- expert panel</p> <p>Modifications were made to the research guide by two expert panels the first panel from Swinburne University and an academic mentor group at Victoria University. Research questions underwent review and refinement based on information and gaps identified from the literature review.</p>
Phase 2	<p>Pilot mock interview</p> <p>Conduct of pilot or mock interview as a road test, occurred before going live with the interviews. A volunteer and interested learning and development practitioner acted as an internal Subject Matter Expert (SME) within the case study organisation. This process assisted with highlighting gaps and operationalising terms in Plain English. This volunteer agreed to participate in the rollout stage and, gave clearance for access to organisational documents.</p>
Phase 3	<p>Industry context and documentation analysis</p> <p>Preview of internal organisational documents included review of forms, policies and processes related to the organisational culture and structure. Additionally, sourcing and reviewing industry-and market related data enabled more in-depth insights into the operating environment.</p>
Phase 4	<p>Post-Mock Interview debrief</p> <p>A post-mock interview debrief meeting phase involved the academic supervisor to finalise the research questions and preparation of an interview guide.</p>
Phase 5	<p>Conduct of In-Depth Interviews</p> <p>Conduct of face-to-face in-depth interviews occurred. A pre-interview guide was provided to participants prior to conduct of interviews. Each interview was of a minimum of 1 hour in duration and many extended to 2 hours as the discussion unfolded and stories and experiences elicited.</p>
Phase 6	<p>Data Analysis</p> <p>Analysis involved sorting data to develop themes and concepts following qualitative guidelines resulting in categories and essence statements using an excel spreadsheet.</p>
Phase 7	<p>Report of Findings</p> <p>Production of report findings presented to key stakeholders incorporating feedback and addressing quality and rigour (Uncles, 1998).</p>

This design contrasts with the view of qualitative design as an exploratory data-gathering ‘forerunner’ stage (Saunders et al., 2016) prior to rollout of a quantitative dominant main data-gathering stage. Given the emergent nature of the research design, the topic continued to be a refined and funnelling process to narrow the study and phases were concurrent rather than sequential in contrast with a more linear quantitative design. In summary, the study followed two main stages:

Stage 1 encompassed search and examination of literature on the topic of knowledge erosion or degradation and related themes. See Chapter 4 for detailed discussion.

Stage 2 involved facilitating individual interviews within the case organisation. Conduct of interviews occurred at the organisation’s Head Office premises or other organisation sites in Sydney and Melbourne.

5.4 Case Study –Organisation X

This research study adopted a multisite and single case study to gauge participant views from various geographic and functional areas in Australia. Geographic locations included New South Wales and Victoria and functional locations included corporate or head office, retail, distribution and warehousing.

Organisation X is a publicly listed organisation that specialises in wholesale distribution and marketing in areas of grocery, fresh produce, liquor and hardware. Organisation X is positioned within the, grocery and hardware industries. The company evolved from being a family business to rising to a publicly listed entity in the mid-1990s. The company through its businesses operates a series of pillars for each market segment namely grocery, liquor marketers and its hardware operations. The largest area is food and grocery servicing several thousand retailers including convenience stores with branded stores aligned to specific target markets. The company employees has in excess of 5500 thousand employees. The majority of employees are blue-collar also referred to as orange or fluoro collar and the warehouse represents three quarters of the workforce. See Appendix 5 more full details.

The case study approach (Yin, 2006) also identifies a range of data sources through exploring different perceptions across different organisational settings thereby capitalising on extraction of ‘local knowledge’ within specific work areas (Geertz, 1983; Crouch, 2006). This

researcher in selecting a case study approach, also noted the importance of depth rather than volume of data to avoid data becoming ‘bland’ due to ‘thinning out’ (Ahrens & Chapman, 2006, p. 832).

Additionally, study of a single organisation (King, Felin & Whetten, 2009), can still provide insights that are broadly applicable. See Appendix 5 provides further detail on choices of qualitative research approaches and other considerations.

5.4.1 Triangulation

Standard case analysis can feature multiple sources of information including observations and interviews augmented by document analysis, empirical in nature. This case study contained empirical elements (Johnson, Buehring, Cassell & Symon, 2007), but did not follow a strict formula around multiple sources. Ideally, case study analysis includes multiple information sources connoted as triangulation¹⁰⁶ (Morse. 1991; Thurmond. 2001; Robson. 2002; Denzin. 2012) or combinative methods (Dubois & Gadde, 2002).

Triangulation fits within hermeneutic¹⁰⁷ and Grounded Theory arenas. This qualitative orientation involved degrees of convergence between data sources (Leedy & Ormond, 2010). Subsequently, triangulation (Wilson & Hutchinson, 1991) did not occur in a conventional or formal sense to avoid risks of mixed methods problems.

However, multiple data gathering sources featured with constant review and updating of information from detailed literature, peer discussions augmented by review of organisational documents (Prior, 2008, 2011) to further contextualise the case organisation.

5.5 Grounded Theory and Phenomenology

Recognising there are differentiating features and various qualitative strategies or approaches (Wertz, Charmaz, McMullen, Josselson, Anderson & McSpadden, 2011) noted above and in

¹⁰⁶ The author notes how the construct is evolving and not automatically axiomatic with mixed methods (Denzin. 2012). More recently, the reality of ‘data ambiguity’ and data analysis limitations presents challenges even within quantitative research (Chorev, 2019).

¹⁰⁷ Heidegger (1962) followed a hermeneutics form of phenomenology (Bauman, 1978; Addison, 1992), departing from a Husserlan perspective of interpretive description (Oliver, 2011) conceives lived experience with experiences analysed through an interpretive methodology where the ‘living world’ provides evidence of reality and a possible source of truth (Shosa, 2012).

Appendix 5 the researcher used a hybrid (Nightingale, 2015) of qualitative approaches yet selected other or bypassed others (Wertz, 2011).

Elements of Grounded Theory and Phenomenology fit within the chosen research paradigm and are summarised below see (Figure 5.4). For further detailed discussion, see Appendix 5. Grounded Theory nests within management and organisational research (Martin & Turner, 1986; Locke, 2001; O'Reilly, Paper & Marx, 2012). Furthermore, with a relatively unarticulated and perhaps less tangible construct of knowledge erosion and degradation, than that of the case of patients and experience within a healthcare context, and Grounded Theory, the researcher considered elements of Grounded Theory from more of a constructionist rather than objectivist perspective (Charmaz, 2000; Covan, 2007) complemented by a phenomenological research strategy enumerated next.

Hence, this researcher following 'hunches' drew upon broad principles¹⁰⁸ and methods that might lead to possible inferences rather than categorical explanations. This posture to an extent fits within the broad expositions of Glaser and Strauss (1967) who contend that interpretation as well as explanation is insightful and that rigour and authentication through empirical evidence¹⁰⁹ needs to be counterbalanced with generative or discovery elements when analysing and presenting research findings.

Grounded Theory enables discovery and insight to make sense of these social situations through use of inductive formed theoretical explanations. It became apparent during the research process, aspiring towards a purist form of Grounded Theory, would not be realistic. Therefore, elements of Grounded Theory such as social interaction, context (Madhill et al., in

¹⁰⁸ Founding authors justify Grounded Theory as a viable qualitative research strategy (Glaser & Strauss, 1966; Glaser, 1998) that is robust (Glaser, 2001) with its departure from merely descriptive research. Grounded Theory as an inverse research design challenges traditional hypothetico-deductive method of theory verification and the chasm that can exist between abstract theory and empirical-based research (Breckenridge, 2009, p. 113). Grounded Theory research considers how and why things are and may include tentative propositions firmed from empirical data (Glaser, 1998 in Holton, 2009 about how or why a phenomenon occurs in contrast to a quantitative approach that tests hypotheses or propositions. If the research propositions appear with no set theory to explain a particular phenomenon, a research strategy more suitably placed to formulate a theory is a Grounded Theory research approach (Merriam & Simpson, 2000, p. 27; Glaser, 2002).

¹⁰⁹ An example of a positivist or scientific orientation is Evidence Based Practice (EBP) research (Nilsen, 2015, p. 1) that focuses on process models, determinant frameworks, implementation or evaluation theories (Nilsen, 2015, p. 3).

Holton, 2009) and context sensitive aspects (Nunes, Martins, Zhou, Alajamy & Al-Mamari, 2010) and themes would complement a Phenomenological orientation as a counterbalance given that a Phenomenological approach can skew to psychology and healthcare rather than management fields.

The researcher avoided skewing towards a positivist paradigm, which called for strong theory generation that was not assessed as feasible or practicable (Eisenhardt, 1989; Eisenhardt & Graebner, 2007) leaning towards phenomenology.

5.5.1 Demarcation Lines and Approaches

This researcher noted the risk of ‘methodological slurring’ where differing methods are lack congruence when cobbled together (Baker, Wuest & Stern 1992). Methodological slurring arguably results from unclear enunciation of methods or less demarcated boundaries in a proposed qualitative methodology (Baker et al., 1992). This notion contrasts with the idea of ‘generic qualitative’ research (Caelli, Ray & Mill, 2003, p. 11). Additionally, these authors warn about ‘methodolatory’ (Caelli et al., p. 12) with arguably too much focus placed on mechanics or methods rather than the study itself.

This researcher noted this premise that one needs to delineate and differentiate between approaches such as Phenomenological and Grounded Theory (Suddaby, 2006; Starks & Trinidad, 2007) for design and validity purposes¹¹⁰. Similarly, other authors question possible competing paradigms within qualitative research imputing a centrist perspective towards qualitative approaches (Guba & Lincoln, 1994). However, this researcher did not choose one design but rather drew upon a fusion of elements drawn from these designs. Notably, phenomenological oriented research can also accommodate fused approaches (Smith et al., 2009; Flood, 2010).

¹¹⁰ Grounded Theory elements arguably contains contrasting features to those of Phenomenology with the former approach from a validity perspective seeking an end point for research utility through theory generation (Blumer, 1969 in Baker et al., 1992) whereas with the latter approach, validating or verifying findings aligns with participant perceptions and reflected experiences (Colaizzi, 1978 in Baker et al., 1992).

Phenomenological research (Husserl, 1962) as an inquiry method follows an empirical¹¹¹ tradition (Giorgi, 1997, p. 182; Giorgi, 2010) in how it depicts participant viewpoints whilst confirming that participant perceptions represent their own forms of reality (Bogdan & Taylor, 1975) and also exploring sociological domains through societal analysis (Schutz, 1970).

This study follows a precept of ‘being with’ - allowing closer ties and shared experiences between researcher and participant (Dowling, 2007). This oriented the researcher to a more interpretivist approach within a constructionist shaped paradigm, acknowledging that contrasts exist across the respective empirical and Hermeneutic approaches (Hein & Austin, 2001; Parrini, 2014).

This qualitative approach concerns understanding participants’ perceptions (Merleau-Ponty, 1962) and lived experiences¹¹² and behaviours (Durack-Brown, Giral, D’Ivernois, Bazin, Benkrittly, & Brucket, 2003; Marshall & Rossman, 2010). Furthermore, a phenomenological research design (Groenewald, 2004) is appropriate where research questions relate particularly to understanding of human perceptions and experiences (Valle, King & Halling, 1989; Giorgi, 1994; Vivilaki, 2008, p. 86) and their respective life-worlds (Eberle, 2010).

Phenomenological studies focus on interpretive analysis of lived experiences and capturing ‘uniqueness of events’ (Yin, 2016, p. 20). This study invoked description and analysis of life experiences (Colaizzi, 1978a, 1978b through subjective data drawn from participants’ experiences or incidence of knowledge erosion or degradation, with meanings as well as interpretations from within their sociocultural contexts (Rieman, 1986; Miller & Crabtree, 1992; Abercombie, Hill & Turner, 2006; Schwandt, 2007). Furthermore, an interpretive phenomenology approach in some sensitive or political social settings can be perceived as a less coercive method (Gilgun, 1984) also associated with ethics and caring (Benner, 1994) and is enshrined in management research.

¹¹¹ Debate exists as to the extent to which Phenomenology needs a positivist influence and the need for more rigour within empirical-based research (Crotty, 1996; Giorgi, 2002) and contrasting applications (Hein & Austin, 2001).

¹¹² Phenomenology also examines life experience more recently focused towards exploration into management practice (Pollio, Henley & Thompson, 1997; Ehrich, 2005; Bombala, 2012; Anosike, Ehrich & Ahmed, 2012). This approach highlights the relevance of inquiry (Giorgi, 2002) and the value of sharing of experiences (Schutz, 1967; Zahavi, 2015; Leon & Zahavi, 2016 in Salice & Schmid, 2016).

Arguably, using a phenomenological lens, values human experience and, how a phenomenon such as erosion or degradation, might appear (Bogdan & Taylor, 1975; Giorgi, 1975; Crotty, 1996; Giorgi, 1997). Such a study can also involve immersion (van Manene, 1992; 1997) for exploration into work roles. Given the constraint of semi-structured interviews, partial immersion seemed more realistic.

5.5.2. Relevance to Management Research

The researcher was also concerned about engendering interest and value in this management research (Bartunek et al., 2006).

A phenomenological driven design centres on people's experiences of a phenomenon and how these are interpreted (Simon & Francis, 2001). In addition, this approach provides a value proposition within management research¹¹³ fields (Ehrich, 2005) and can, in a didactic sense, be a forum for management education (Bombala, 2012) with experience conceptualised as "practice" when explicating managers' professional lives in response to knowledge management related areas (van Manen, 2007).

5.5.3 Participant Voice and Multiple Perspectives

Phenomenology allows participants to voice perceptions about the phenomenon under study (Wilson & Washington, 2007). It can also be a useful barometer in circumstances where minimal knowledge of the phenomenon exists and interpretations are from multiple perspectives of the participants involved (Falconer & Holcomb, 2008; Vivilaki, 2008; Dumas, 2010); this leads to alternate interpretations or views about the phenomenon (Finlay 2008). Creswell (2006) suggests this form of qualitative method can assist with unravelling a complex issue. In addition, the central question surrounding knowledge erosion and degradation as a likely unknown or yet unarticulated organisational phenomenon further supported integration of this qualitative approach (Ware & Kitsantas, 2007).

¹¹³ Qualitative research has a strong footprint in management studies (Morgan & Smircich, 1980; Ponterotto, 2005; Cassell & Symon, 2006) and educational fields (Bogdan & Biklen, 2007) having credence in management related research (Gummesson, 2000; Bluhm, Harman, Lee & Mitchell, 2011).

5.5.4. Role of Researcher

The role of the researcher within a phenomenological approach is to arrive at the essence of the experience (Moustakas, 1994).

Furthermore, phenomenological shaped research, involves deep questioning to discern the kernel of individual perceptions and experiences about a given phenomenon such as knowledge erosion and degradation (Tuohy, Conney, Dowling, Murphy & Six Smith, 2013).

5.5.5. Interpretive Phenomenological Analysis (IPA)

Interpretive Phenomenological Analysis (IPA) (Smith, 2004) uses themes commonly drawn from participants, whilst also responding to individualisation and convergence or divergence of views rather than a purely nomothetic approach that in a scientific sense seeks to draw upon on group commonalities¹¹⁴ (Edward & Welch, 2011). IPA shares common ground with Grounded Theory in following a systematic approach and including frequencies of responses or occurrences. Phenomenological analysis has nuanced as Interpretive Phenomenological Analysis (IPA) (Smith & Osborn, 2004, 2008) that can be collapsed into three generic areas first gaining understanding, second undertaking data interrogation and third undertaking reflection (Tuohy et al., 2013).

This researcher noted seven key areas to consider when undertaking a phenomenological approach Miner-Romanoff (2012).¹¹⁵ It was also recognised that there was no direct contact with the minds of participants, so full extraction of essences was not possible; but one could only arrive at plausible interpretive accounts, limited to the data presented at face value. This research is not just about reporting or describing experiences but also seeking additional meanings such as through those extracted from narratives and *standout statements*.

¹¹⁴ This researcher adopted elements from Interpretive Phenomenological Analysis namely noting the contrast from the eidetic method proffered by Husserl mentioned earlier to go beyond reporting what seems transparent to individuals regarding their experience around knowledge erosion or degradation. This researcher was interested in the individuals' unique contributions recognising that each participant imbued a specific texture behind what the phenomenon meant through their individual personal and professional lenses.

¹¹⁵ These seven areas are:(1) interviewing methods; (2) researcher's experience or expertise with the chosen topic and or chosen research method; (3) researcher sensitivity or empathy towards participant values and norms; (4) research bias and how bias is addressed; (5) research bracketing (6) research fluidity or flexibility (7) building rapport and gaining participant trust and respect.

To understand and learn about a phenomenon, naturally places oneself into a given context to understand social actors and their respective views and behaviours (Giddens, 1982). Researching within a context provided both a backdrop and proximal advantages to make sense of participants' social settings (Goffman, 1963; Wright-Mills, 1973) and how a phenomenon manifests.

5.5.6. Bracketing and Reduction

Phenomenology includes various contrasting approaches and elements. The Phenomenological method includes components such as (a) bracketing, (b) reduction, (c) free variation, (d) intuiting, and (e) description (Kearney, 1994).

Bracketing (Caelli, 2000; 2001) requires undertakings by researchers to free themselves of bias from past knowledge or experience and being mindful of subjectivity entering data (Le Vasseur, 2003; Vivilaki, 2008).

Phenomenology includes various contrasting approaches and elements centred within. The Phenomenological method includes components such as (a) bracketing, (b) reduction, (c) free variation, (d) intuiting, and (e) description (Kearney, 1994).

The concept of bracketing is a reduction for the essence and concreteness of experiences (Dowling, 2007). Phenomenology being a study in phenomena and description of the perceived experiences seeks to identify common meanings whilst acknowledging empirical variations.

I acknowledged the need to set aside my own understandings or experiences in relation to the topic area to encourage participants to share their respective views and experiences using bracketing methods (Ahern, 1999; Lopez & Willis, 2004) but not with a strict adherence. This method assists with steering participants thus allowing for mutual discussion with participants as the forefront or centre focus (Giorgi, 2010).

This researcher incorporated a variation from bracketing, denoted as bridling, viewed as a less finite and quantitative version that references being humble and respectful to participants and also accommodating the valued researcher input (Donalek, 2004; Dahlberg & Dahlberg, 2004).

5.5.7. Social Phenomenology

Knowledge translation (McWilliam, Kothari, Ward-Griffin, Forbes, Leipert & Southwest Community Care Access Home Care collaboration, 2009) is a social phenomenon and, as the knowledge topic includes knowledge erosion and degradation, this researcher considered another strand of phenomenology (*social phenomenology*¹¹⁶) given the contextualist and social elements within the study.

5.5.8. Phenomenography

Authors differentiate social phenomenology from *phenomenography*, where the former method identifies common themes or essences drawn from participants rather than focusing on variations of experiences (Ashworth & Lucas, 1998; Osteraker, 2002; Fai Pang, 2003; Van Scoy & Evanstad, 2014) and which originates from constructs around interviewer variability (Collins, 1997).

This study absorbed aspects of a Phenomenographic approach (Svensson & Theman, 1983; Svensson, 1997), including contrasting views and experiences elicited from detailed individual stories (Ryan, 2000; Sjoström & Dahlgren, 2002; Denning, 2008), digging deeper for subtext and meaning (Webb, 1997) and, recognising the importance of being empathic and engaging towards participants (Ashworth & Lucas, 2000). Moreover, this researcher did not subscribe to a view that Phenomenography could be a diluted offshoot of Phenomenology (Hasselgren & Beach, 1997).

Phenomenology depicts realities through a psychological lens, through uncovered essential meanings derived from lived experiences whereas Grounded Theory tends towards a sociological shaped perspective to explain realities.

Phenomenography has its place in management research including storytelling to nuance participant perspectives (Clarke & Salmon, 1998) and depict how individuals conceive the world and reality (Marton, 1981, 1986, 1994a, 1994b).

¹¹⁶ Authors also acknowledge the holistic nature of experiences (Gallagher, Rocco & Landorf, 2007). Additionally, challenges faced with stifling of knowledge—a form of knowledge degradation, is where professionals or senior level employees' knowledge takes precedence over other employees' knowledge. A research study of managers applying a Social Phenomenology approach incorporated both experiential and commentary elements through issues participants raised.

A Phenomenological approach requires consideration, reflection and openness to knowledge with facts and ideas arguably, held in abeyance (Oiler, 1982). Broad or open-ended questions assist with avoidance of leading the participant.

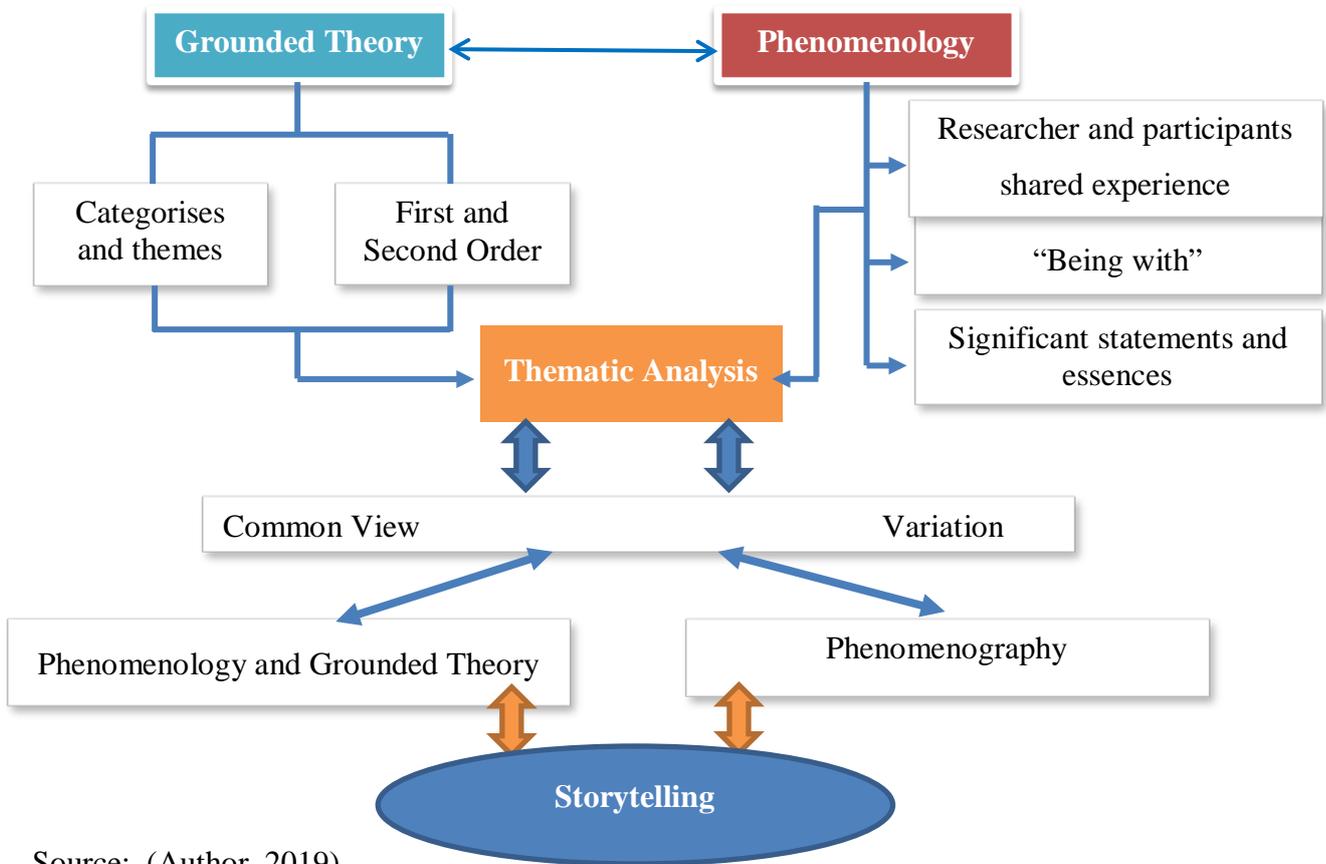
However, with this management and organisational framed research, there were nuances attached to the phenomenological approach and participants did not initially have a conscious knowingness about the typologised phenomenon of knowledge erosion and degradation.

The researcher adopted an interpretivist and inductive oriented approach incorporating elements of Phenomenology, Grounded Theory research, Social Constructivism to describe, interpret and assign meaning to participants' stories and experiences. Phenomenological influences embedded a humanist style and pedagogy (Bartolomé, 1994).

Subsequently this research study explored participants' perceptions and experiences around possible forms of knowledge erosion or degradation hence the adoption of additional elements more from the phenomenological perspective. Given, participant stories and experiences demonstrated the phenomenon was detectable, storytelling provided an additional layer (Diefenbach, 2009) and further embellished the hybridised research design as depicted in Figure 5.4¹¹⁷ below.

¹¹⁷ Themes developed from first to second order concepts (Corley & Goia, 2004).

Figure 5.4 Hybridised Research Approaches used in this study



Source: (Author, 2019)

5.6 Qualitative Methods

Throughout this research development process, two approaches emerged. First the deduction and theory testing approach and, second, the induction and theory building (Andrade, 2009) approach with the topic of knowledge erosion and degradation and whether such phenomena exist. The investigation initially positioned within a positivist framework, where quantitative methods could apply high-level statistics, including path modelling. An initial hypothesis posited that knowledge erosion and degradation is increasing in contemporary organisations. However, to test such a hypothesis would involve complex quantitative and possibly longitudinal research, which might still be difficult to measure given the complexity and dynamism within the case organisation’s industry and environment and day-to-day disruption to individuals’ lives and roles (Becker, 1997). The alternatives deductive focus¹¹⁸ and,

¹¹⁸ Examination of the complex nature of knowledge and apparent literature gaps on the research topic, to operationalise constructs raised the somewhat sticky nature of the topic, and risks of oversimplification and possible ‘reductionism’ of information or constructs (Saunders et al., 2016). Subsequently this study did not seem congruent with a highly structured or ordered deductive methodology.

retroduction¹¹⁹ both seemed too ambitious according to academic peers; here, the direction of the study took an inductive and qualitative turn.

This researcher in contrast with a ‘methodological fundamentalist’ position (Howe, 2004, p. 77 in Denzin, 2012), concurs with a view that qualitative and quantitative analysis do not need to be mutually exclusive but can be complementary (Munhall, 1993c; Lin, 1998; Shah & Corley, 2006). This view contradicts that espoused by Walker (1985) who pronounced qualitative and quantitative research as fundamentally opposing approaches due to differing philosophical traditions.¹²⁰

In contemporary settings, qualitative research based on small samples can stand on its own merits rather than as a diminished alternative to quantitative methods (Yin, 2016). In addition, qualitative research utilises alternative methods to seek understanding of particular phenomena (Denzin & Lincoln, 1994) and qualitative methods (Berg, 1995; Bryant, 2006; Cairney & Denny, 2015) are appropriate when exploring more complex issues (Belli & Schuman, 1996) or phenomena (Pope & Mays, 1995).

A qualitative approach assists with interpretation using various techniques (van Manen, 1979). Additionally, the qualitative approach seeks understanding of perceptions and experiences with an emphasis on subjectivity and interpretation (Mawson, 2011). Moreover, qualitative research can facilitate triggering recollections and generating new insights previously unarticulated.

¹¹⁹ The research design in its embryonic stage considered retroduction (Bulmer, 1979; Saunders et al., 2016). With new praxis, the research problem and methodology became inductive focussed and governed less by suppositions or propositions, to make way for pursuit of ‘context of discovery’ rather than a study governed by a paradigm dominated by proof and ‘justification’ (Reichenbach, 1938 in Murphy et al., 1998) or evidence (Lazarsfeld, 1958). Retroduction can still mean qualitative research is exploratory for the primary purpose of ‘hypothesis generating’ (Murphy et al., 1998 p. 72) I gradually moved away from the influence of a positivism drawing upon elements from phenomenological and grounded theory arenas and various forms of reasoning (Ketokivi, 2010).

¹²⁰ Furthermore as researcher, I recognised that in order to extend myself further, I needed to research various methodologies and map these accordingly in order to make sense of which one seemed more appropriate and a possible best fit for the study. A combinative approach, influenced by academic peers seemed an initial suitable design choice however due to scalability and other research limitations, this research study adopted a qualitative approach. During the preliminary research study stages, suppositions about explanations of a phenomenon need to be explicit (Churchill, 1979). However, this researcher preferred to bypass a quantitative framework as the dominant or mainstay method. The case for qualitative research is recognised (Morgan & Smircich, 1980) and the approach has evolved as a specialised discipline (Miles & Huberman, 1994; Janesick, 1994; Jones, 2004; Silverman, 2000, 2004; Hesse-Biber & Leavy, 2011; Jovanovic, 2011).

In order to stimulate induction and analysis, this study required more qualitative style questions to elicit answers or responses for qualitative purposes.

Given their length of tenure, many participants shared in-depth experiences and stories elicited from historical perspectives on how the organisation had evolved over time and, perceptions about how leadership had shaped and influenced practices including approaches to knowledge. This qualitative interview method included an amalgam of participant storytelling, with insights and interpretations elicited throughout the discourse as it unfolded (Denis & Domas, 2003; Heller, 2004). Furthermore, this qualitative analysis included reflexivity through the intersection of perceptions and the immediacy of participants' work experiences (Soros & Kaletsky, 2013).

The qualitative study examined potentially exhaustive definitions in relation to the notion of knowledge considering possible similarities and differences between participants. The researcher was mindful of the potential limitations of a pure quantitative approach, where data content stripping¹²¹ can be somewhat reductionist and dilute the rich texture of participant experiences and, primacy of conversion of data into statistics. Such dilution can often downplay the importance of social relations and complex phenomena (Taylor & Bogdan, 1998).

5.7 Research Purpose, Questions

The aim or purpose of this research was to explore people's perceptions and experiences of forms of knowledge loss or decline, and the likely or real impacts including observations about risks and strategies or remedies. However, this study also considered how participants depicted knowledge erosion and degradation from specific work area contexts, with relevance to day-to-day job functions.

To allay concerns that the research might lack depth and rigour (Johnston, 2014) merely leading to a 'so what?' conclusion (Saunders et al., 2016), the researcher sought implications

¹²¹ When considering the idea of reduction, this researcher concerned about risk of content stripping notes concerns echoed within the literature with several authors warning of a recipe 'cookbook' method (Keen, 1975 in Hycner, 1985, p. 280). Giorgi (1975) suggests being less rigid and more responsive to the methods and data.

drawn from essences of people's perceptions and experiences using thematic analysis. This analysis derives from the rich data as a quasi-explanatory mode of inquiry, and less classical or conventional research purpose and design.¹²² This form of analysis can result in systematic and exhaustive examination of data (Nowell, Norris, White & Moules, 2017).

The overarching research aim is:

To investigate whether the case organisation is at risk of knowledge erosion and/or degradation and likely impacts of forms of erosion and degradation.

This overall central research question¹²³ about erosion and degradation of knowledge and its extent in contrasting organisational contexts, logically leads to the research question below. This question prompted participants to communicate initial impressions about knowledge erosion or degradation and its existence from their world- views and experiences.

Do you believe that there is an erosion and degradation or decline of knowledge within your organisation?

This research question involved self-reflection by all participants including as to what they might perceive as risks, barriers or strategies for quality knowledge.

¹²² **Classical research:** Classical research arguably applies within quantitative research (Lincoln & Guba, 2013). Under a conventional schema, the penultimate goal of research is either to predict, explain, explore or describe (Dane, 1990; De Vaus, 2013). The term classical research refers to predictive and explanatory based research where predictive research seeks to examine in cause and effect relationships. This study fits within contemporary research paradigms including exploration, description and implications drawn from inductive analysis and, where or where there is scarce or negligible research on a particular phenomenon or phenomena. Classical research includes use of benchmarks to establish quality standards and recall and contains measures for validity reliability and objectivity that can extend to 'multiple objectivities' and, an anti-relativist leaning (Eglash, 2011). **Conventional research:** Conventional research it is claimed, is less aligned as an approach when addressing more complex research questions (Reio, 2009). Accordingly, this study incorporated emergent and contemporary research methods (Hesse-Biber & Leavey, 2008).

¹²³ This study also sought to ascertain whether forms of knowledge erosion or degradation might hamper or affect organisational effectiveness. Phenomenological type questions are a general guide to assist participants without being too directive (Sadala & Adorno, 2002, p. 288). These authors suggest the following word choice:

What is?
What does?
How does?

5.7.1 Main Interview Question Topic Areas (MIQTAs)

Sub-questions followed the central research question summarised below and conceived by this researcher as Main Interview Question Topic Areas (MIQTAs). Depending on the direction and uniqueness of the individual experience, the responses might lead to the raising of further questions. The intention here was to avoid being prescriptive, but rather use questions as prompts where needed. These MIQTAs are detailed in Table 5.3 below

Table 5.3 Main Interview Question Topic Areas

Topic Area: Perceptions and awareness of knowledge erosion and degradation

1. What is your perception of erosion or degradation in knowledge?
2. How does your organisation ensure that there is no erosion and degradation or decline of knowledge with in your organisation?
 - a. Can you provide me with examples of how this is done and how you know that erosion or degradation of knowledge is not occurring?
 - b. What do you believe is the level of awareness regarding the importance of preserving knowledge in your organisation?
3. What do you observe to be the overall perception of erosion or degradation in knowledge in your organisation?
 - a. Are these perceptions, shared within your work area?
 - b. What experiences do you want to share in regards to this?

Topic area: Factors affecting knowledge erosion and degradation

4. What do you believe are the key contributing factors towards knowledge erosion and knowledge degradation in your organisation?
 - a. What do you believe are the major factors that may inhibit or restrain quality knowledge within your organisation?
 - b. To what extent, do you believe knowledge erosion and degradation, is within the control of your organisation?

Topic area: Other influences and impacts on knowledge

5. What influence or impact has technology had on knowledge building in your organisation?
6. Do you believe that there is any suppression of knowledge in your organisation?

Topic area: Experiences of knowledge quality and strategies to safeguard knowledge

7. What value do you perceive, is placed on quality or profound knowledge within your

organisation?

- a. What do you believe are useful strategies for building and/or safeguarding the quality of knowledge?

8. Where do you believe the sources of depth and/or quality of knowledge reside within your organisation?

5.8 Data Collection and Analysis

In a quasi-phenomenological shaped design, in-depth and semi-structured interviews are commonplace techniques. This data collection method is less bounded or restrictive in structure and can include open-ended questions to encourage participants to share openly their respective views and experiences.

The target population for this study was an Australian owned wholesale and retail organisation. The sample included participants from specific site locations from two states and across contrasting functional areas. The study considered views from head office and multi-site personnel to encapsulate multiple perspectives and thinking (Bansall & Corley, 2011). A sample list with contact details was sought from the Human Resource Management Department, after having obtained permission to proceed with the research.

Purposive sampling ¹²⁴involved careful selection (Denrell & Kovacs, 2008) by the researcher of discrete categories of participants from senior and lower tier management, including participants from corporate and operational areas. Purposive or judgemental sampling ensured selected individuals had a diverse experience base that could add value and contribute to the study (Neuman, 2000). Suri (2011) refers to ‘purposeful’ sampling as aligning closely with qualitative research. More details about additional sampling are included in Appendix 5.

¹²⁴ Grounded theory research recognises purposive sampling is not designed to be statistically plausible given focus is not concerned with having a representative sample from a broad population base in which to build a statistical analysis. Therefore, this researcher opted for purposive or judgemental sampling to support the research questions to increase the likelihood that rich data could emanate from a small or discrete sample size and cases (Patton, 2015).

A small sample provides avenues for in-depth communications and a more individualised and personalised interview environment (Ivey, 2013) with robust analysis of patterns and relationships derived from respective experiences (Moustakis, 1994; Wagstaff & Williams, 2012).

Samples were selected from four generic strata: (1) executives and managers, (2) subject matter experts (SMEs) including Learning and Development and, Human Resource Management IT / Knowledge Management, (3) employees with long lengths of service (10 years plus) and (4) employees across specific business units.

5.8.1 Participant demographic profiles

Twenty-one employees participated in the study. Most participants were key contributors with a particular interest in, and knowledge of, the theme of the study such as representatives from Learning and Development, Human Resources and individuals with senior management roles. The researcher had a contingent approach and was less prescriptive about categories of participants. Table 5.4 below depicts the participant demographic profiles¹²⁵.

¹²⁵ This sample size (21) fits with a phenomenological study. The demographic profile of participants does not include younger persons with short lengths of service a focus area for post-doctoral research studies (Dentith, Measor & O'Malley, 2012). Representativeness in qualitative research arguably focuses on data rather sampling units thereby legitimising smaller samples such as in a range of 20-30. Similarly, sample size ideally should be limited to several participants to allow for an in-depth analysis (Pietkiewicz & Smith, 2012) which in part was the case. Given the length of tenure, in-depth experiences and stories, elicited included some historical perspectives on how the organisation has evolved over time and, perceptions about how leadership has shaped and influenced practices including approaches to knowledge. Therefore, this managerial sample arguably added weight to rigour contrasted with participants less likely to be able to articulate experiences or explore such a discussion at length and in depth such as with first job employees. Hence, the latter employee was not a subject of this study rather people with manager roles and longer lengths of service were the prime key category. Beyond the scope of this study, it would be interesting to explore a broader sample of employees outside of this selected cohort to contrast perceptions around the phenomenon.

Table 5.4 Participant demographic profiles

Participant	Gender	Age Band	Length of Service by range	Work Area	Position
1.	Female	35-44	5-10 years	Vic Operations	Supervisor/ Manager
2	Female	45-54	20-30 years	Corporate/ IT	General Management
3	Male	45-54	30-35 years	Corporate/ Finance	Senior Management
4	Male	45-54	10-15 years	Vic Operations	Supervisor/ Manager
5	Male	45-54	20-30 years	Corporate/ IT	Senior Manager
6	Female	35-45	5-10 years	Vic Operations	Supervisor/ Manager
7	Male	45-54	10-15 years	Corporate	Manager
8	Male	35-45	10-15 years	Vic Operations	Supervisor/ Manager
9	Female	25-35	0-1 year	NSW Operations	Supervisor/ Manager
10	Female	45-54	20-25years	Corporate/ Finance	Supervisor/ Manager
11	Male	35-44	0-1 year	NSW Operations	Supervisor/ Manager
12	Female	45-54	20-25years	Corporate/ Finance	Supervisor/ Manager
13	Female	45-54	15-20 years	Corporate/ HR	Team leader
14	Male	35-44	10-15years	NSW Operations	Senior Manager
15	Female	45-54	10-15years	Corporate/ Marketing	Supervisor/ Manager
16	Female	45-54	10-15 years	Corporate/ Finance	General Management
17	Female	35-44	10-15 years	Vic Operations	Supervisor/ Manager
18	Male	25-34	0-3years	Corporate/ HR	Senior Manager
19*	Male	35-44	10-15years	Corporate/ IT	Team Leader
20*	Male	35-44	3 years	Corporate	Supervisor/ Manager
21*	Male	35-44	5-10 years	Vic Operations	Supervisor/ Manager

*Participant chose not to have interview recorded or the recording had technical errors, or the person was unwell and interview ceased early therefore leaving verbatim data inadmissible.

A higher than average ratio of participants had longer lengths of service and there was an even spread of ratios of male and female participants. A small ratio of participants was based in New South Wales and Victoria sites. There is also a skewing towards longer serving employees and employees categorised in managerial or supervisory roles¹²⁶.

Each prospective participant was contacted via telephone and email, with background information on the research rationale. Protocols, such as applications for approval applications, were managed through the auspices of Victoria University in conjunction with the organisation's Human Resource Department. This process ensured privacy and full transparency and disclosure, prior to participants attending interviews.

5.8.2 Data Coding and Collecting Phases

Data coding did not go to the depth of theoretical coding outlined in an orthodox Grounded Theory approach but still elevated beyond descriptive analysis (Charmaz, 2006; Glaser, 2003, 2005), by adapting a phenomenologically influenced thematic analysis (Rashotte, Fothergill-Bourbonnais & Chamberlain, 1997).

The qualitative data collection phases were used as medium by which to gain insights into how case organisation participants view knowledge, including perceived barriers and enablers; what cultural or other internal organisational factors might stymie knowledge or contribute towards knowledge erosion and degradation. Details of the collection phases are outlined below.

5.8.2.1 Pilot/Mock Interview and Pre-Interview

The benefit of a pilot interview to concept questions assists with modification. Additionally, aside from a pilot interview, the researcher noted how a pre-interview can crystallise understanding and bring new clarity prior to a study (Maxwell, 2005). The suggestion for providing high-level pre-interview questions as an icebreaker, assisted participants prior to the interviews. Participants observed how the topic become front of mind and could personally relate with the study topic See Chapter 6 and Appendix 5 for extracts and quotes). Examples of high-level interview guide questions are below:

¹²⁶ Specifically, selected participants were drawn from three distinct categories (1) subject area specialists namely learning and development and knowledge management personnel (2) managers and team leaders.

- When you think of erosion and degradation as words what comes to mind?
- Do you think knowledge is valuable to an organisation and if so in what ways?
- Can you think of some personal experiences or stories about knowledge and your workplace?
- Is it easy or difficult to prevent loss of knowledge in the workplace?

5.8.2.2 In-Depth Interviews

The purpose of in-depth interviews or the personal interview method (Jantan, 2003) was to gain insight into perceptions of knowledge and knowledge erosion. These interviews were conducted on a face-to-face basis and with potential benefits and value of research participation communicated previously to the organisational participants. In-depth face-to-face interviews were conducted collaboratively, reflecting a contemporary interview approach to dialogue (Morse, 1995), requiring a measure of trust to elicit rich data (Bentz & Shapiro, 1998) with measures to be unobtrusive (Lee, 2000). Face-to-face interviews (Qu & Dumay, 2011) provide opportunities to build a relationship and understand nuances by observing reactions to questions and levels of engagement. Additionally, Participants were able to clearly verbalise and articulate experiences as managers with substantive organisational and industry sector experience and exposure to the said phenomenon (Hycner, 1985).

A phenomenological qualitative method for discourse, meant less tightly scripted questions to enables greater understanding of personal experiences, scope for interpretation¹²⁷ and reflection of the phenomenon. Moreover, in-depth interviews provided room for probing and dialogue on complex topics (Rowley, 2012) such as knowledge erosion and knowledge degradation that are not easily quantifiable. Each interview was scheduled for 60 minutes, but in many cases extended to one and a half to two hours, including briefings prior to the official recording of the interview. Recorded interviews occurred over a three-week period.

¹²⁷ The concept of double interpretation also known as the 'double hermeneutic' (Giddens, 1984), is where participants reflect and interpret responses synchronously in concert with the researcher, for a more inclusive approach (McKemmish, Burstein, Manaszewicz, Fisher & Evans, 2012). This method also affirmed the importance of accessing and preserving of knowledge (Schauer, 2002) and, where research boundaries between researcher and participant, can be both reframed and renegotiated.

5.8.2.3 Interview Transcription and Field Notes

Audio recordings ensured all interview data were appropriately captured (Taylor & Bogdan, 1998) and participants could either opt in or opt out of a recorded interview at any time. One participant, requested taking notes in lieu of use of an audio tape.

An observations made from this research study is that interview transcription arguably does not need to be intrusive (Seidman, 2006). From my observations as researcher, participants quickly immersed themselves into the interview process becoming oblivious to the taping as they delved deeper into the subject matter.

Use of field notes can provide an additional element to the interview process by augmenting interview data and use in post interview reflection. At the conclusion of each interview, the researcher read back notes to participants, to verify the information as accurate and post interviews to ensure notes of key observations and reflections were not lost or discarded (Lofland & Lofland, 1999).

5.8.2.4 Interview Procedures: Participatory and Collaborative Methods

Briefings took place prior to commencement of interviews. These briefings acted as an icebreaker to put participants at ease, and included explaining the nature of the research and reaffirming the importance of participants' input and a more participatory style interview.¹²⁸ Such processes can arguably increase interest and engagement levels (Seidman, 2006).

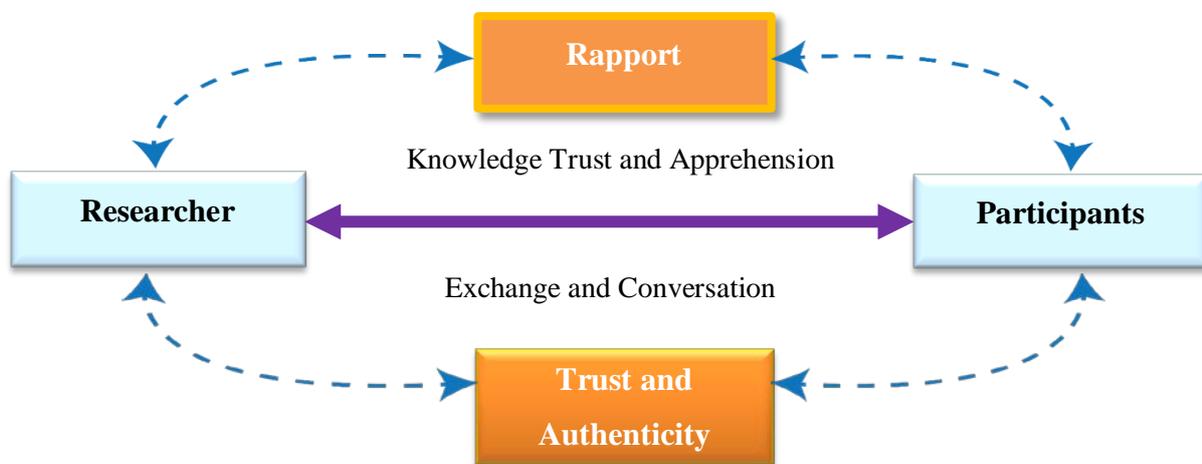
An informal and collaborative or participatory approach (Park, 1999; Kidds & Kral, 2005; Parrado, McQuiston & Flippe, 2005) to interviews created a positive environment for participants to feel included, engaged, understood and heard. Questions and responses were adapted and varied from participant to participant reinforcing the individual and customised approach to data capture. The uniqueness of the exchange, reciprocity and sharing of views between participants and myself, activated higher engagement levels and arguably facilitated better research outcomes from the study (Hatch, 2002). Throughout the data collection

¹²⁸ This study therefore, focused the researcher as both 'inquirer' and the 'object' of inquiry such as participant or key informant who will interact and engage naturally with others where the lines between researcher as expert and distant observer are less rigidly demarcated (Lincoln & Guba, 1985). Subsequently, as a qualitative researcher, I sought to create a greater rapport with less distance (Creswell, 1994) than is sometimes reflected through quantitative or more structured research methods to encourage a more free-flowing conversational style for information gathering. Figure 5.5 below depicts a conceptual model for a more participatory and engaging interview.

process, this researcher factored in the epoche¹²⁹ process affords afford openness to experiences described by participants that enables capturing individual understanding of particular experiences to allow for meaning and discovery (Zhao et. al 2005).

I let the discussion unfold (Kvale, 1996) guided by interpretive phenomenological principles.¹³⁰ Figure 5.5 below summarises a model for participatory and engaging interviews.

Figure 5.5 Summary of Participatory and Dialogue Interview Model applied in this research



Source: (Author, 2019)

¹²⁹ Epoche- Husserl (1970, p. 1321) considers the ‘life world’ of participants and experiences can emerge where devoid of interpretation a ‘pre-reflective’ state exists. Thorough description and articulation of experience is a precondition before analysis and reflection (Caelli, 2002). A key concept within phenomenology is an ‘epoche’ meaning withholding judgement and determination. This researcher embraced tenets from the epoche process concerning the need for receptiveness and readiness to listen to and hear what is communicated without prejudice or bias to accurately capture meanings conveyed by participants.

¹³⁰ Additionally, interpretive Phenomenology (Conroy, 2003) is an evolving approach (Caelli, 2000), signifying the importance of adaptability and flexibility of researchers with how one questions and interprets what a participant is saying and not taking information at face value. Therefore, interpretation of the interview formed an important part of this study and deciphering other cues including non-verbal and para-language to place insights into perspective (Wagstaff & Williams, 2014). Interpretive Phenomenology requires elicitation techniques and a comprehensive analysis of participant responses (Rehman & Muhammad, 2012). Importantly, quality and proficiency matter with questioning techniques significant (Miner- Romanoff, 2012). Another underlying principle this researcher noted with an interpretive and phenomenological orientation, concerns interviewing techniques making allowance for inter-subjectivity between the researcher and participants that arguably optimises or value adds the interview process through facilitating co-created knowledge (Burke, 2005).

Being receptive to new ideas and non-judgemental about the perceived phenomenon namely knowledge erosion and degradation, arguably is an important element in a phenomenological approach to interviewing (Thomasson, 2007).

5.8.2.5 Data Organisation and Grouping

Prior to analysis, preparation and organisation of raw interview data involved key tasks categorised below:

- continuous reading and review of and written transcripts to move beyond a superficial reading to gain a greater level of understanding
- highlighting significant phrases and statements through colour coding to elicit the essences or key points
- developing meanings and grouping them into respective themes and,
- integrating findings for in-depth exhaustive description¹³¹.

5.8.2.6 Thematic Analysis

Thematic analysis, as a recognised qualitative data analysis method, captures and groups individual responses (Bryman & Burgess, 1999; Braun & Clarke, 2006). The process included broad assignment of labels and coding to identify key words, phrases and quotes (Braun & Clarke, 2006), to convert raw data into meaningful information (Boyatzis, 1998). This process is not without a risk of miscalculation, given the intricate nature of sorting deep and voluminous data (Bowker & Star, 1999) and value of learnings derived from a mix of Grounded Theory and Phenomenology provide useful guidelines helped generate analytic categories (Gibbs, 2007; Corbin & Strauss, 2008) incorporating concepts (Bulmer, 1979). Grounded theory allows development of key categories and accommodates data that does not specifically belong within defined parameters or boundaries (Glaser, 1992; Denzin & Lincoln, 2004, 2013).

This phenomenological approach¹³² used key statements clustered under themes for textual description, including analysis and inclusion of verbatim quotations or statements to capture participant's experiences of the phenomenon (Creswell, 2007). Colaizzi's seven-step method

¹³¹ Colaizzi (1978 in Creswell, 2007, p. 160) espouses methods for identification of significant phrases to group into themes to until there is an "exhaustive description" These interviews generated rich data supported by the time invested by the participants and willingness to move from superficial level of discussion. Phenomenology involves textual description or verbatim statements and provides a structural descriptive element that moves from what participants enumerate to their own detection or interpretation of the phenomenon (Cresswell, 2007). Moreover, such meta-levels of description and observations can see the researcher also immersed in commonly shared perceptions (Allan, 2006) and experiences around a phenomenon like knowledge erosion and degradation.

¹³² Within Phenomenology, three approaches can be used to draw upon for separation of themes the first holistic the second selective and the third more detailed (van Manen, 1990).

added value (Edward & Welch, 2011) including analysing narratives to detect implied meanings and concepts from data (Walker, 2006). Key responses and themes about the relative meaning of knowledge erosion and degradation and its variegated forms and prevalence, were identified, using this nuanced rather than an a priori version of thematic analysis where the latter form is framed from a stronger analytic method with deductive influence and, where the researcher may predetermine themes from extant literature and constructs (Boyatzis 1998)

Other authors also caution overuse of preconceived analytic constructs and overladen logical processes in data analysis (Marshall & Rossmann, 2011). The researcher, therefore departed from orthodox Grounded Theory, deemphasising delving into the minutiae and by conducting a thorough disassembling and reassembling of data¹³³, to find ‘good data’ (Cho, 2010). The researcher augmented verbatim transcript analysis with analysis notes compiled during and post the interview process. This form of analysis closely aligns with the Phenomenological approach. It combined with other elements of both narrative and oral history to result in what this researcher connotes as storytelling (Ponticelli, 1999) through reflective journeys (Harfield & Hamilton, 1997) and rich stories (Charon, 2006).

The analysis adopted here captured accounts of the phenomenon with participants’ stories augmented the analysis (Hyden, 1997; Clandinin & Connelly, 2000; Charon, 2006; Gilgun, 2010) supported by a degree of *eidectic reduction*¹³⁴ imported from phenomenology to support an arms’ length perspective.

Pseudo-thematic analysis, included coding and categorisation of the qualitative data broadly into four steps¹³⁵: (1) identifying the main themes; (2) assigning codes; (3) classifying

¹³³ A more orthodox and systematic Ground Theory thematic analysis process requires coding line-by-line and comparing data to develop core categories upon which to build a substantive theory from coding families (Miles & Huberman, 1994; Strauss & Corbin, 1998; Auerbach & Silverstein, 2003; Saldana, 2011, 2013; Miles, Huberman, & Saldaña, 2013; Onwuegbuzie & Denham, 2014; Holton, 2009, p. 53).

¹³⁴ The eidectic reduction method requires a grandstand appraisal when examining such experiences and arms-length approach in order to concretise situations and which aims to reduce objects to *essences* that involves sourcing ‘phenomenological intuitive’ elements from what is presented as untouched data. This analysis extends beyond ‘naive description’ (Husserl, 1970, p. 133). Where a theme has strong links with phenomenological description and what seems sound can activate a ‘phenomenological nod’ (van Manen, 1990 p. 27).

¹³⁵ Other key steps applied included: reading, memoing, describing, classifying, interpreting and representing (Creswell, 2002; Yin, 2016; Gibbs, 2018).

responses under main themes; and (4) integrating themes and responses (Kumar, 2005) as an analytic process (Lewis et al., 2007; Atherton & Elsmore, 2007; Rettie, Robinson, Radke & Ye, 2008). Nuanced narrative analysis also formed a component of the research (Moustakas, 1994) to complement the inductive analytical procedure.

Additionally, this researcher incorporated ‘quoted dialogue’ an anthropological shaped method to reflect the actual voice of participants (Yin, 2016, p. 253). This perspective suggests conventional procedures including the researcher stance can create risk of voiced data going through a ‘sieve’, which arguably can decontextualize and reduce data (Lewis, 1963 in Yin 2016, p. 255) and mere category counting (Stake & Woolcott, 1994).

Maintenance of notes to list issues or observations and record other impressions also assisted clustering of units and essences. Merging of central themes create clusters of meaning. The key themes included writing a summary of each interview.

Data analysis extends beyond descriptive¹³⁶ methods and requires analytic thinking (Stake, 1995, 2005, 2010). Within qualitative research, thick description occurs where meanings are derived from language and conversation (Saunders et al., 2006, p. 472) presenting challenges for strict analytic methods (Throne, Reimer Kirkham & O’Flynn-Magee, 2004) duly noted by this researcher during the data analysis process. Moreover, Grounded Theory analysis (Dalbello, 2005a) recognises background of the researcher, personal insights and interest can help uncover aspects previously ‘overlooked’ (Glaser, 1979, p. 39).

Consequently, an interpretative and inductive orientation does not downplay the importance of a researcher having analytic capabilities nor deny the importance of rigour (Coffey & Atkinson, 1996) discussed later in this chapter.

Whilst authors explicate procedures for Phenomenological Analysis (Colaizzi, 1973, 1978; Giorgi, 1975), one key phenomenological precept underpinning the analysis, was that

¹³⁶ This researcher in formulating considered the differentiation between descriptive and explanatory research. One author differentiating descriptive and explanatory research does not simply relegate descriptive research to a lower end of the research spectrum (De Vaus, 2013) suggesting how understanding of what is occurring or describing, can lead to further explanation or inferences as to why such a phenomenon exists.

findings be 'durable' (Giorgi, 2010). Furthermore, data collection and analysis processes can be concurrent and with constant comparisons and coding and categorisation can lead to a conceptual framework (Stern & Dyles, 1986)

5.8.2.7 Data Saturation, Coding and Reflexivity

Data saturation viewed by some a substantive data collection (Morse, 1995; Bowen, 2008), is the point where additional data cease to generate new information to listed themes (Cousin, 2008) or if relevant for theory generation (Green & Thorogood, 2004) as a quality detector and that depth rather than gauging frequencies of data is more valuable (Morse, Barrett, Mayan, Olson & Spiers, 2002; O'Reilly & Parker, 2013).

Factors that can effect saturation include sample size (Guest, Bunce & Johnson, 2006; Mason, 2010), as well as length of interviews and mutual agreement between researcher and participant (Bloor, 1997; Holloway, 1997 Arksey & Knight, 1999).

With this study, codes were assigned to categorise data including key quotes and phrases. The coding process included a hierarchy to classify and order data (Hahn, 2008); this author used a template that linked themes to concepts (Hernandez, 2009; Scott, 2009).

Reflexivity arguably has an accepted place in management related research (Johnson & Duberley, 2000, 2003; Burawoy, 2003; Cho & Trent, 2009; Fletcher, 2002; Gilgun, 2008; Hiller & Vears, 2016), and mixed methods approaches stimulate 'reflexive' analysis. Reflexivity as a postmodern method (Lenzo, 1995), concerns alteration of data by the researcher or research process or where the researcher's prior personal theoretical biases or values, or assumptions might influence judgements or selectivity with respect to participant responses. . A researcher's narrative is part of reflexive practice (Ellis & Bochner, 2000).

Reflexive practice questions prevailing beliefs (Bryman et al., 2018) and can be an audit method for qualitative research (LaBanca, 2011). Other variations this researcher incorporated operationalise the term as 'reflectivity and 'critical reflectivity', to highlight breadth when seeking to undertake self-reflection in research as well as reflect on research practice (D'Cruz, Gillingham & Melendez, 2007, p. 82; Kinsella, 2007).

5.9 Research Governance and Ethics

The researcher was mindful of the importance of research governance (Kent, Williamson, Goodenough & Ashcroft, 2002) given past experiences with similar types of research projects. This research study was subject to scrutiny from the University Ethics Committee who vetted the detailed research proposal and the researcher had to meet rigorous criteria for permission to conduct the study (HRE 13-063). Additionally, informal consultations with academic peers identified strategies to minimise the risk of bias and provided safeguards related to ethical issues.

Accordingly, following principles outlined by Bailey (1996) and in line with Victoria University protocols, formal written informed consent¹³⁷ agreements were sent to participants (refer Appendix 5) via the Human Resource Department as part of a vetting process prior to the scheduling and commencement of interviews. The information required included the following:

- Confirmation of participants inclusion in the research study and
- The purpose of the research and research area
- The research procedures
- The risk and benefits of the research
- The voluntary nature of participation in the research - stressing how participants had the option at any stage to withdraw from the interview process
- The rights of participants, including: being treated with fairness in a non-discriminatory way; and flexibility to reschedule, based on the needs and role demands of participants
- The guidelines and procedures used to ensure anonymity and confidentiality as well as transparent communication about how data would be handled and stored and what safeguards were in place to maintain data integrity

The researcher sought permission from participants to tape record the in-depth interviews and gave an option for manually written responses. Additionally, ensuring anonymity and confidentiality and with minimal pressure to participate can enhance the level of engagement,

¹³⁷ Supplementary information including an information sheet and interview guide were distributed prior to commencement of interviews. This procedure follows the tenet that individuals are acting of their own volition and in a position to 'freely consent' (Traianou, 2014, p. 62 in Leavey, 2014). Furthermore, informed consent in research is acknowledged as a fundamental human right and ethical issue (Alderson & Morrow, 2011).

trustworthiness (Gall, Gall & Borg, 2007) and confidentiality it is suggested, is a lever for participants (Bailey 1996) to be frank, authentic, and transparent when airing ideas and opinions at interview (Wineclaw, 2009).

In addition, recognising that the private nature of an interview is paramount (Kaufman & Ramarao, 2005) to protect individuals' privacy and anonymity (Grinyer, 2002), interview numbers were assigned to individuals in reporting findings.

5.9.1 Data Storage, retention and safeguards

A participant database stored participant information and other administrative details. Data storage and retention safeguards included back up files and, data stored on different sites such as the supervisor's computer. Interview transcriptions data, were password protected and with limited access.

Adherence to Victoria University quality assurance processes ensured confidentiality of participants' information during the process with non-disclosure of names (Byerly, 2009) linked to response data.

5.9.1. Fairness and Equity, Discrete Data Gathering and Sensitivity

Fairness and non-stereotyping had a high priority for this researcher, where respect for diversity (e.g. cross-cultural backgrounds) can shape attitudes towards knowledge and learning, and facilitate positive relations between the interviewer and interviewee.

This researcher noted how research methods are at risk of intrusive data gathering methods and participants, in some settings, perceived as possible informants thereby raising ethical dilemmas about what might be revealed (Street, 1998). Arguably, the two qualitative approaches adapted in this study- namely Phenomenology and Grounded Theory (Creswell, 2007) are less likely to be intrusive.

Avoidance of harm or *non-maleficence* was as an important objective for this researcher. Gathering personal information about work issues raises many ethical considerations. A researcher needs to be cognisant of risk issues surrounding participants and where appropriate, review and adjust questions perceived as potentially sensitive (Mortari, 2008;

Tourangeau & Smith, 1996).¹³⁸ Throughout the interviews, the researcher continually monitored reactions to questions including paralanguage. In summary, ethics in qualitative research arguably squarely rests within the researcher's domain (Zikmund, 2000) and calls upon truthfulness and trustworthiness as a significant factors in the dialogue process (Angen, 2000).

5.9.2 Empowerment of Participants and Professional Standards

The collaborative and open-ended style interviews accommodated the rights and needs of participants to express feelings and shape the direction of the interview. Participants were encouraged to provide feedback at the close of the interview regarding impressions about how they felt treated and overall interview experience.

The researcher recognised that maintaining high professional standards¹³⁹ was paramount to the success of the study through demonstrating professional standards with grounded procedures (van Aken, 2004) continually emphasised.

Additional considerations included demonstrating authenticity and transparency to participants during the data gathering process, and checking what was communicated was represented accurately (Mero-Jaffe, 2011).

5.9.3 Researcher Role, Reliability and Validity

In qualitative research, placement of researcher and identity is noteworthy (Lipson, 1989) rather than merely being an 'interested or detached observer' (Eberle, 2010 is where the researcher is elevated to be a 'primary data collection instrument' (Creswell, 2003, p. 2006) or vehicle analogous to that of a person conducting an orchestra. These perspectives impute a social agency role and intuitive function. This integral role, is a key advantage of

¹³⁸ Whilst the particular topic was not perceived as a highly sensitive research area (Sieber, 1993), the researcher was not complacent about such issues and stories and experiences from participants and surfacing certain feelings or emotions from past and recent memories of events. Participants were given time to select what they wished to share or disclose if such a sensitive note was identified, with option to continue or discontinue recounting certain events or experiences. Elements of life history can seep through interviews when participants recount past experience, via story-telling (Jones, 1983).

¹³⁹ Ethics also involves demonstrating behavioural standards and following moral principles (Pesut & Johnson, 2013) and codes of behaviour towards others (Blumberg, 2005). Moreover, this researcher notes responsibilities associated with reporting of experiences or empirical data (AERA 2006). Standards can also reflect writing to the reader (Caulley, 2008) and how qualitative data is to be represented (Sandelowski, 1998; Loseke & Cahill, 2007) and compilation of findings (Gilgun, 2005b).

phenomenological research as this approach allows the input of researchers' own experiences to mesh with those of participants (Marshall & Rossman, 2016).

Additionally, the qualitative approach accommodates researcher values, assumptions, and biases throughout the research process. Articulation or disclosure of these personal factors usually transpires early in the research process to assist in the researcher's value added contribution and to enhance the research status (Locke, Spirduso, & Silverman, 2000). It is important to recognise and acknowledge potential researcher bias and the actions needed to address potential biases that can have numerous connotations.¹⁴⁰ Accordingly, I documented my potential biases and strategies to overcome or manage such biases.

Phenomenological shaped data, provides for methods to minimise risk of researcher bias. As researcher, I constantly reviewed and stepped back, to be at arm's length including having time gaps before revisiting or reconnecting with the data to view the data with fresh eyes. Hence, there were several rounds of data analysis as well as consultations with senior research team members, for independent appraisal and feedback.

Researchers can be subjective when interviewing and analysing data, needing to be mindful of pre-conceptions (Oiler, 1982; Shosa, 2012) with a key challenge to remain objective¹⁴¹. To circumvent the risk of interpretation bias, input from other researchers (e.g. project supervisor and other academic peers nominated by the University) was invaluable. Furthermore, this additional review process and input injected fresh perspectives for consideration.

¹⁴⁰ Having preconceived ideas and assumptions can potentially leave an individual susceptible to perceptual selection or perceptual distortion (Schiffmann et al., 1997). Another risk of bias concerns taking a partisan position or taking sides with participants who might have a social or agenda (Hammersley & Gomm, 2000). However, I always endeavoured to be opened minded acknowledging multiple factors can shape organisational settings and that an homogenous view of knowledge erosion and degradation as depicted a broader societal decline construct, could be an oversimplification with potentially negative connotations.

¹⁴¹ Upholding suspension of preconceived thoughts or conceptions such as with infiltrating interviews (Maxwell, 2012), concerns separation rather than fusion of researcher experiences with participants to enable sole focus on participant lived experiences (Nieswiadomy, 1993). Suspension, the researcher found unattainable supporting other views (Hycner, 1985). (Davidson, 2000; Jones, 2001). Here, a researcher cannot be fully detached from his or her hunches or suppositions (Hammersley, 2000). Supporting this view, Mouton and Marais (1990) also observe how researchers as humans naturally are likely to uphold or have preconceived thoughts or beliefs about a given topic following an ethnographic angle on the intersection of researcher with subjects or participants (Ellis & Bochner, 2000).

Having considered standards and research bias, it is important to note that reliability and validity¹⁴² including rigour¹⁴³ provide a benchmark of research quality. The researcher observed a key indicator that qualitative research is primarily concerned with value assigned to study findings (Lincoln & Guba, 1985).

This researcher noted challenges surrounding qualitative research in relation to a definition or construct of reliability and validity (Dixon-Woods, Shaw, Agarwal & Smith, 2004), particularly challenges or issues that can arise when seeking to realise quality research with a pluralist design (Easterby-Smith, Golden-Biddle & Locke, 2008; Leitch, Hill & Harrison, 2010).

However, there is some literature debate (Mays, 1995; Jones & Noble, 2007) concerning evaluation of quality criteria.

5.9.4 Quality Criteria and Qualitative Research

This researcher considered criteria for quality research¹⁴⁴ such as the following:

¹⁴² This researcher also accommodated a perspective that reliability and validity measurement can be an unrealistic ideal rather than actual state where evidence exists that even within quantitative research, high levels of rigour may not be feasible or practicable and procedures may not be completely adhered to particularly when researchers are more concerned with 'substantive' matters. Cost and other factors such as time can also interplay (Le Compte & Goetz, 1982; Greenwood & Levin, 1998). This researcher also noted authors a pragmatic line suggests evidence can evaluate qualitative research (Stiles, 1999; Kuzel & Engel, 2001).

¹⁴³ Rigour as a term used under research reliability and validity can literally mean inflexible. Here, the focus of research is more about precision rather than the journey or discovery itself (Thomas & Magilvy, 2011, p. 151). This concept of rigour can be at odds with iterative qualitative based research such as with this study when imposed expectations follow such rigour constructs. These authors suggest rigour is possible through following ethical, professional and quality standards (Burns, 1989). Additionally, being self-critical it is contended, assists with pursuit of rigour also typologised as 'methodological excellence' (Tracy, 2010, p. 849). Rigour remains a debatable area (Kieser & Leiner, 2009).

¹⁴⁴ The question of quality criteria to evaluate qualitative for research is flagged (Bryman, Becker & Sempik, 2008) and subject to debate and differing perspectives (Cho & Trent, 2006, 2009; Garrett & Hodgkinson, 1998) and the quest for what constitutes more useful qualitative data within a validity frame is arguably fraught with challenges (Cho, 2010) including interpretive inquiry methods (Angen, 2000). This question of qualitative research validity and the differing views is noted (Cohen & Crabtree, 2008) including the framing of validity and quality within an evidentiary framework (Thorn, 2001). The extent to which interpretative research meets an acceptable bar (Leininger, 1990; Ambert, Adler, Adler & Detzner, 1995; Altheide & Johnson, 1994; Altheide & Johnson, 2011). The issue of contrasting paradigms can arguably become problematic for criteria setting (Smith, 1990). Leininger (1990) lists six criteria to evaluate qualitative research: 1. Credibility 2. Confirmability 3. Meaning-in-context 4. Recurrent patterning 5. Saturation 6. Transferability. This problem of criteria in qualitative research raises questions of overreach known as criteriology (Schwandt, 1996). Tracy (2010, p. 840) posits another view on what constitutes effective evaluative criteria for reliable and valid qualitative research. This author proffers eight criteria namely: worthy topic, rich rigour, sincerity, credibility, resonance, significance of contribution, ethical, and

- Methodicalness
- Self-reflexivity
- Evidentiary
- Reciprocity - such as exchange of information by researcher and participants
- Knowledge co-production to create a climate of cooperation and trustworthiness

Having determined suitable criteria, this researcher acknowledges that to evaluate reliable and valid qualitative research, is subject to considerable debate and, where qualitative oriented reliability and validity includes alternative frames of reference. The researcher followed Yin (2016, p. 22) in having a ‘comprehensive and sound interpretation’ of qualitative data. The author also qualifies what comprehensive and good interpretation means by drawing upon five core elements: completeness, fairness, empirical accuracy, value added and credibility.

Having open-ended questions provided freedom for expression of viewpoints to elicit and detail concrete participant experiences. From a reliability juncture, self-reporting is ancillary with phenomenological research with meanings extracted from analysis of sentences and paragraphs.

The researcher invested considerable time in reviewing and replaying the transcribed interviews as a ‘systematic review’ of the interview data, which Yin (2016, p. 181) postulates as critical for exemplary qualitative research.

Validity and quality checks with academic peers occurred through informal discussions. Furthermore, this researcher affirmed with participants that captured data reflected the essence of their respective viewpoints. Arguably, a participant or end user perspective provides valuable feedback on validity and quality of research (Duncan & Harrop, 2006).

One aspect of validity is data verification (Morse et al., 2002). The researcher sought verification during the interviews using paraphrasing, probing and other communicative techniques to ensure understanding and meaning. Making notes was an additional aid for

meaningful coherence. Extending this author’s view, Dick (1999) emphasises trustworthiness and credibility in action based research partially reflecting this study where findings can generate strategies.

thorough data verification. In this study, verification also entailed checking, rechecking and analysing transcripts as well as examining journal notes to tighten up data collection and analysis (Yin, 2016).

Confabulation and psychological defensiveness can be another verification challenge when participants occasionally complete missing bits in stories by adding nuances. These participants accessed past recollections that also triggered recovery of lost knowledge contributing new insights. As part of a quality assurance, the researcher conferred with the senior researcher on research findings and other considerations¹⁴⁵, providing justification and reasoning behind the interpretation of findings. Internal reliability can reflect in commonly shared views from across a sample. Having a thematic analysis and drawing on common themes across the sample further assisted in addressing reliability.

5.10 Summary

This chapter specified the chosen research philosophy and paradigm, namely interpretivist and qualitative. The research design was inductive and included a fusion of grounded theory and phenomenological principles. A single multi-business organisation was selected as a case study to explore similar and contrasting perceptions. Purposive and judgemental sampling was used and face-to-face in depth interviews conducted. Data analysis included thematic and storytelling analysis augmented by triangulation through review of organisational documents. The investigations provided a snapshot of organisational participants' perceptions and experiences in relation to organisational knowledge, whether knowledge erosion and degradation occurred and observed impacts with ideas for strategies to counteract such impacts.

¹⁴⁵ Other validity considerations included the degree of care taken in sampling, thoughtfulness about questionnaire or interview design and transparency around the research aims and objectives. Clearly, having checks and balances in place supports a quality interpretive analysis (Francis, 1996) and arguably is an enabler for more valid and reliable research methods. Replicability however, raises a different perspective. There can be a divergence of interpretations, perspectives from differing researchers as to how data is interpreted which is often importance and standardised, and this researcher recognised the need to be meticulous in extracting meaning to offset such risks. Furthermore, the need for care and contemplation when formulating research questions has been a qualitative data collection and analysis point of discussion in research standard setting (Sandberg & Alvesson, 2011). The overall issue of justice within can be a cornerstone when evaluating qualitative research (Correa, 2013).

The next chapter presents the research findings. Chapter 6 contains data analysis extracted from transcripts and explores individuated data and common themes and variations across participants.

Chapter 6 - Analysis of Findings

6.1 Introduction

The previous chapter detailed the research design and approach. The purpose of this chapter is to summarise and interpret the case study findings as well as additional insights. Detailed discussion about Organisation X was provided in Appendix 5.

The first section provides an analysis of participant interviews, with the second section including additional thematic analysis drawn from the participant experiences. The final section includes a final synthesise discussion of findings with additional insights including conceptual frameworks developed by the researcher.

Whilst participant responses from corporate head office and operational or parts of the business drew slight variances there were common threads across the cohort.

As prefaced in the previous chapter, 21 participants were interviewed using a semi-structured and collaborative method and many participants were operating at various supervisory and management levels largely with longer lengths of service and drawn from head office, retail and warehouse operations hence perceptions and experiences were open to variations.

Given the interviews contained quite lengthy quotes some of these have been retained as verbatim statements and others condensed to extracts. Other quotes not deemed as significant statements or more peripheral to the research topic are provided in Appendix 6.

Full details of participants' conceptualisation of knowledge and knowledge erosion and degradation is provided in Appendix 6. A discussion and synopsis is provided below.

6.2 Conceptions and Operationalisation of knowledge, Knowledge Work and Knowledge Erosion and Degradation

Before examining respective themes around experiences of knowledge erosion or degradation risks and barriers, the following section enumerates participant views on knowledge, knowledge and work followed by discussion of the two sets of conceptions. Participant

responses are spread according to the type of knowledge construct or theme. Participants had varying views as to what constituted knowledge. For some, the empiricist perspective dominated whilst others were more innatist in their views of knowledge and its origins. Other perspectives also reinforce approaches introduced in Chapter 2 (See Appendix 6 for more detailed textual descriptions and discussion).

How participants frame knowledge from their world views most likely influences how they view the value of knowledge and what constitutes knowledge risks such as erosion and degradation.

Several participants following Locke and other thinkers, conceive knowledge from a more empiricist frame of reference or externalist perspective and where knowledge is gained through experience, rather than being innate imputing key knowledge is primarily sourced through organisations rather than formal or structured learning. The empirical approach to knowledge again suggests on the job learning legitimacy to build knowledge rather than relying on formal codified forms of knowledge.

Furthermore, one participant questions how younger people learn and acquire knowledge from being in touch with the external world maintaining that one should not be constrained by devices where too much reliance on tools may hinder people understanding fully how to use knowledge. The participant stereotypes tech savvy younger people with knowledge is axiomatic with information supporting critiques discussed in Chapter 3.

A minority of participants placed higher value on knowledge gained from formal education and several participants following a Plato tenet, imputes one does not necessarily learn if something is already known and knowledge something one might already have.

Another perspective views knowledge as organisational and from a practical working knowledge view 'know-how and know what ', as per Ryle's typologies noted in Chapter 2. Whilst in a different vein, participants viewed knowledge from a contextualist or anthropological perspective by referencing functional specific areas and depictions of knowledge in work settings.

One participant identified knowledge from an integrated perspective, where knowledge is logical and fact-based supporting the construct of factual knowledge introduced in Chapter 2; he also acknowledged how individuals might interpret knowledge. Whilst another participant following a rationalist view hints at a causal approach to investigating a problem that Hume in his critique of causality may have queried.

One participant highlights cognitive interpretation of knowledge and notes how such forms of knowledge transmission are open to misinterpretation or be misconstrued with subsequent effects including time wasting.

Another participant details a philosophic take on knowledge that is less objectivist, yet also acknowledging expert or specialist knowledge adds further complexity.

A few participants point to knowledge associated with power. Power can be exerted in different ways such as in a negative sense by withholding knowledge. Although participant also connected knowledge and power with becoming empowered.

Several participants when construing knowledge classify or categorise knowledge whilst others note how knowledge can be dormant and stagnant whilst others believe knowledge needs to be better leveraged to seize upon competitive advantages and optimise performance..

Other participants seek to validate the worth of embellished knowledge they bring to current roles and the specialised and expert nature of knowledge needed as a value add for performance improvement. Whilst another participant acknowledged the contribution of external or expert knowledge contrasted with questions around expert knowledge observed in Chapter 3.

Whilst many participants had not consciously thought of the concepts, some had a clear definition in their own minds. Many understood the meaning of the words and imbued new meanings and interpretations. The majority of participants believed that erosion or degradation occurred and many shared personal experiences of the problem observed in the themes section; although experiences and stories were contrasting and, at times, function specific.

Some participants recognise that not all knowledge being eroded is a negative and understand that knowledge may be degraded when it no longer holds value. This perspective of knowledge sees a connection between change, where types of specialised knowledge and knowledge for innovation require new forms of knowledge See Table 6.1 below.

Table 6.1: Conceptions of Knowledge Erosion and Degradation

Knowledge Erosion and Degradation Construct	Knowledge Erosion and Degradation Construct	Knowledge Erosion and Degradation Construct	Knowledge Erosion and Degradation Construct
<p>Everyday known knowledge gaps - The norm Interview 10-F</p> <p>But there is so much I don't know as well, and I know that I don't know. Because every day there's something else going on and I'm like I didn't know that...</p> <p>Knowledge erosion-tech change impact perspective Interview 3-M</p> <p>I've seen it happen. I've seen where someone's come in at a higher level with a different approach. Their solution, they seem to find a solution that's required. And without really getting into it and really getting into, these people come without really investigating it, they come in with pre-conceived idea and they say, this company needs to go this way, without really seeing where they were and people who were involved within that area. Especially in regards to like the IT area. We had a legacy based system...they decided no, we're going to go down this path and as a result two very or probably three very knowledgeable</p>	<p>Competitor knowledge-Transplantation Interview 18-M</p> <p>We get someone from a competitor who tries to apply their knowledge from the competitor's business and it doesn't work because we are very different, we are operating on a very different set of rules.</p> <p>Knowledge erosion/degradation-industry perspective Interview 9-F</p> <p>I would definitely be able to see how they relate [knowledge erosion/degradation] to this industry and how they relate to lots of people in the industry. You can see as soon as someone walks out the door and goes on to a new place, people say, such and such knew how to do that or I don't know I've seen somebody do it but I can't remember how to do it or whatever. Either you can access that person to get that knowledge or you might just let that knowledge walk out the door and</p>	<p>Warehousing - "don't really need to know a lot" "the headset...tells them exactly what to do" Interview 18-M</p> <p>They do their job[warehouse workers] they come in and do their pick... you don't really need to know a lot to do that job other than the layout of the warehouse, they've got these little machines and they wear a headset which tells them exactly what to do. ... then we have the office staff...so that is the area I feel is the biggest problem in knowledge management and documentation...</p> <p>Knowledge erosion/degradation operationalised Interview 9-F</p> <p>Erosion of knowledge, probably to me would be, would be people leaving I'd say and that passing on of information. A lot of jobs that they just know how to do and they do every day that doesn't get passed onto new people probably. Yes for sure.</p>	<p>We're masters of our own destiny: Knowledge information on an even keel: information in bits Interview 14-M</p> <p>Within the organisation I don't think that there is [erosion/degradation], we're masters of our own destiny there.... Obviously external influences and what the industry is doing may shape what we have to do and change things, but I think from the internal side of things, there shouldn't be anything that changes or impacts or stops us or impedes us from doing what we need to do...at times there are certain people or certain bits of information that is not necessarily on an even keel. So like one manager may give information to be passed on to and communicated through their team, may be acceptable, but another manager... too sensitive and I won't pass that information on to the rest of my team.</p>

<p>people that knew how our particular game worked from end to end, been involved in pricing, involved in setting all these things up and had a vast knowledge, were just gone... They were pushed, they were given marching orders and away they went. One of those ones ended up being a director of IT within another company and within 12 months a customer of ours...</p> <p>Linear knowledge - You do this, this and this equals knowledge Interview 9-F</p> <p>... the system that was implemented was implemented from people who understand the customers and not people who understand the business. So the original processes were done kind of in a clinical way. You do this and this and this, and that's fine, but in reality we have to do x and y and then we have to go here and then we have to come back here.... Yes or it might be that the new person still needs to be trained, they need to not only know that you do this step, this step and this step but who does each step and who do I talk to about this step in the process.</p> <p>Erosion - Role migration and diminished handover Interview 11-M</p> <p>Where knowledge can be eroded and degraded. I'd say, pretty much for me like now moving into a new role. If I'm not getting the correct teachings or getting taught by the</p>	<p>you can't get it back.</p> <p>Whittled down knowledge – Lost Collective knowledge and experiences Interview 8-M</p> <p>- Yes. I've come off the floor, so I've seen, especially in the last handful of years, where some of the supervisors and managers here were in excess of 30 years' experience. One retired, one went to company Z, another one got another job, and some got moved...all of a sudden you might have 500 years of experience got whittled down to 100 years very quickly. There are things that you can only pick up through experience. All the textbooks in the world will not give you that.</p> <p>Knowledge erosion/loss - Return on investment and knowledge foregone Interview 8-M</p> <p>... we had a gentleman that was showing a lot of ability to take the next step and actually progress within the business, and we had spent a fair bit of time in giving him the knowledge and the skills and the tools to lose him to another company. The disappointing thing was that we didn't get an opportunity... it's see you later have a great life. ...They were young, they were keen and we invested a couple years in getting them to that position and then they were snapped up</p> <p>Inevitable knowledge</p>	<p>Interview 13-F Definitely by people going that have held onto information or knowledge about certain things, especially big businesses.</p> <p>Interview 15-F Degradation is where people, when knowledge is cut down because people think it's too hard and you feel degraded and you feel okay I've put something...</p> <p>People put value down on someone's knowledge or someone's suggestions, and that's where I think knowledge can be degraded. I think degrading knowledge is when it's cut back and people won't look at the big picture and say, okay maybe we should try that idea... I think the way it can be eroded from the business is when it's not encouraged.</p> <p>Interview 9-F -Erosion of knowledge, probably to me ...would be people leaving I'd say and that passing on of information. A lot of jobs that they just know how to do and they do every day that doesn't get passed onto new people probably.</p> <p>Interview 4-M - Erosion to me is probably just a progressive, diminishing of an entity of knowledge or whatever it might be. Degradation to me is more of a pollution of knowledge. When I saw the term knowledge degradation...what sort of perspective to you put that into? Degrading by</p>	<p>A new direction: and knowledge Interview 18-M</p> <p>... the change which the business is currently going through...It's also a change in actually how we operate and how we do our job so the fact that we are going through this change is that people will have to do their job differently. Processes which would have worked before are not going to work moving forward we actually have to start the creation of a lot of processes again. It's not really eroding it it's just that it never existed now we have to start. How do we do things better how can we be more efficient how can we change the current processes to fit with the new look and the new goals of the business?</p> <p>Interview 8-M ... Once a upon a time we had a lot of people here that could operate in any crisis, they could deal with people and they had all that back training... but now we've got to reset and do all that again...</p> <p>Emails and Knowledge erosion: one click and its gone Interview 5-M</p> <p>...I think everyone understands that knowledge leaves the</p>
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<p>person I'm replacing, knowledge can be eroded and I find that a little bit now, going into a new role the guy I'm replacing, he is moving into a new role, so he hasn't got a lot of time at the moment to show me what he used to do.</p> <p>Knowledge erosion and degradation and breaking down of social ties – Breaking down of knowledge</p> <p>Interview 10- F</p> <p>We don't even know most of the people that work in those areas anymore. So, not even knowing the names of the people that work there and being able to pop up, and that's a breakdown in knowledge for me because I used to know everybody in those areas. I only know like probably one or two old ones that are still there. I don't know any of the new guys that are there...Yes, definitely. It's only through a course that I did a couple of weeks ago that I met someone else that worked there.</p> <p>Interview 2-F</p> <p>Erosion does occur if you don't keep it in mind, that [knowledge] is completely is gone.</p> <p>Interview 3-M</p> <p>... Even within the whole organisation I don't think all the processes are mapped and documented... There's that bit of a breakdown and that is a pretty basic thing.</p> <p>Interview 3-M</p> <p>-Oh look, erosion you think of things being</p>	<p>erosion and decline- a deterministic perspective</p> <p>Interview 1-F</p> <p>I suppose a lot of people tend to leave the companies if there are no opportunities to further themselves. They obviously then would look at moving on to another organisation where they could work their way up the ladder, and then obviously have that knowledge with them that they've gained, could be they've been there for five years, ten years and they take that knowledge with them.</p> <p>Interview 4-M</p> <p>.... There is always going to be a loss of information, loss of knowledge of the business when somebody leaves.</p> <p>Interview 4-M</p> <p>There is control of knowledge leaving the business in terms of what the company polices will say. This is the knowledge we share, that can't be shared. So in terms of the degradation of that, there is a loss of knowledge to our business. The longer people are abiding to those rules, the company policies... the knowledge remains intact. If they choose to park that knowledge out of our business, well yes, the knowledge is gone or has been shared and there's risk somebody is going to lose their job because they have intentionally done that very thing... there's nothing you can do about people having ambitions and wanting to</p>	<p>it's sort of a broad interpretation which is something that is breaking down.</p> <p>Interview 12-F</p> <p>-To me ...it's a breakdown or it might be something quite large where over time it's been broken down.... I used to know all this stuff but because I'm not using it all the time then I start too, the old, either use it or lose it... You know what I mean. My knowledge base, isn't being utilised to its full capacity. If someone asks me a question about something I probably used to know, sometimes I struggle to recall and I doubt myself, and I start thinking about, hang on that's what I used to do? Is that right? I haven't done it for a while or I haven't dealt with that for a while and no one has asked me that question and you tend to do things out of habit and without realising if it's the right thing to do.</p> <p>Interview 8-M</p> <p>I believe there has been, especially in the last three or four years, significant erosion. Having said that, we are turning things around but you can't gather that knowledge overnight to get back to where we were.</p> <p>Interview 9-F</p> <p>-Erosion of knowledge, probably to me would be, would be people leaving I'd say and not passing on of information.</p> <p>Interview 15-F</p>	<p>organisation when someone leaves. A lot of the knowledge is written down in electronic form or is usually embedded in some sort of email trail or email attachment etc. or ... email inbox... gets deleted.</p> <p>People, culture and, processes, systems driven erosion and degradation</p> <p>Interview 5-M</p> <p>-Erosion to me is around ... a person or system, whatever it may be has ceased or left the organisation so the IT would have to have knowledge on that particular person ... when they leave the organisation ... So that to me is where the erosion, later on occurs...degradation is really around that you may not use a particular system or process for quite some time...</p> <p>Interview 13-F</p> <p>-It's restructuring and people that have had knowledge and new people coming in and having to build that knowledge. For me erosion is more about not looking back to what has happened, what have we tried? What haven't we tried?</p> <p>Interview 14-M</p> <p>... a certain type of culture is being promoted within an organisation and that has eroded or degraded over time and</p>
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<p>washed away and all that sort of thing. I have a personal opinion in that I started with the company which was very limited in what they had, with regards to computers. The internet wasn't invented. Mobile phones weren't invented. Facebook and all that type of thing. I think that these type of, especially the things like Facebook and that type of stuff has actually eroded the knowledge and the individuality of people and to me that's a form of erosion of knowledge. So your uniqueness, and your personal knowledge and that sort of thing is open to the public. That individuality is eroded.</p> <p>Interview 4-M</p> <p>Erosion to me is probably just a progressive, diminishing of an entity of knowledge or whatever it might be. Degradation to me is more of a pollution of knowledge. When I saw the term knowledge degradation...what sort of perspective to you put that into? Degrading by it's sort of a broad interpretation which is something that is breaking down.</p> <p>Interview 5-M</p> <p>- Erosion to me is around, something that ... a person or system, whatever it may be has ceased or left the organisation so the IT would have to have knowledge on that particular person ... when they leave the organisation ... So that to me is where the erosion, later on ... so the second degradation is really around that you may not use a particular system or process for quite some</p>	<p>move on. The loss of knowledge to the business or degradation of knowledge is a result of that, that's just a fact of life.</p> <p>Change, knowledge, culture and innovation- From push bikes to cars</p> <p>Interview 3-M</p> <p>...change is knowledge. It's happened throughout the history...The guys that knew how to fix wagons and the guys who sold push bikes and things like that, it all changed. Then the cars came in. It's history. History is change. Knowledge changes and adapts.</p> <p>Interview 14-M</p> <p>I don't think there's an erosion. I think there's a change in the type of knowledge that we've had to use ...working in IT, it's constantly evolving, it's constantly changing and therefore you have systems that were once relevant are now past it's used by date... therefore do we need to retain that? Sometimes we do because we come up against issues that we have to go back and find and look at what happened then or even refer to an old system that may not be used but get information from it.</p> <p>Erosion and degradation. To me erosion and</p>	<p>...erosion of the business is when that knowledge is not contained and somebody goes away with it... You're eroding away the structure of the business or the knowledge.</p> <p>Underutilised knowledge a form of knowledge degradation</p> <p>Interview 12-F</p> <p>Probably, my biggest thing, when I was reading through this, the biggest thing I think here within this organisation to do with knowledge, is that our biggest concern is what I said at the beginning. There's a lot of people here who know a lot and they're not utilised the right way and I don't think they are encouraged either. There's a lot of people who are happy to come in. They could probably do a lot more. A lot of them don't want to. But they're not given an opportunity to contribute in a lot cases, there kept out of stuff, stuff that might only be considered as your just a clerk or a...</p> <p>External influences and old ways 'the baton down in the mail'</p> <p>Interview 1-F</p> <p>- Yes, look there are a lot of external factors, I mean again yes we've all got to move with the times and maybe the old, using as an example, the old ways sending the baton down in the mail, you know now you are able to receive them</p>	<p>potentially moved away from the values that the company has tried to install, that could be one area. The other thing is obviously loss of intellectual property within the origination and how we as an organisation maintain that knowledge transfer, that sharing, that understanding of processes.</p> <p>Interview 15-F</p> <p>...if someone leaves that knowledge goes with them. A lot of that can be because we don't keep a record of processes in place...</p> <p>Interview 18-M-</p> <p>I went and asked someone for some information and they said I haven't got time for this...</p> <p>Degradation: People and knowledge cut down to size - no opportunity to pursue new knowledge</p> <p>Interview 16-F</p> <p>Degradation is where people, when knowledge is cut down because people think it's too hard and you feel degraded and you feel okay I've put something, and I guess in my role, I'm not saying that I do that I'm very, very lucky, very privileged to be able to take on a project and go with it. The thing I find degrading and you sit at something and no one wants to give you the opportunity of</p>
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<p>time, so you're not quite sure ... unless you use it quite frequently.</p> <p>Interview 9-F</p> <p>- Years ago we used to be able to go and see the buyers to check out the pricing and what was wrong, we were more hands on with the people. Whereas now everything's via email from one site to another site. So yes, we used to solve a lot more things quicker and easier on the same site. You'd just get off your butt and go see someone and ask the question, rather than it be in an email and waiting for a reply and not knowing where they are... It affects our roles as well. We don't even know most of the people that work in those areas anymore. So, not even knowing the names of the people that work there and being able to pop up, and that's a breakdown in knowledge for me because I used to know everybody in those areas...</p> <p>Interview 17-F</p> <p>The depriving of quality is that what we're on about?</p> <p>Interview 18 -M</p> <p>...what erosion in my mind is- You knew it, it's gone now, because it wasn't documented.</p> <p>Staff turnover and knowledge loss</p> <p>Interview 11-M</p> <p>...I know who to go to so that's a good thing. But there are people that are doing my role that have</p>	<p>degradation of knowledge within an organisation comes across in a number of ways I think. You can look at it from the knowledge erosion or degradation of values of that knowledge within an organisation. Whether a certain type of culture is being promoted within an organisation and that has eroded or degraded over time and potentially moved away from the values that the company has tried to install, that could be one area. The other thing is obviously loss of intellectual property within the origination and how we as an organisation maintain that knowledge transfer, that sharing, that understanding of processes.</p> <p>New Direction</p> <p>Interview 2-F</p> <p>... erosion happens if the knowledge that you've learnt, the business has completely changed, the organisation has moved on or changed direction, then that knowledge if it is not changed over time, it is eroded too early. It's not useful. Some people would be applying knowledge and hoping that it is, but it isn't.</p> <p>Knowledge exodus - A warehousing perspective</p> <p>Interview 8-M</p> <p>So what comes to my mind... we had a lot of knowledge within people and those people are gone. So a lot of knowledge left in certain areas of the warehouse. Prior, I guess half a</p>	<p>online, that sort of thing. But again, so for people of a certain age group that have been doing the old ways for a number of years, are now gaining that new knowledge, it could be they might not have had much experience with computers and that aspect of it so, I suppose those sort of factors again can affect erosion.</p> <p>It depends on the regime</p> <p>Interview 3-M</p> <p>I believe it's probably certain specific areas. If you were an expert in let's say tax and very knowledgeable with the way our systems work and all that sort of thing and there was no one else there that was unable to know as much. If that person goes, you're vulnerable... Knowledge is firmly in our company... knowledge wasn't necessarily shared under the previous regime because they recognised that. It's when you get that recognition for your abilities and for your knowledge and how you use that knowledge, that people actually thrive and become better.</p> <p>'Fly in Fly out' and Knowledge erosion/degradation</p> <p>Interview 1-F</p> <p>... sometimes again you've got people that come in and do the job for two to three years and move on and they're just interested in coming in and doing it their way and furthering themselves and then just</p>	<p>presenting that knowledge. Oh no, it's too complicated for me, I prefer us to do it the old way, lets stick to the old way, and that's degrading I think processes or ideas within the organisation. I think it should be an opportunity where if you work on sharing your knowledge no one should degrade you because you're sharing that knowledge and think little of that knowledge. Does that make sense?</p> <p>Regulatory changes and erosion and degradation of specialised knowledge</p> <p>Interview 3-M</p> <p>I'll give you a good example... considering erosion and degradation of knowledge...I previously worked for a gentlemen ...one of the foremost experts on sales tax. He knew that much about the sales tax that he actually used to get people from the taxation office ringing him for advice. Then along came a thing called GST and that man's unique knowledge was no longer required... That's the degradation of knowledge that was so profound and so deep all of sudden there's a change in the way we approach that and it becomes non-existent. It's discarded. And to a certain extent, the value of that person</p>
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<p>been in the business 10 - 20 years. They know it pretty much back to front. In that way there is risk at the moment of it being lost.</p> <p>Interview 5-M</p> <p>For me that's probably a bit hard to answer because I've only been in the one role my whole life, this organisation so I can only talk about staff turnovers ...</p> <p>Interview 6-F</p> <p>- I think of the knowledge a company loses when they lose people and when people leave and take that knowledge with them. I do think of that.</p> <p>Interview 8-M</p> <p>-With a lot of people that have been within the business up to 30 plus years, leaving. Whether it be getting another job, retiring or just leaving all together, there's some serious erosion in some areas, absolutely.</p> <p>Interview 1-F</p> <p>-The only other perception that would be, I suppose, like for erosion is, people as they get closer to the retirement age, you know that, then they may take, they could have been with the company for 20 or 30 years and again take a lot of knowledge away with them.</p> <p>Interview 4-M</p> <p>People moving on. People leaving.</p> <p>Interview 5-M</p> <p>-One thought I get being my age and experience, is that ...all this knowledge has been lost out of the</p>	<p>dozen years, when we had all that knowledge, a lot of it was kept within people, they were insecure about their jobs, so when I go on holidays, they won't get it done which isn't really good. Prior to that, it was only a few who knew what was going on but we've transformed and evolved over all those but it probably took a lot of heartache to get to it. Having said that we're still, in some areas, lacking some quality experience.</p>	<p>moving on. I mean, look, at times, it can work, they do bring in some knowledge that you can take on board...</p> <p>Interview 11-M</p> <p>-Where knowledge can be eroded and degraded, I'd say, pretty much me like now moving into a new role. If I'm not getting the correct teachings or getting taught by the person I'm replacing, knowledge can be eroded... the person I'm replacing he's got his role to try and learn too, so it's a bit of erosion.</p> <p>Interview 11-M</p> <p>-...the only erosion that I can see at the moment is learning from your peer.....So I think a lot of it may be personality of the person maybe they don't want to pass on information... Time pressure is a big one now. Time can be a factor, I wouldn't say it's a huge one but there is a bit of pressure, you might not pass something on quickly like during this time of year.</p>	<p>was degraded, degraded, done. His knowledge was not necessary anymore... he specialised that much in an area that actually devalued him in the finish, because he had other knowledge and other experience.</p> <p>Interview 2-F</p> <p>It's mostly the external influences, the demands are different now, and the consumer behaviour is different now you know? ... So things are changing, we're being forced to change you know. So in a way, the erosion has happened whereby, if you are sole concentrating on the brand of products and your expertise was on that.</p>
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<p>business because they say that person is now too old to progress on in the business so we'll give them a retirement package or a redundancy package or whatever. It's a lot of knowledge that is lost out of the business by these people going. You've seen it in the past... these huge depths of knowledge lost forever...</p> <p>Interview 8-M</p> <p>-Well what we have experienced probably over the last five years. With a lot of people that have been within the business up to 30 plus years, leaving. Whether it be getting another job, retiring or just leaving all together, there's some serious erosion in some areas, absolutely.</p> <p>Interview 9-F</p> <p>-...it's particularly difficult to retain knowledge because you have that high turnover of staff and you don't have a lot of written work done by the staff that work there, you don't have a lot of information. It's difficult to pass information from one person to the other except through practise or on the job training so I suppose that's a particular, seems to me, to be a particular difficulty within retail particularly operations level.</p> <p>Interview 9-F</p> <p>- ...they were made redundant and left on the spot. So there were jobs that that person used to do, and no one knew how to do them.</p> <p>Interview 13-F</p>			
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<p>- I think people departing the business and not sharing it. And the other real side is people holding onto information and not sharing, even within the business...</p> <p>Interview -F</p> <p>...So I can't really speak for anyone else, but from my experience I think the knowledge, erosion, I'm not sure it's like, it's not as, I'd say that we retain quite a lot of knowledge, but we definitely lose it to some degree you know when good people leave or people don't speak up or when certain situations or processes just aren't in place.</p>			
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Discussion

Some participants recognise that not all knowledge being eroded is a negative and understand that knowledge may be degraded when it no longer holds value. This perspective of knowledge sees a connection between change, where types of specialised knowledge and knowledge for innovation require new forms of knowledge.

One participant connotes how knowledge is about value and that levels of degradation can reflect downgrading of knowledge due to various cultural and other influences. He asserts that organisations with weaker cultural or social ties and values may be more susceptible or prone to forms of erosion and degradation.

He also perceives knowledge as linked to intellectual capital and an underpinning element of knowledge architecture; where intellectual capital is instrumental to business core knowledge, architecture can be compromised leading to erosion or degradation.

Another participant raises a HRM issue of how people are a key source of knowledge that might remain untapped, that could have impacts on organisational effectiveness. This observation also relates to managers' roles in facilitating knowledge.

One participant points to external factors and responses by employees to change that may shape knowledge erosion/degradation. In contrast. One participant contrasts degradation from erosion by observing show how degrading knowledge can be personal, with the example of people's ideas and suggestions for continuous improvements either being ignored or discarded and people feeling devalued.

Another participant also distinguishes between erosion and degradation of knowledge. The former construct viewed as a gradual or slow decline over time, whereas the latter construct is denoted as a contaminated or compromised form of knowledge. Whilst another participant delineating erosion from degradation, sees erosion attributed to loss of personnel or cessation of an existing system. In contrast, degradation is imputed as less use of a system or process leading to a downgrading of its importance.

Some participants in articulating impression of knowledge erosion and degradation cite examples from lived experience of the prevalence of the phenomenon either from the existence of siloes as barriers- discussed later as a theme or whether from an oral history perspective recalling specific events such as with the loss of key people with knowledge for crisis or disaster recovery management that reflect examples of perceived forms of knowledge erosion and degradation.

Along similar lines, another participant construes knowledge from a socialised functional context, aligning the concept of knowledge erosion and degradation with technological change observing how techno-knowledge can be superseded and knowledge resources treated in an arbitrary or binary fashion, where those personnel can hold knowledge deemed as outdated.

Some observations also highlights risks around individuals adopting simplistic solutions as misnomers (Hill & Hill, 2018), and possible evidence of hamartia and other risks where local knowledge is bypassed - as discussed in Chapters 3 and 4.

One participant construes knowledge erosion and degradation associated with incorrect information and knowledge due poor communication that can seriously impact stakeholder relations and impact organisational productivity.

Other participants seek to define or operationalise knowledge erosion and degradation from various frames including organisational memory and past knowledge procedural, outsiders, political or power, systems, external or market forces, generational attitudes, temporary nature of work and knowledge loss perspectives and quality as several notable areas. This reinforces the elastic notion of the construct but also the relativist perceptions of knowledge erosion and degradation and its prevalence.

One forewarns of negative effects of externally sourced or new employees importing their knowledge, but not being well versed with the internal socialised and institutionalised knowledge sharing and learning practices. Her concern implies threat of erosion and degradation of knowledge, founded on the vulnerability or threat of outside influences on new job incumbents.

Others see breaking down of social ties through organisational restructuring and social impacts from increased reliance on technology platforms including key knowledge or information can extinguished through emails as forms of knowledge fragmentation or knowledge erosion and degradation supporting earlier discussions in Chapters 3 and 4. Primarily, knowledge practices in some participants' minds have been eroded over time resulting from organisational changes.

Changing work methods including role migration are also viewed as possible risks for knowledge erosion and degradation. Expanding on the context of the independent supermarkets and complex warehouse operations, one participant also depicts how changing work methods have led to a reset with knowledge and processes. One participant believes

change affects a core knowledge base, leading to an erosion of methods and practices, and where there is justification for documented procedures in the event of key people with long lengths of service leaving the organisation.

Similarly, another participant also acknowledges how business requirements are changing and that existing processes and work methods are no longer working. The need to discard processes and methods is a deliberate erosion, as these practices have degraded and are no longer necessary for the current and future needs of the business. Additionally, systems design and implementation can arguably create risks of knowledge being eroded or degraded.

Reinforcing other participant views, another participant sees erosion as a natural phenomenon that can arise where people transition into new job roles, where if there is insufficient handover between current and new job incumbents, there can be knowledge erosion and degradation.

Another participant reflects on the importance of passing on knowledge and resultant effects of employee departures are again associated with the erosion phenomenon. Additionally, another participant raises access issues regarding knowledge and also notes how knowledge being socially and culturally embedded is also permeable. This participant further reflects on the importance of passing on knowledge, and resultant effects of employee departures again associated with the erosion and degradation phenomenon.

In a different vein, another participant hypothesises that lifestyle and values might affect individuals' propensity to embrace learning and knowledge. This participant harks back to family and strong socio-cultural ties that have influenced her. Knowledge erosion and degradation is therefore not merely a risk within the organisation but organisational members may already have predisposing influences that may drive attitudes to knowledge and knowledge quality.

A couple of participants accept the reality that knowledge will erode or degrade, implying it cannot be prevented and is inevitable. The participant extends his discussion of knowledge erosion, to how some forms of knowledge naturally erode due to changing circumstances and should be viewed as part of a natural course of events, and that the risk cannot be mitigated.

One of the above participants, when asked about other perceptions of knowledge erosion and degradation as well as organisational factors that might influence knowledge preservation, or whether knowledge erosion is controllable perceives it as ‘just a fact of life’. Erosion or degradation is seen as akin to evolution and change and a natural course of events

One participant was asked to share additional insights in relation to knowledge erosion, who points to concern connected with lack of opportunity for an organisation to recoup lost investments. Asked if he believed external forces can affect knowledge erosion or degradation, this participant followed a freewill rather than a deterministic¹⁴⁶ position.

One participant elects to elaborate on the company and its operational head office functions, and is rather dismissive or denigrating of the value added and complex area of warehousing operations. He suggests an automated almost robotic function performed by workers, where they do not need to think for themselves but have technology as the driver. This view supports views around digitalisation and machines replacing human knowledge noted in Chapter 3. His perceptions markedly contrast to those proffered by warehousing participants, when he asserts that knowledge management is more of a challenge in white collar or head office areas. This implies that knowledge erosion and degradation issues are less likely in blue collar areas.

One participant articulates how during the course of daily work it is a natural occurrence to experience knowledge gaps, which surface more as a norm perhaps than a challenge.

This discussion reaffirms that known and unknown gaps can exist as espoused in Chapter 3. However, the participant focuses on known rather than unknown knowledge gaps, overcome through learning and interaction in contrast with continuous states of unknowing.

¹⁴⁶ The philosophical distinction between freewill and determinism is a scholarly endeavour. Here, the participant appears to impute that preordained or predetermined factors can direct the course of events leading to knowledge erosion or degradation, and is primarily controllable by individual, as well as organisational choices and actions.

An impediment to knowledge is how individuals might seek to take competitive ideas and knowledge and simply apply it to the case organisation, to then find the knowledge does not help or fit in this organisational context.

Another participant imputes a risk of knowledge degradation given her style, that is less patient with deep knowledge or time spent on process and reflects a possible adult attention deficit issue noted in Chapter 4.

The participant elaborates on examples of knowledge erosion and enumerates examples of unintentional versus orchestrated or intentional forms of erosion. Orchestrated erosions are forced actions, such as retirements, where knowledge is lost.

The participant elaborates on examples of knowledge erosion and enumerates examples of unintentional versus orchestrated or intentional forms of erosion. Orchestrated erosions are forced actions, such as retirements, where knowledge is lost. The participant recollects an experience where stakeholders were dissatisfied, due to misinformation or misinformed knowledge reflecting forms of degraded knowledge where depths of knowledge can be lost.

Concern about differing generational values is expounded. The participant concurs with several other participants, on Gen Y attitudes towards knowledge linked to lower lengths of service and less organisational loyalty. Knowledge erosion and degradation risk is also where these employees take knowledge with them that could be seen as metaphoric to a photocopy or replication and could be conceived as a form of knowledge dilution. This perception coincides with knowledge reproduction risk discussed in Chapter 4.

This participant, unlike several other participants, is less disparaging of younger employees and their attitudes to knowledge. The idea of the younger generation profile stereotypically displaying knowledge hubris and being a 'know it all' quickly diminishes when they learn more about the intricacies of the organisation and its operating arrangements. This is conceived as a business that is complex in design and business arrangements. The views contrast with that of another participant's world view the younger generation is likely to contribute towards knowledge erosion and degradation. This younger employee stereotype or caricature portrays younger people with high efficacy and insouciance.

Knowledge risks and knowledge erosion and degradation may also reflect new employees brought in and a “fly in fly out” attitude towards work. Fly in or fly out is a common practice for hiring temporary workers sometimes from overseas discussed in Chapters 3 and 4. The following reflection asserts that a state of distancing or disembodiment of knowledge from some individuals exists.

One participant points to another form of what she perceives as degraded knowledge, technically around how systems are designed and implemented. The participant, critiquing this linear approach to conveying information knowledge, argues training and development gaps and the lack of adaptation to learners or end users’ needs are further forms of knowledge degradation. The participant, critiquing this linear approach to conveying information knowledge, argues training and development gaps and the lack of adaptation to learners or end users’ needs are further forms of knowledge degradation.

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Another participant imputes a risk of knowledge degradation given her style, that is less patient with deep knowledge or time spent on process and reflects a possible adult attention deficit issue noted in Chapter 4.

One observation suggests discontinuous change affects the core knowledge base, leading to an erosion of methods and practices, and where there is justification new procedures given the change in business focus and strategic direction.

The above extracts demonstrate diverse views on the topic of knowledge erosion and degradation and some aspects of responses to the question around operationalising knowledge erosion and degradation are decoupled from lived experiences with the lived experiences placed under respective themes.

6.3 Thematic Analysis

The interviewer sought information grouped into themes corresponding with various forms of possible knowledge erosion and degradation. Questions were structured to elicit significant statements and derive meanings leading to emergent themes. Questions centred on the following areas:

- participants' conceptions of knowledge erosion and degradation;
- participants' experiences of knowledge erosion and degradation;
- participants' perceptions of the organisation's awareness of the importance of knowledge preservation;
- participants' perceptions of key factors or impacts contributing to risk of knowledge erosion and degradation; and
- participants' perceptions of strategies to safeguard key knowledge.

Throughout the various stages of analysis, significant statements and phrases were read and reread. Meanings were assigned to significant statements to identify the essence or core issues implicated. These were grouped and themes clusters summarised. Whilst the method for analysis took a less prescriptive form as noted in Chapter 5, broad steps were followed (Moustakas, 1994).

Step 1 included initial compilation of groupings from listening to tape recordings and review of transcripts.

Step 2 led to refinement and extraction to remove unclear or incidental information leaving remaining responses as ‘invariant constituents’ a concept from van Kaam’s method (Moustakas, 1994).

Being exploratory and a phenomenon, strict labelling and categorising was not a mechanical exercise hence descriptive statistics do not feature and this approach supports an amalgam of methods including: Colaizzi (common responses), Giorgi (individual and situational responses) and van Kaam’s (themes and subthemes) (Lee et. al, 1999).

Step 3 included assigning meanings to significant statements to identify the essence or core issues implicated. These issues were clustered and thematised. Initially there were 14 subcategories generated that were collapsed into nine core themes. The following list of nine core themes is identified below.

1. Knowledge erosion and degradation conceptualised
2. Knowledge sharing barriers and risks
3. Knowledge transfer barriers and risks
4. Knowledge systems and technology impacts
5. Knowledge quality, learning and HRM considerations
6. Working in siloes, and organisational structure considerations
7. Sourcing and accessing knowledge
8. Leadership and management considerations

Themes reflect perceptions, thoughts and experiences as conceived and interpreted by participants. The structure for reporting of findings includes an introduction to each theme, discussion under respective sub themes followed by a discussion of implications at the end of each core theme.

Each core theme is labelled and there is recognition with the nuanced nature of knowledge erosion degradation sometimes themes overlapped but the researcher has made all possible endeavours to create clear lines of demarcation.

Sub themes or categories are also assigned labels and these respective categories. Recognising earlier qualifications, participants presented contrasting and common experiences such as following Giorgi’s line of differing characteristics given organisational

members have differing functional roles. However, the fused approach also affirms Colaizzi's view of common themes or threads around experiences of a phenomenon.

Step 4 included validation and checking of transcripts to remove unclear or less pertinent depictions. This process meant having reviewed transcripts, responses that were unclear, vague or non-core to the questions and padding or repetitious points were removed to expose the kernel or essence of perceptions or experiences.

Step 5 involved combining and documenting *participants' textual descriptions* viewed as legitimate within a phenomenological shaped study and not to be dismissed as purely descriptive data. Extracts of textual descriptions are sprinkled throughout this chapter. See Appendix 6 for more detailed and validated textual descriptions see Appendix 6.

Step 6 involved the process of generating individual *structural descriptions* to interpret participant responses and respective differences and how they experienced the phenomenon given personal and contextual factors. These structural descriptions rather than being separate are adapted and integrated into discussion of the sub themes or *invariant constituents*.

Step 7 involved synthesising textual and structural descriptions with assigned meaning and consolidation of informant into respective categories of invariant constituents and themes including elements of composite profiles for rich textual analysis.

Step 8 involved consolidating a composite picture or summary of meanings derived from the core themes and subthemes. In this chapter the discussion sections constitute this form of analysis.

The following section discusses the respective knowledge erosion and degradation themes grouped within a knowledge management frameworks depicted in Chapter 4 and the respective areas covered within KM, HRM, Organisational Learning and, Leadership and Management domains.

6.3.1 Theme 1: Knowledge Preservation, Protection and Organisational Memory

The theme of knowledge preservation, protection and organisational memory feature as implicated forms of knowledge erosion and degradation risks and barriers noted through many participants sharing first-hand experiences of organisational memory loss. Detailed extracts of participant perceptions about the importance of knowledge preservation are provided in Appendix 6. Discussion centred on the level of concern participants placed on preservation of important or key knowledge.

Participants also highlighted the importance of knowledge preservation to support service delivery and minimise risk. A paradox is imputed where, on one hand managers are assumed to be aware of the importance of safeguarding or preserving knowledge, while on the other hand new organisational members are not fully socialised on the value of organisational knowledge and preservation as reflected in the following extracts.

Risk of forms of knowledge not being preserved or discarded as a consequence of managerial policies or practices, intentional or unintentional, is also viewed as contingent on leadership or management style or situational specific.

One participant recalls experience with a disaster recovery effort:

Interview 14 - Male

...we had a ...massive hail storm down at our warehouse a few years ago. It basically rendered the site unusable ... we had to get the business back up and functioning and distributing... we learnt that we're probably a little short in terms of our disaster recovery and planning...I think yes it's taken that to ... put our finger on it and say okay this is how we address it. If we talk about intellectual properties within the companywe've had a lot of peoplewho have worked here a long timewhen those people move on you are losing all that history and knowledge.... and sometimes that knowledge isn't passed or transitioned.

The above experience triggers additional memories and insights of how over time, key knowledge can from his worldview, erode. The importance of passing down knowledge and maintaining corporate memory is deemed vital for business continuity management.

Organisational restructuring impacts and knowledge goes missing

Some participants associate knowledge erosion and degradation with restructuring impacts.

Interview 12-Female-

There has been a lot of very long term employees working here that have a lot of knowledge about the business but in the recent restructures a lot of them left or were made redundant. ... So a lot of that knowledge went missing.

Having survived several business restructures and ownership changes and experiences of knowledge erosion and degradation, the above participant also believes that one should not discard, but rather learn from, the past and hindsight knowledge.

Interview 4 - Male

...Memory is an interesting beast in that you will completely forget things that have happened or you'll follow a pattern from 20– 25 years ago...I think that you retain a certain amount of knowledge....I've been through 100 lease negotiations in the last ten years. Do I remember everyone in fine detail? Do I remember the sales? –No. That's why you have to have the backup of hard copies or soft copies. What tends to happen in my role is you'll conclude one project and you'll move onto the next one and the knowledge that you retained to improve your performance..... Intentional versus accidental organisational forgetting: who told you? Someone told me oh I'm not sure.

One participant discusses lack of information, whether intentional or accidental.

Interview 4 - Male

... there are things your people need to know about. I think sub consciously, you may have that informationyou push it aside... and how often do you say to yourself, oh I remember someone told me about that, but if someone asks you specifically, oh I'm not sure.

Depths of knowledge lost for ever-sometimes knowledge and information comes from off the back of a truck

Interview 4-Male-

...there's a couple things...loss of knowledge in terms of information going out of the business. I spoke before of the more knowledge we have on our competitors.... We have for example, a database which has information about all of our stores, all the top stores. We also have sales information about our stores....we know what sort of strength we have in the market. How do we get that information? How does that information accidentally fall off the back of the truck? That is really loss of knowledge out of the business through whatever intentional or unintentional methods.

Downsizing impacts on knowledge

In previous chapters, there is discussion of possible impacts on knowledge arising from executive decisions to downsize including, as noted by Littler & Innes (2003), how organisations may be susceptible to ‘deknowledging’. Several participants cite experiences echoing similar sentiments, of how downsizing effects can erode or downgrade work with departures of employees. One participant observes that when work is farmed out and reallocated this creates knowledge dispersion and fragmentation, which is a form of knowledge erosion and degradation.

Interview 18-Male-

... I don't know if I mentioned that we did redundancies last year...the work then would be just farmed out to other people..... usually the person has left before the new person can get to it...It really comes down to if the individual in the role initially wipes their hand over your document....then the responsibility falls upon the manager or the department itself to try to bring them up to speed....

Redundant people but not redundant knowledge - Doing a knowledge clean up

Another example is where redundant employees are contracted to ameliorate knowledge problems and gaps as a reactive response to address knowledge gaps.

Interview 12 - Female

... I've heard stories of people that were, in the same situation, were being made redundant but then like a day or two later, were called up and asked to come back for a couple of weeks to help to do the job they were previously employed to do because they didn't realise, once they're gone, how much actually had to be done.

Responding further about overcoming knowledge erosion gaps and risk mitigation she recalls how another employee was called back temporarily to help bridge the knowledge gaps and address issues arising from the lack of knowledge management practices.

Interview 12 - Female

...knowledge transfer, clean up, whatever, which in my mind they could have done before they went. That defeats the purpose of redundancy, for me redundancy is because a job doesn't need to be done any more. They did know they were coming back for that short time because it was obviously after they were told they weren't needed....

I didn't speak to them personally, but from comments of people who had, they were happy to come back because that person had been here longer than I have been here, a long time, and felt a loyalty to the business.

Overlooked knowledge

The idea of overlooked knowledge was flagged by one participant.

Interview 2-Female-

.... but sometimes maybe it's overlooked as well because like any other organisation I guess, people change when the top changes... When that happens, probably it's forgotten, that other people are looked at. So sometimes that does see someone missed out and when that happens, people also they can like...so they don't need my knowledge...

Critical at risk - Business Knowledge impacts

A participant shares an experience of erosion through lost key customer data deemed as critical business knowledge. This form of knowledge erosion shows how the value of organisational knowledge diminishes due to missing key information.

Interview 2-Female

I mean in terms of business knowledge, because somebody say if they've been with the company right from the beginning to the end, they have held the business knowledge, so like functions and how they operate and all that and then suddenly if they go away ... something like that then they take that knowledge with them in a way...

She expands on experience around how the knowledge erosion and degradation impacts the business.

...the person, key person who had not only the business knowledge and they also took away some of the customer data ... and as a result of that... the business was impacted.

After further probing she adds:

...so all that I know is it shouldn't happen. Then, all the legal teams come in and all that how have we lost it? They have lost it, if they have them for a short period and didn't know it was happening, in that short period that means it's done.

Tacit Knowledge Risk. Where's the pen and paper?

Participants were asked about perceptions regarding preventing loss or erosion of knowledge.

Interview 2 - Female

...if it is in someone's head or someone has written it with pen and paper and they can walk away with that, so the knowledge is gone...that knowledge if it's not shared or it's maintained, some people walk away and it takes us a long, long time ... the real person that I'm talking about when they left, it took us a long time to understand what was being done...I've seen that happen in the organisation...not only in my area ...

Knowledge Leakage risks and knowledge in the “wrong hands

Several participants discuss knowledge preservation from a protection perspective when knowledge leakage is a risk. As a result, strategic knowledge or information having been leaked from the organisation, subsequently leads to less information dissemination and disclosure.

Interview 4-Male

... anybody that works for an organisation, their livelihood, they've being paid by a company not to disclose the knowledge out of the business, ... so the protection of the loss of knowledge is dictated and comes down to the individual who is silly enough to spread it outside of the building... There's always going to be knowledge that you will share. And it might be knowledge about, for example, the requirements of Organisation Y. There are elements of knowledge that have to be shared, but there are also things which you know from experience that are confidential that can't be shared.... The more people who know about things, the more opportunity there is for information to slip out of the business which could be critical to the strategic direction of the company...

The above response assumes employees are rational beings who will have access to knowledge and information about protocols in relation to sharing of knowledge and disclosure. The participant suggests knowledge leakage may be accidental and rather than positing specific procedures, leaves the responsibility to individuals and their use of common-sense knowledge or experience to make determinations, which in itself has risk connotations.

The nature or circumstances in which people exit from the organisation and whether individuals have left with a jaundiced view of the organisation, can place organisational knowledge at risk. A breakdown of goodwill between employer and employee can leave disaffected employees triggering behaviours and penurious knowledge.

Interview 15 – Female

....if certain people left and they left on a bad note but without a doubt the knowledge is going to the wrong hands. It's true, every time someone does leave there is those areas where certain people that have that information. I don't believe that there is anything at stake about risk management.

Disbanded knowledge - Departmental rationalisation impacts

The interviewer encouraged the participant to share other stories or experiences of erosion or degradation of knowledge.

Interview 12-Female-

Virtually our whole department was disbandedprobably three or four people, some went and some were put into other areas...the very next day we thought, who is going to do this report? And where has this person gone? No one has that knowledge.

The above situation reflects abrupt organisational changes and how these changes can impact employees when knowledgeable work colleagues are deployed to other parts of the business. This experience typologies how corporate memory can be lost if information or key knowledge is not stored or captured.

Intimate knowledge, historical and hindsight knowledge-starting from scratch

The interviewer reflecting on the participant comments, asked the participant about any experience around knowledge at risk.

Interview 12 - Female

...the biggest risk for us is in retail, to do with our customer's side.... there are a few people who have been here for a very long time that have a very intimate knowledge of historical situations, customer relationships, deals and terms and trades. All those sorts of things, as time goes on, get lost. But the new people coming in, rather than them sitting down and learning that stuff ...But actually there is really important stuff there that they need listen to or need to know.... It's not just in that area, in lots of areas I can see there could be issues with the lack of or degradation of knowledge...We've got a lot of fairly intricate systems. Over time we've integrated hundreds, literally, of computer systems.... We now have people that have experience, long time experience. We have a really bad record for documenting processes.

Degraded knowledge impacts - Point of sale implementation –“Band-Aid” effect and erosion and degradation of supplier and retailer relations and communication breakdown

The participant details another of her experiences of degraded knowledge.

Interview 15 - Female

...We've got a situation where we've worked with our suppliers to be able to go out into a point of sale and we got to a point where all of our suppliers were just putting in into a point of sale. So we put a measure in place to be able to control that... It was a band aid effect to be able to control that initial execution of sale... we just put something in place that never actually worked

properly and then over time it just degraded over time because then it was unsuccessful,..... so then we had to reassess it and do it correctly from, starting afresh and then we go on to improve that process...It was a two year period it was done unsuccessfully...We definitely had to rebuild that confidence in them that we could do the job...

It was the communication as well, for us. From start to finish we just needed to make sure there were so many parties involved to get this right. Degradation wasn't specifically the process that we put in place, it was once it went to our stores about communicating correctly and making sure that they understood how soon to implement this point of sale and why we were going down this different route.Instead of it going through steps 1 to 5 where every step, every process was correctly communicated and executed, it fell down on the very last step which was the most crucial ...as a result once it actually got into our stores' hands they didn't know what to do with it.

This first-hand experience magnifies the importance of having quality, timely and accurate information and knowledge to meet retailer and stakeholder needs/expectations or demands coupled with having a clear operational and implementation strategy to facilitate effective knowledge dissemination. Apart from procedural knowledge issues previously raised, critical knowledge can be uncovered when interfacing with key stakeholders to minimise risks around failed projects or initiatives.

Discussion

Various salient points are raised, particularly the value of perceiving and using historical organisational knowledge supporting earlier views noted in Chapter 3 by Hargreaves and others and acknowledging value of intimate and hindsight knowledge. Additionally the intricate nature of social relations and ties between key stakeholders is not without potential risk of erosion or degradation when knowledge is not integrated effectively across the different social structures and systems. The area of knowledge integration is an important aspect of sound knowledge management practice (Dalkir, 2017). The complex nature of systems amalgamation and knowledge from acquired businesses also raises further risk issues including knowledge governance (see Chapter 4).

Participants raise ecological perspectives of knowledge through operationalised terms such as legacies and heritage jobs hat is reflective of local knowledge defined in Chapters 3 and 4. Other participant perceptions from lived experience including oral history narratives reinforce

research findings noted in Chapter 4 in relation to organisational amnesia and memory loss.

It is here a pronounced belief prevails that past knowledge can be deliberately discarded or overlooked within a cultural renewal framework in sympathy with Philosophers and the debates about what knowledge is of value. The prognosis of determining whether and how one knows is also a matter of concern by participants given how as Descartes reminds us, one needs to be able to have a test to validate our assumptions and hence be able to draw upon evidentiary sources such as organisational knowledge.

Other considerations include participant views that knowledge leakage can prevail as a different form of knowledge erosion and degradation risk and be intentional or accidental which signifies knowledge governance practice gaps an area introduced in Chapter 4.

The realisation of critical at risk knowledge not being safeguarded means that Organisation X is at greater risk if the dividing line between what knowledge should be discarded as distinct from what should be kept requires deeper inquiry. This perspective mirrors discussion in the literature in relation to organisational unlearning.

Other insights suggest a lack of formal or subscribed practices within Organisation X to safeguard key organisational knowledge. The majority of participants concurred that explicit and tacit knowledge as forms of knowledge are not converted or codified which creates added risk of important knowledge being eroded and degraded. Additionally, this propensity for individuals to store knowledge critical for the inner workings of organisational operations is not systemised, may also have an influence on organisational; for and individual forgetting as indicated by some participants.

An intellectual or knowledge based view of the firm described in Chapter 4 could interpret this ad hoc approach to knowledge management practices as a key risk at managing and leveraging a company's key intangible key asset. This interpretation also coincides with that of Salisbury (2003) noted in Chapter 4 and for knowledge to be created, there also needs to be effective preservation through knowledge capture to subsequently activate knowledge dissemination as part of a knowledge ecosystem.

Furthermore, knowledge preservation risk is compounded where a few individuals are in possession of intricate and key knowledge- a risk borne out post this study and noted in Appendix 5 concerning a key executive's sudden departure leaving a deep chasm and a quest to mitigate the impacts of key knowledge loss..

A final note here is how some participants highlighted the inconsistencies around degrees of vigilance knowledge management and preservation and rather than practices being an organisation or enterprise led, approaches are at times subject to the specific to commitment of individuals and management attitudes.

6.3.2 Theme 2: Knowledge sharing barriers/risks

The theme of knowledge sharing as an implicated form of knowledge erosion and degradation risks and barriers, features as a major theme for participants regardless of managerial or functional roles. Several participants connected knowledge hiding and length of service as potential barriers to knowledge and possible contributors to forms of knowledge erosion, where employees that enter an organisation for a shorter period exit without having shared or handed over knowledge to the optimal degree.

Interview 1 - Female

...people that have been here longer... within the company 10, 15 years, tend to share knowledge within the company... then you'll have a lot of new people coming in, and they may only stay two, three or five years with the company and they tend to move on...

The participant was then asked why she believed certain individuals such as newer and younger employees do not share or hand over knowledge.

... some people are very secretive about their work environment and the actual work that they do and don't tend to share.....obviously the young ones coming through have different ideas ...and sometimes I find that they don't share ideas because they just do their job and within a couple of years move on...I don't know just guessing maybe the 25 to 35 years age group...

Whilst the younger generation were identified as possible contributors to knowledge erosion, potential retirees or exiting older employees were also viewed as at risk of taking knowledge with them without sufficient handover - even when the mindset or attitude to knowledge sharing might be conducive to exchange, the process was suboptimal.

Valuable knowledge withheld- power or something else

The participant, following a poststructuralist perspective, identified issues associated with knowledge and power which also might represent a form of knowledge erosion and degradation.

Interview 12 -Female

From an erosion and degradation perspective a lot of them don't share that knowledge, because they think that if they share it they're not the only ones that know it so someone else could use that knowledge to better themselves.... if I don't share that information I have or that knowledge I have I look smart because I'm the only one who knows it. So I'm not going to tell you what my ideas are...because that's my leverage that I have with my manager or with the business...

Another participant also reflects on knowledge and its perceived value from her work area context.

Interview 9 - Female

...the length of some people's terms of service here are extremely long. People see knowledge as a tool. They hold onto it because they're afraid if they lose that and share that knowledge, that they will lose some of their power in their position... I think sometimes it's a self-conscious reaction to dealing I suppose under pressure in a precarious situation...

Knowledge and power are connected. This participant views power in the form of empowerment, where having knowledge provides perceived value to her job role and assists in her dealings and interactions with key stakeholders. The issues here also indicate various psychological factors influencing knowledge sharing, versus knowledge hoarding behaviours

Interview 15 – Female

... I guess sharing...for me goes hand in hand with...no sharing of power, just being able to impart, the more knowledge I have the more I'm able to give back to my customers and be able service my customers...I find out about people within my role and outside my role, I feel that I can add more and then I guess it gets to the point where knowledge adds value to my role...providing that additional value to everything I do. Whether it be knowing information myself and being able to impart it or knowing who the right person is....

Interview 13 - Female

I think people departing the business and not sharing it. And the other real side is people holding onto information and not sharing, even within the business

Knowledge for job protection - I'm the only one who knows this, you can't get rid of me

The issue of survival and protecting one's patch for job security is elaborated as well as how the process of downsizing and organisational change is managed from a knowledge management perspective. The participant highlights a lack of a coherent strategy to transition knowledge, which is attributable in part to the drive for efficient operations with mounting industry pressures and demands. Additionally, given the complex nature of operations, this creates added risk of knowledge being lost.

Another participant believed major factor contributing to erosion and degradation is where people 'hang on' to knowledge due to psychological reasons including perceived insecurity rather than power related reasons...

Interview 12 - Female

That knowledge is power and attitude, that attitude that it's mine and I'm not telling, I'm not sharing it with you.... where you've got all the long term staff leaving and no one learning what they know... Restructures, again the same process where no one is passing that knowledge along and there doesn't seem to be any interest in capturing that knowledge Their priority was to bring the numbers into line, rather than, as well as make sure the jobs are being done. When we're going through restructures, people feel unsure and insecure so they won't, they can hang onto stuff too because they think it makes them indispensable.....

The participant raises issues around people's reactions to operating in uncertain environments - enumerating possible causes behind erosion and degradation, including strategies, employee behavioural responses and coping.

Interview 16 - Female

If you're asking, why would a person not want to share their knowledge I think you would be saying that it's my job. ... Why would an organisation not want to share their knowledge or what would be preventing an organisation. I think it's time, resources, applications, sometimes decisions have to be made from an executive point and then knowledge is not shared. ... With all the changes that are happening within Organisation X he is still sharing what he believes people need to know ... He gives us the knowledge and I think there's a certain level of knowledge within an organisation that can be shared but this is where I go back to ... core knowledge...there is reasons why things cannot always be shared...

The above participant confirms how institutional pushback to knowledge sharing can be instinctual with some individuals seeking to protect their jobs as natural habitats. To remediate perceived knowledge gaps, in her eyes, a core knowledge base is needed.

An outsider looking in perspective and holding onto knowledge

The participant having the shortest length of service [three months] within the case organisation, perceives herself as an outsider. This is analogous to an ethnographic approach noted by Geertz (1975).

Interview 9 – Female

... I've never really noticed this [holding onto knowledge] anywhere else before... where the knowledge would be tied up with one individual and the reluctance to share, or the attempts to retrieve that knowledge and document it in some way has gone...

Trust and access issues - Proximity matters

The participant raises issues around trust and, as mooted earlier, proximal factors also affect an individual's ability to access knowledge.

Interview 9 - Female

Yes so because I don't work with you personally I don't trust you so why would I give you that information?... maybe I'm just thinking about you know what I think is the relevant level of knowledge for my position...I think it would allow me to do a better job but maybe only marginally so there's that trade off.

Lack of knowledge sharing- complex and diverse business

The participant also interprets knowledge erosion and degradation from a knowledge sharing perspective.

Interview 3 –Male

...there's probably not as much sharing of the knowledge that could go on mainly because of how big and how diverse we are...if the people know who to as.... I have a few people even within other areas, other divisions will ring me up from time to time because they know I've been around.

Motivational drivers for knowledge sharing -"why should I? Encouragement matters

One participant displayed a strong work ethic partially shaped by her cultural and religious background and drive for business excellence. She explains that motivational factors can

influence knowledge sharing, by pointing out that if there is no motivation for people to share then it's never going to happen. She goes on to assert that although everyone recognises that there should be documentation or processes, people are not going to do it unless it is part of their core job.

Interview 9 – Female

... then you have no motivation or people to share the knowledge, so it's never going to happen. Yes, I mean some people are more aware than others...we all know there should be some kind of documentation or processes etc. but again if you're not driven to do it...and if it's not part of your core job then where's the real dedication to actually doing that...where's the motivation ...

Interview 16 - Female

It's the bottom line. I think the organisation needs to look at ways of encouraging people to share their knowledge...I think the way it can be eroded from the business is when it's not encouraged... I'm not encouraged to sit down and work with a different business unit for a program to share all my knowledge; I'm just going to walk away and say why should I? What is Organisation X rewarding me for as well?

Knowledge and information sharing: I don't know what that person does

The above sentiments are further echoed in the following reflection where the participant describes how knowledge and information remains compartmentalised in a typified, de-socialised and fragmented work culture.

Interview 9 – Female

...you often hear people say I don't know what that person does. I'm sure they're doing good things but we don't know and everybody believes that nobody else is working as hard as they because we don't understand that person's job You don't need to know what everybody else in the company is doing...

Knowledge sharing and storage - Limited channels

The interviewer probed about factors that might inhibit or restrain the core organisation's capability around knowledge. The participant explains there are limited channels through which to engender knowledge sharing.

Interview 12 – Female

...there's not really no channel within the business for people to be able to share a lot of their knowledge...you build some sort of knowledge sharing database, some sort of way of people

being able to communicate what they know about certain things...So I think a lot of the business, there's not many communications....

Knowledge - Personal worth dilution - "a generational thing"

Interview 14 - Male

... I think some of it is a generational thing. There's some people that I think view that if I pass this information on to other people I dilute my personal worth to the company and therefore I'm not as valuable.

Additionally, the interpretation that erosion and degradation can be subliminal, through the dilution of work or self-worth can be viewed as a form of knowledge bifurcation.

Knowledge sharing risks versus benefits: the "safe zone", information not misused

In contrast with other participants, this participant perceives her department, to be a safe space for sharing knowledge.

Interview 15 – Female

... Culturally, it's a very safe space, zone for us... I don't feel like if I share some information, someone is going to use that to my disadvantage, manipulate it... it's encouraging to be able to say share that information and we'll take it on board, and if we can improve the business in any way that's only going to be a benefit for yourself and the rest of the company.

Collaborative knowledge and getting up to speed

Knowledge sharing capability is seen as hampered through lack of skills and tools to support collaboration. A participant encouraged to expand on previous comments about knowledge collaboration, emphasises the value of face to face collaboration.

Interview 5 - Male

...face to face collaboration that knowledge is transferred at that time...If another person came to join your department, you know two weeks later they wouldn't get an understanding of what conversations took place the day before. If you had some tools or platforms that captured the outcomes of those conversations then you could bring yourself up to speed a lot quicker.... we don't value the sharing of knowledge or discussions around how we can improve things.

Generational differences

Several participants connected knowledge hiding and length of service as potential barriers to knowledge and possible contributors to forms of knowledge erosion, whereas employees that

stay for a shorter period might also exit without having shared or handed over knowledge. The participant believes newer and younger employees do not share or hand over knowledge.

Interview 1-Female-

...I probably find again that people that have been here longer... tend to share knowledge within the company, I suppose then you'll have a lot of new people coming in, and they may only stay two, three or five years with the company and they tend to move on...

No, I don't think people do, they're very.... secretive about their work environment and the actual work that they do and don't tend to share... the ones who have been around longer tend to share their knowledge and their expertise... the newer ones coming through, come through for two to three years, do what they have to do and then they move on to further themselves...I don't know just guessing maybe the 25 to 35 years age group...

Sharing and quality knowledge –stakeholder considerations

The participant exemplifies situations that warrant disclosure of quality knowledge or information.

Interview 5 – Male –

We just spent 6 or 7 months working with these consultant groups and we don't share that information out, and that is quality knowledge, because that's the strategic direction of not just our business, but of the whole independent supermarket industry in the next 10 years going forward...if that quality knowledge isn't shared with all the stakeholders.... then the whole process is wasted, and you don't get buy in from those stakeholders.

Complex and diverse business

The participant also sees knowledge erosion and degradation risk from a knowledge sharing perspective and, in part, associated with the complex nature of the business and its operations. He considers there is inadequate knowledge sharing, because it's difficult to find out who to ask, and goes on to say that he has contacts in other divisions who call him from time to time as they think he might know.

Manager's role - More than "have you had a good day?"

The interviewer sought clarification on the issue of the importance of rewards management policies and practices in relation to knowledge.

Interview 16-Female

. ... The role of the person that's going to promote knowledge and put forward knowledge and ideas and processes is the manager that's looking after that person...and people management isn't just sitting there and saying, have you had a good day? It's really encouraging that person to

put forward ideas and sharing their knowledge with their co-workers... I'm in an organisation where every person needs to know what the other person does. So if someone's away someone can step up and do their role. Now I understand that's not practical in all organisation or business dealings...but that's what a manager should be looking at.

Knowledge sharing and contribution-lack of opportunity and the idea box

In contrast with some participants who observe apparent lack of rewards or motivational drivers as likely disincentives to share knowledge, one participant observes that people become too enmeshed in daily functions and there is not the will or commitment for knowledge sharing practice. He suggests that more value needs to be placed on the recording of knowledge, including greater collaboration.

Interview 5 - Male

..... people don't get the opportunity to share knowledge. When I say opportunity, I think we're too focused on meeting our commitments on a daily basis that we don't, we don't put value on recording or collaborating...

The participant goes on to indicate that the proclivity for knowledge building, through on-the-job experience, does not automatically lead to knowledge sharing. Discussion

Another participant recalls initiatives to foster knowledge and ideas within the organisation. Acknowledging the need for continuous improvement to enable better knowledge contribution.

Interview 3-Male-

....they did a thing a few years back, has anyone got any ideas, like an idea box and they put these boxes all around I don't think they got emptied after about the first week... people stopped putting their ideas into it. So if you're going to promote something like that, you've got to look like you're really interested and really want what people are going to input. If you want people to share knowledge and give knowledge you've got to encourage it. There's definitely room for improvement...

People who know a lot about a lot and risk of drip fed knowledge

Encouraged to add observations or experiences around erosion and degradation, she responds:

Interview 12-Female-

So there's a lot of people who have been here a long time and they know a lot about things that don't involve them, but they know about things because in some way or another they work with other people.... over time, the culture here was becoming very siloed and a lot of that wasn't

being utilised. Those people, it was more like a kind of, that's not your job or that's not your business to know about that stuff... There are a few people who feel very threatened by this, because they don't know what these other people know. They haven't been here as long A lot of people here, I think have that belief that knowledge is power, a lot of management.

One participant indicates how employees might be drip fed information on a 'needs to know' basis - with the possibility of being starved of key information. She suggests that rationing of information can be detrimental to people functioning effectively in the workplace and overall learning.

...the communication comes to here and stops. These people know nothing because these middle people think it's not important to you, you just come in and do your job and go home and by doing that, again you're narrowing down the amount of information that is getting out to the business, people can't learn...

The reflection suggests certain individuals, with breadth and depth of knowledge, might represent deep smarts (Leonard, 2004). The participant flags how people can become entrenched in roles and protective of their job knowledge, thereby limiting opportunities to provide knowledge and fostering a degradation risk.

Discussion

The area of knowledge sharing raises several important considerations particularly in relation to the importance of knowledge management frameworks practices earmarked by a participant and discussed in the strategy section towards the end of this chapter. Where knowledge is connoted with power has erosion and degradation implications for perceived valuable knowledge which from an organisational standpoint could have competitive advantage implications, means that power misused in the form of withholding of knowledge may have possible impacts on organisational performance including bottom-line performance. In Chapter 4, considerable discussion centred on links between knowledge, Value creation and knowledge and competitive advantage. This theme in concert with others highlights how different forms of knowledge risks and barriers can manifest. Chapters 3 and 4 and to a lesser extent Chapter 2 discussed issues around power and knowledge.

Ball (2012) noted how to have knowledge is one thing but it is what one does that knowledge that means something and there all individuals and institutions can have responsibilities to actually put knowledge into action. Therefore withholding of knowledge has implications

about the individual the organisation and to an extent personality and other social influences that shape people's likeness to share knowledge. John Stuart Mill purported the need for knowledge to not reside in the hands of the elite and a more egalitarian perspective supporting this discussion.

Numerous participants raise concerns citing experiences about prostrations in relation to key or valuable knowledge been withheld due to power and other factors. One interpretation gleaned participants crystallises the psychological dimension discussed in Chapter 4 in relation to the attitude or mindset that the individual and not necessarily reflection the principle of reciprocity wariness but perhaps from a change management perspective how individuals become guarded in their job role territory seeking to protect their patch and to feel that they are indispensable employees. This may also reflect the agency role view in relation to willingness to exchange or share knowledge and the motivators and drivers to feel the necessity to share or release knowledge.

The issue of trust also presents in relation to this theme and reaffirming discussion in Chapter 4 around proximal factors and knowledge, the closer the physical or social ties between individuals, participants suggest engenders a comfort to release or share information.

A contrasting perspectives from the organisational behaviour and psychology area is motivational drivers for knowledge sharing which a few participants highlighted as a key factor to induce or incentivise employees to be willing to share knowledge. The idea of monetary rewards, supports an agency view of employees but as noted in Chapter can create risk of self- interest behaviours or other agendas driving people sharing knowledge.

Participants felt that generation will differences were a factor as a constraint or barrier to knowledge sharing although as observed in this section participants were somewhat contrary in in their perspectives where on the one hand there were mature age managers quite disparaging of younger people and attitudes to knowledge contrasted with others that felt younger people injected new ideas. The observation here is that really a knowledge sharing culture that is inclusive and collaborative will most likely also accommodate diversity.

Several participants as noted in this section whilst recognising knowledge gaps attribute these gaps to having a dedicated knowledge sharing or storage system. The issue in their minds is

limited channels or mediums for knowledge sharing. In Chapter knowledge repositories and Twikis are noted and the role of Communities of Practice of COPs.

Participants highlighted different forms of knowledge sharing risks and barriers particularly in relation work colleagues but also challenges experienced sharing knowledge across functions due to working in siloes expanded in Theme 7.

Another consideration regarding knowledge sharing is the value all perceived were of the knowledge that is imparted or shared and as one participant has noted from a pragmatic perspective and commoditised view of knowledge, some knowledge can be easily traded or exchanged by have little value. This perspective means that sharing knowledge is one part of the equation it is the willingness to share useful and important knowledge although other risks can exist if the knowledge shared is misused or related to issues of ethicality.

The knowledge sharing aspect also has several other strands such as consideration of managers and knowledge practices. There is further discussion of leadership and management in Theme 7. The implications for erosion and degradation risks barriers are pointed directly at the competencies and mindsets of respective managers within Organisation X. The role of a manager to be more of the leader and willing to facilitate and share knowledge beyond a scripted comment such as” have you had a good day” and being drip fed knowledge is also noted in this section, highlighting challenges in relation to educating managers about the importance of cultivating knowledge sharing. This includes an across-the-board approach towards knowledge for innovation such as noted by one participation about lack of opportunity and an apparent lethargy in enacting practices for performance improvement. This criticism also links to whether an organisation has strong thirst for knowledge-for competitiveness introduced in Chapter 4. The other erosion and degradation risk factor here concerns risks of untapped or unleashed knowledge.

Extending discussion or younger people the issue of newcomers and casual staff has erosion and degradation implications rather than attitude to knowledge but severe gaps or insufficient knowledge which has both management and HRM implications in how new employees are on-boarded and supported and how KM practices need to be incorporated into management and HRM practices.

In Chapter 3 risk concerns were outlined in the precarious nature of work and casualization. Interestingly, knowledge intensive activities can be embedded into roles that are not necessarily the domain of senior knowledge workers.

Additionally in Chapter 4 a more microscopic insight was empirical evidence of new employees in a Bank and the less than optimal access to knowledge for their job role. This also relates to mentoring, coaching and shadowing that some participants impute as competency gaps within their management. Erosion and degradation risks here highlight errors and miscommunications that have impaired operational performance.

6.3.3 Theme 3: Sourcing and Accessing Knowledge

The theme of sourcing and accessing organisational knowledge as implicated forms of knowledge erosion and degradation risks and barriers partly relates to knowledge sharing but less from an individual perspective. The discussion is also linked to communication and information flows. Communication and open information and where the role of communication is noted as instrumental to managing knowledge and information. Additionally, this area concerns knowledge management practices.

Information gaps make unhappy customers

When asked what sort of information might be difficult to find, one participant responds:

...with our operations there's obviously quite a broad spectrum. Previously when I initially first came into the job, if I needed to find a form for example, I wouldn't know where to go... people contact me and where is that information and they just waste so much time and they don't know who to go to. In the end they just do what they think is right, they don't get the information that they need and then the customers ultimately aren't happy.

Interview 8-Male

So the next time you put a call through to that person, and they say I don't want to talk to that person, you'll actually understand why they're grumpy, why you can't help with their issue. So again, it all comes back to knowledge. If you can grow your understanding on what we do as a business, because we are so big and there are so many people here, and we're retaining that knowledge and those good people. It's just critical to success.

Overheard knowledge

An additional insight is how people come to access knowledge or information not directly imparted to them, through overhearing what someone else has said which may be of use in their own job role or for continuous improvement purposes.

Interview 9-Female

...because everybody needs to have some level of individuality to their job...it's interesting still because I'm sure there are some efficiencies that some people have and some others overhear.....

Interview 14 - Male

Inhibiting knowledge I think more is how we communicate within the organisation... in some instances within the organisation we can be quite closed in how we manage communication....there are things that obviously need to be kept sensitive, but we are now starting to see with new management coming in that there is more openness and more broadness in the way that the information flows ... it's trying to reach out and build the rapport back into the organisation So I think we need to actively share from the top down to foster that communication....trying to understand what's been going on within the company over time and where the pressure points or pain points are....

Pulling up stumps- sourcing internal knowledge

The importance of finding information and accessing information was subject of considerable discussion with participants. Some focussed on the need for a system to manage knowledge responses, but varied experiences and contrasting work contexts were also apparent.

Interview 8 - Male

...the main one that I reckon I've seen is when people are gone they've [managers] looked to other areas of our organisation. It could be interstate to get that knowledge and that experience from that person to take over....there was nobody suitable internally. Instead of going external they've actually head hunted people that they know pretty well in other areas to give them an opportunity. Do they do enough of that? Maybe not, but then it's a big change for somebody to just pull up stumps and leave the state...

Finding a suitable replacement with sufficient knowledge to fill knowledge intensive job roles and gaps in the event of a key person's departure, clearly has erosion and degradation implications.

Where to source knowledge: where is the “little library”? “The brain is here”

Interview 16 - Female

...if you said to the people, how do you think Organisation X retains knowledge, you will probably find that most of people answer the same. Where is our knowledge? Where is the little library that we can go to? Where do we go for it? ... But due to my knowledge of being here for many years, the brain is here, the knowledge is here but I can't really, 50% of the time I can't tell them well go here and you'll find that information.

The participant recognises the lack of a centralised knowledge and defaults to the value of human knowledge, which counters the view of how artificial intelligence or smart machines substitute human input. She acknowledges that there is accessible basic structural knowledge (e.g. office addresses, key personnel), but accepts that navigating the organisation for key sources of other knowledge remains a challenge.

Fishing out knowledge - The “knowledge Wheel”

Various participants comment on sourcing knowledge and likely barriers. The networked nature of the organisation connotes a social constructionist approach to knowledge and how knowledge is not merely acquired or built from systems.

One participant identifies herself as a significant other within a socially constructed environment; people gravitate towards her through various formal and informal mediums within the social fabric.

Interview 10 - Female

...there's different departments that will call on me because of my other skills I have in organising functions or arts and crafts or ideas and things like that, or even cooking the eggs on the BBQ to raise money....they'll definitely within this department will come to me and just say X what do you think?

In her eyes, social networking and being connected to the organisation's social and cultural norms and rituals, act as levers through which knowledge is transferred. She notes how new employees can be disadvantaged due to not being socially integrated into the organisation or conversant with social networks.

Her additional observations, supported by others, affirm discussion in Chapter 4 in relation to new employees and knowledge challenges, where new employees are precluded from

understanding organisational routines and practices, creating risk of knowledge erosion and degradation.

Interview 10 - Female

... For me it's easy because I already know them. For new people, I think as long as they ask the right questions, there are a few of the right people in most areas that would lead them to the right person. So a lot of people will come to me and just ask random questions about anything and I'll just know that... it might be this person, so try that and let me know if it's not the right one and I'll fish it out somewhere else. But I've got a pretty good knowledge wheel around me as well... my circle of friends.

The above views are at odds with one participant from corporate, who is disparaging about the lack of sociability of IT personnel who he deems as less interactive. This could be a risk for knowledge if social relations matter and being more service oriented.

Access for useful information

She qualifies how in a rapidly changing retail context, information is quickly discarded or past its use-by-date, but goes on to admit that she has less access to more sensitive or pertinent information to enable deeper insights into the business.

Interview 9 - Female

By the time that information is public from here, then it's almost too late for anybody to do anything with it anyway when it goes external so sometimes there is a little bit of hype around the whole thing you know we work with very sensitive information. I think there are a lot of barriers to getting sensitive information... there would be some information that would be useful to do my job and I can't access it.

Knowledge barriers - "All guns blazing" and people "Shut down"

Asked for more specific examples of first-hand experience regarding knowledge sharing barriers, and the importance of the method or style to knowledge management practices to minimise adverse reactions from managers and employers, the participant replied as follows:

Interview 18 - Male

I definitely see ...it's more about the way the person wanting the information approaches, so I think if you build that bridge most of the time people are happy to cross it with you but if you go in all guns blazing and start demanding stuff then people shut down. They won't give any information because of the way they come across...you can have that good relationship and get what you need. It's the relationship, that's a really an important thing and because we are really

pushing this relationship issue at the moment in the business, people are starting to realise the importance of it

Codified and Procedural Knowledge Erosion and Degradation Risks

Codified and procedural knowledge has featured in previous chapters. These forms of knowledge constitute forms of knowledge converted from tacit or other sources to explicit knowledge which can be challenging depending on the complex nature of such knowledge. Several participants highlighted experiences where procedural or process knowledge and codified knowledge gaps exist which can present risks.

Knowledge risks-Processes falling, processes and security and third parties

Asked if she had experience of erosion and degradation, one participant reflects:

Interview 15-Female

.... for me it's that a lack of or fall down of processes or strategies that actually haven't gone ahead and they haven't been selected so what initially was meant to be a positive thing turns into a negative situation because the way It's been handled.... and then once that's happened and it continues on, the quality of the activity or that knowledge degrades over time.

This response raises several key issues such as poor or insufficient processes, poor execution, and impacts on quality of work activities.

When asked about knowledge risks and impacts on organisational performance, the participant shares some observations and experience around security risks.

Interview 16 – Female

....I'm very, very conscious of procedures and policies. We had some major processes change, not only the one I worked on recently. I actually lost two staff and the whole change of processes in this area of responsibility...I had to make sure that I had retained as much knowledge from the two staff that were leaving and was very good in doing that, otherwise I would have had opportunities where it would have been a risk....Things like security processes that we've got...can become a major risk. If somebody doesn't know where to call somebody the whole place could burn down.

We've really looked at our security program, we've looked at open communication, we've upgraded our security processes and we've looked at our providers...I've had to sit down with risk and insurance and find out okay is this program we're implementing going to tick all the boxes, look at our risks.... again it's trying to share that knowledge...

Procedural knowledge gaps - Knowledge quest - A call of duty

One participant explains more specific examples of knowledge erosion and degradation risks through procedural gaps.

Interview- 9-Female-

.... I don't think the procedures seem to be very strong at the minute. Yes, given that it's such a large organisation it's hard to know what goes on in other partsthere's no drive to document things or you know it doesn't form part of your KPIs.....

The participant believes one has a responsibility to harness and capture knowledge.

...it's just something that you would have to do over and above your normal duties... and you would have to take extra time to do that, so you're going to really want to be motivated to do it in order to record that information and that knowledge somewhere.

Another participant also highlights gaps with procedures as noted below.

Interview 18 – Male

....we don't really have that documentation or that mind set of knowledge management I was talking to the receptionist girl while I was waiting and they agreed that even in their role there are things that they just do that it's not been written down...

Procedures are not always knowledge

Encouraged to expand on her observations and experiences, another participant makes the point that having procedures is not automatically axiomatic with knowledge. She explains that procedures are something to follow, whereas experience and knowledge need to be learned.

Another participant suggests that IT has a process management function that, in his eyes, is still in need of improvement.

Interview 14-Male-

....IT's supposed to be fairly process driven and therefore supporting documentation and things like that should be there to allow us to refer and maintain and keep that knowledge...They do in some instances, do that effectively. Yes and no. I think there's always room for improvement in the way that we do things...

Process knowledge gaps a lack of coherent knowledge

Interview 15-Female

My major interest in knowledge is that I think across the board, Organisation X does not share that very well. So the core knowledge of what operates the business as far as HR structures is not commonly shared or the core structure of how IT operates is not necessarily shared correctly. The core process of finance, sometimes are not shared across the board... but as a manager, my role is to have an understanding of all those processes.

This view tends to fit with that of coherentism theory, introduced in Chapter 2 that suggests one needs to have a coherent picture of facts and knowledge including background information to have a broad perspective.

Undernourishment and limited knowledge as forms of degradation

The idea of thirst for knowledge has been posited as an enabler for more knowledge savvy organisations (Chapter 4). In contrast, a senior manager candidly asserts that there are erosion and degradation risks where the organisation restricts or limits information flows and knowledge. This participant also cites experiences, of inconsistencies with passing on knowledge and selectivity and disclosure of information.

Interview 4-Male-

Inconsistencies with where the message get to and who knows what so I think in some instances there's people running around with a lot more knowledge in their head as do the underwriters or workers when decisions to make should have been made.... but information doesn't pass through because it gets stopped at a certain level because that's not for your consumption, It's only to be kept at this level or above... other manager may say, well regardless, I'm going to share that information

So that's individual interpretation or that's what I feel I should share or shouldn't share, is that confidential or isn't it? It crosses each individual, there's a different take on it and a different interpretation so therefore some areas are more nourished and other areas may be under nourished.

Breaking through the knowledge glass ceiling - Knowledge seekers

Extending the previous claim, the participant explicates how individuals interested in knowledge, actively seek out knowledge and wish to be included more in understanding the true nature of the business but also can be kept out of the knowledge loop a type of 'knowledge glass ceiling' effect. She believes these people are undervalued. In contrast, there are individuals who choose not to engage in high-level business knowledge.

Interview 12-Female

...we were talking about how the sales, how the warehouse sales were down, share prices are down and it was all grim. But none of that really gets shared regularly with everybody. Because it gets to a certain level, I think they make the assumption that they won't understand it, and I think they would be very, very surprised at the amount of people that actually know.... There's a lot of people out there that are undervalued

The question of selectivity and employees who may be perceived to benefit from such knowledge forums, suggests elements of post structuralist concerns about who should be privy to knowledge due to occupational and role stereotyping. Additionally, the participant indirectly raises a form of knowledge degradation in relation to sharing information at different levels of the organisation and how such information can be 'dumbed down' or oversimplified when distributed further down the line due to "anchoring bias" (Beshears & Gino, 2017, p. 57).

Knowledge awareness and decisions: Sometimes lost in translation

Asked about levels of knowledge awareness in the organisation, another participant enumerates:

Interview 13-Female

.... I don't think parts of the business know what is happening being within the top management team. In some, not all areas, but you hear comments from the business about decisions that have been made... than actually knowing what's been going on and how hard the management team have been working on getting things right.... as an example, where a decision has been made and it's not a popular decision. It's quite interesting with talking to some of the colleagues about their perception...of how this decision was made. It's like, I've had to say to them, well that's actually not the way it was done...

This experience reflects forms of knowledge erosion and degradation within the context of how decisions are determined and implemented. The participant notes the absence of clear and robust decision-making processes to value add knowledge.

Sourcing knowledge: A stab in the dark –near enough is good enough information and unhappy customers

The interviewer asks what factors might inhibit or restrain knowledge quality or building knowledge.

Interview 16-Female

...In a lot of situations I hear about someone not providing me feedback but I hear it first and I wonder why they haven't gone to me directly. I feel that I'm the type of person that's quite willing to listen to suggestions and feedback ... or they don't know who to go to ... I guess in terms of where to find that information can be lacking ... access to information has been one of those areas where often myself, I wouldn't know who to find that information from.

When asked what sort of information might be difficult to find, she responds:

...there's obviously quite a broad spectrum. Previously when I initially first came into the job, if I needed to find a form for example, I wouldn't know where to go... people contact me and where is that information and they just waste so much time and they don't know who to go to. In the end they just do what they think is right, they don't get the information ...then the customers ultimately aren't happy.

Woes and Peaks – HR knowledge for value creation

In contrast with other participant views about seeking out or accessing knowledge, interest in specialised HR knowledge has not been an overnight occurrence as noted by one HR participant.

Interview 13 - Female

...human resources hasn't always been valued in this company...it's been very interesting being part of the HR...There's been times where little wins show that you've got the knowledge and we can help you out and we can add value to your area, then you tend to get included and have the respect of the business.

Projects and entwined knowledge-access challenges

This participant sees her role as holistic, but perceives that the organisation does not have a generic or common approach for accessing or keeping knowledge. The participant further suggests that core knowledge enables more breadth and depth of understanding.

Interview 16 - Female

.... How Organisation X share it, we have no means of sharing that. I'm very fortunate because I have 15 years of history with Organisation X. I have 15 years where I've also built a working relationship with most of my colleagues from different businesses. If I need to find knowledge or information about something I have to go to them. This is not shared.... It's a bit more people orientated. ... Maybe finance admin does need to know about an acquisition that legal and property have been involved in but there's no sharing of that knowledge. There's no system that says okay click onto this and you'll find that, you have to sit there and it's an intranet process and you've got to figure out this has happened or that's happened.

... it is an important factor of what came across when we were looking at process management and retaining that knowledge about project managing, there's only one tenth left and what can you learn from one person's project.

Familiarity breeds knowledge versus need to know information

The interviewer probes about knowledge filtering.

... I think the GMs and the executives are used to communicating with each other and they are very open with each other. I think that some of the general managers would feel that some information is too sensitive to pass on and it's a need-to-know basis. ...and the good ones- my executive is brilliant in monthly meetings, she explains everything that is going on. We are getting it straight from her but our structure in Department X is very different to the structure in the rest of the business. They do have an executive and a number of general managers ...the executive rarely speaks to anyone under that general manager level, so they just don't know what is going on.

Risk of unrealised cross functional knowledge

Reflecting on her views about knowledge sharing, one participant points to risk of not capitalising or utilising unrealised knowledge sourced from various functional areas.

Interview 5-Female-

...if people share their knowledge and their experience I think that's very valuable to the organisation. People don't always get the opportunity to do that...The other factor is the department upstairs... might not realise that people working in say customer service or in wherever other departments ...where these people came from and what experience they have had.

The participant below following similar sentiments, includes issues such as strategic alignment of Human Resource Management (HRM). She cites how there have been instances of underutilisation of people and their knowledge.

Interview 12-Female

The first thing...is what knowledge is there within an organisation and is it being utilised properly. The knowledge areas, are they in the right place, are the right people in the right jobs.... I've often found here is that you find some people in the business that have a lot of knowledge about a particular area but they may not be being utilised in that area... in some cases I think it doesn't really benefit the business as much as having that person in an area that is suited to what they know...I think it can be a bit cultural as well.

Siloed and project knowledge risks

The siloed nature of knowledge poses risks where managers, such as this participant, require more across the board knowledge to effectively execute complex work and enable effective understanding of decision-making for problem-solving purposes. Asked if she had any other insights regarding willingness to share knowledge the participant notes the context of projects and change management.

...I just worked on a project and I guess that's why I'm quite passionate about knowledge and sharing and doing business.... for the first time ever recently I worked with a different department on a very big project. This project was a representation of most departments... every time we worked through every step, there always appeared to be someone behind the scenes that said no I don't want to do change because it's too complicated or no I don't want to..... then you'd have to throw in the ball - well the CFO wants it and the CEO wants it and the CIO wants it so we're going to have to do it, so go away and try and come up with a solution...it's okay I'm not taking away that responsibility, it's a shared project. We both have to make this work. I'll do the administration side and you do the backing side...I'm working on the project to simplify processes and make things easier and that's where I face it sometimes and change is hard.

Need for collaboration and beyond task focussed knowledge

Another participant notes how people become too enmeshed in daily functions and there is not the will or commitment for knowledge sharing practice. He suggests that more value needs to be placed on documenting knowledge and greater collaboration.

Interview 5-Male...people don't get the opportunity to share knowledge. When I say opportunity, I think we're too focused on meeting our commitments on a daily basis that we don't, we don't put value on recording or collaborating... to share that knowledge and to try and build that practice for the community groups etc....our collaboration is really an email...

Gen Y Knowledge – knowledge duplication and dilution

The concern about differing generational values is expounded where the participant concurs with several other participants, contrasting in general attitudes about knowledge.

Interview 4-Male-

From a technology point of view, the information that they will gain let's say over a 3 year period, nobody will stay in an organisation for 3 years if they've sucked in all this knowledge and didn't share it. They're not part of a team...the pattern of Gen Y is to make that change every 3 years. The knowledge will always remain within the business, because the way we record knowledge and ... So in some respects, you don't have degradation of knowledge because a large

majority of that knowledge and information will remain But there's a duplication that that knowledge will go with that person ... So it's actually a dilution of knowledge.

Interview 16-

...the things I would say that would prevent an organisation would be time, resources, ongoing management, there's too much, things, other things happening....

Corporate knowledge sharing and dissemination barriers: "Just a mushroom in the dark"

The participant recalls an experience of erosion issues due to the lack of cascaded knowledge.

Interview 4-Male

In terms of knowledge in the workplace, the thing that comes to mind with that is the sharing of knowledge. Now that can relate back to the way the management of the business is structured. I've heard people say, I'm just a mushroom in the dark...There is always going to be these strategic issues that senior management are considering or working on that don't get filtered down.

Interview 13-Female

...we struggle in that middle supervisor/manager level, where we've got lots of people that are top level and have great knowledge, a mix of old and new butWe're not getting it down to our supervisor/manager level.

Interview 13-Female –

They've gone and put in these preferred suppliers without asking and other parts of the business have already made arrangements with other suppliers which has now impacted and could have a risk.

Another participant emphasises the importance of effectively passing on or disseminating knowledge, asserting how this creates more social cohesion and social inclusion that binds the organisation.

Interview 4-Male

...For people to be a cohesive unit within the business it is important that as much knowledge as a reasonable expected is shared around the business. That way people know they're not isolated, they feel part of a clique...what happens is that there is a group of senior executives who are supposed to share information with their own staff, that information hasn't been passed on, it hasn't been properly communicated at a senior level... that has been one of the factors of our operation The last couple of years we've specifically changed the senior management. Prior

to that, the dissemination of knowledge through other middle level managers was almost non-existent...

Insufficient knowledge and newcomers: Please explain and knowledge touch points

Barriers to knowledge can be heightened for new people and knowledge degradation is demonstrated where newcomers have insufficient knowledge. New employees may not be able to readily access knowledge from past experience, to enable them to be fully functioning within the organisation's retail environment.

Interview 9 – Female

...it's not particularly obvious to a new person....why a shop would be busy on a particular day of the week, time of year....What day of the week prior to Christmas is going to be the busiest? Like after 10 years in the industry every year, even though Christmas day is on a different day, you can tell exactly which one of those days is going to be the busiest.

Interview 13 - Female

...I know some of the newer people have said, well we have tried to get into your business, please explain...That's the thing I don't think that we do well is having those touch points of people that do have that knowledge to help them....Even on the floor the, the warehouse floor...how can I say it's breaking down our barriers and it's been a big thing about us being siloed...

Go to and non-go to people for knowledge - Knowledge prejudice risks

The participant imputes knowledge is highly embedded where key people are referred to for particular knowledge. In contrast the participant is less inclined to defer to newcomers when seeking knowledge and expounds a strong bias against external hires and their potential contribution to knowledge.

You know where to point people in the right direction and that's throughout the whole business in different areas. I suppose the new people, you don't know them so you don't know what they know...They may be very knowledgeable in their field but they still don't know Organisation X.

Here the participant displays high levels of organisational socialisation and company loyalty. However, there is also a notable fear or resistance to change, in the form of externally sourced personnel. The preference for certain people to rely on for knowledge is an area discussed in Chapters 3 and 4.

Discussion

Sourcing and accessing organisational information and knowledge was uppermost and many participants' minds. From both strategic and operational knowledge vantage points, the

importance of knowledge for value creation is acknowledged within researches as discussed in Chapter 4. Where there are problems or issues in sourcing and accessing important organisational information knowledge can arguably as evidenced by several participants impact stakeholder relationships and is one participant identified such information gaps can fray relations between functional areas such as wholesale and retail operations in their day to day dealings with key customers.

The area of corporate knowledge sharing contrasted with that of the experience of newcomers to the business raises other issues in relation to inclusion and exclusion of managers and supervisors from key knowledge being disseminated to leave one frustrated participants as noted in this section perceiving themselves as "just mushroom in the dark". This depiction of the senior executive group is suggestive of an elite further reinforcing a view that organisational knowledge preservation and organisational diffusion are not institutionalised or embedded knowledge practices which may affect the organisation's ability to be more agile in its operations in forms of knowledge are not accessible in real time to be able to be acted upon.

Furthermore given the myriad of structures and interconnected this of the business entities, projects are becoming more interdependent heads reinforcing the need for an enterprise approach to knowledge and knowledge sharing. These participants have highlighted erosion and degradation risks when such corporate and cross functional knowledge is not realised.

Additionally, given the complex and diverse nature of Organisation X participants have highlighted the significance of having a comprehensive picture of the organisation and its operations and that there are variances as to the extent or degree in which collaborative knowledge practices prevail. As some participants observe, it depends on the work context and to what extent there are sharing practices supported the agile model by Schneider(1994) and other cultural archetypes noted in Chapter 4 as to what types of organisational are more conducive climates for knowledge sharing.

The reflection of overheard notion this researcher has operationalised, characterises erosion and degradation knowledge risks where there is a lack of a systematic process by which to communicate and distribute information and knowledge and individuals from this participants viewpoint, are either left to their own devices as knowledge seekers all pick up random bits

of information depicted as overheard knowledge as a form of fragmented knowledge. Such forms of knowledge are eroded/or degraded arguably due to the incompleteness or risk of misapprehension. In Chapter 2 Philosophers such as Descartes warn of not being deceived by one's senses.

Even Plato following a Universalist position on grand knowledge acceded that in the external world what presents as knowledge may not be fully within one's grasp. Examples of misapprehended knowledge and the visible building or the perception of the speckled hen reinforce this premise. In a more practical light, the implications for compounded knowledge risks is when someone might act upon such incomplete for misconstrued information or knowledge or misinterpret gaps in procedural knowledge with negative subsequent impacts such as the example of rollout of a campaign for in store promotions. This issue of process and procedural gaps is a form of knowledge erosion and degradation and interestingly given the scarcity of research around knowledge erosion and degradation earlier in Chapter 4 Brannon & Koubek (2001) is noted for research on this specific knowledge area suggestive of an organisational novice level for such knowledge practices given the datedness of this research topic. Although whilst many participants echo the need for codification of such types of knowledge, as one person has reflected from a non-rationalist perspective of knowledge, knowledge is not of itself reducible to facts and procedures.

Navigating knowledge as knowledge seekers can be problematic in the minds of participant-referred using the metaphor 'taking a stab in the dark' suggestive of somewhat haphazard approach to finding information not unlike information foraging mentioned in Chapter 3. This issue is tied in with knowledge management systems coupled with the social aspects. For some who are socially connected, knowledge is networked through interpersonal relationships a domain less accessible to new employees or contingent staff. Clearly within this participant cohort, skewed to longer lengths of service, some participants relied heavily on informal sources of knowledge. The social aspect affirms earlier constructs about socially decentralised knowledge and the role of social actors having to be proactive rather than relying on organisational driven knowledge.

Within this context of sourcing and accessing knowledge risks and barriers, other examples participants highlight such as concerns about familiarity knowledge and providing knowledge

of the basis or in a filtered or somewhat censored format again raises issues about lines drawn in what differentiates commercially sensitive knowledge from organisational knowledge.

The supposition some participants make is that this lack of transparency all degree of exclusivity within the upper echelons of Management whilst to degrees is involved and improve, still deep knowledge arguably residing in pockets of the organisation. This quarantining of knowledge can arguably lead to project knowledge erosion and degradation risks when other parts of the business do not have access to full information which can hamper project deliverables. The idea of project based organisations PBOs and governance addressed in Chapter 4, tends to bypass knowledge governance including risk considerations.

In a different vein, one participant as noted in this section, raises concerns about knowledge duplication a form of replication human transported and, knowledge dilution. The erosion and degradation risk signifies low serving employees taking knowledge with two potentially competitor based organisations to replicate such knowledge. However, core organisational knowledge or knowledge that is job specific does not necessarily become readily transferable within another organisation's context paralleling Hill& Hill (2018) and the assertions of risks of misnomers applying ideas or simplistic adaptation to other operational settings observed in Chapter 4.

Another underpinning you do aspect is the observations made by a few participants in relation to how the organisation views and uses knowledge. An observation is the erosion and degradation risk where knowledge is primarily perceived as task related and transactional or tangible counter to the higher knowledge levels and classifications that lead to profound knowledge expounded in Chapter 4.

6.3.4 Theme 4: Knowledge Transfer Barriers and Risks

The theme knowledge transfer (including handover) as an implicated form of knowledge erosion and degradation risk/barrier, has significance both for internal transfer of knowledge and also for transferring of knowledge to other parties such as third parties. The distinction between knowledge sharing and knowledge transfer can be blurred.

Whilst knowledge sharing addresses information shared across an organisation and with stakeholders for value creation, knowledge transfer can be job or project and task specific.

The process of knowledge transfer clearly featured as an erosion or degradation risk with participants identifying various indicators such as insufficient time or resources and process gaps prevail, as observed below.

The first participant suggests more quality knowledge is founded on more intensive handover, which can lead to risk of reliance on rehiring former staff to recall and share knowledge retrospectively. This, in turn, can also pose a risk, given people's memories may vary.

Intensive knowledge handover and knowledge reincarnated

Having elicited in-depth responses from the opening questions, the interviewer asked the participant whether she believes there is an erosion and degradation of knowledge from her personal experiences.

Interview 16-Female-

...I don't think we have enough visibility, attentive, obtaining and keeping knowledge. sometimes I do see it when people go, and then that person goes and then you hear people say, well gee who's going to do that role? And then six months later we find out that person has been reemployed on a contractual basis so that they can train that person. I don't think we get enough intensives with exiting interviews or someone handing in their resignation.

Exiting employees, knowledge handover and tacit knowledge risks-Where's the pen and paper?

Earlier younger generations were identified as possible contributors to forms of knowledge erosion, as well as potential retirees or exiting older employees who were viewed as a risk. The latter group were suspected of taking knowledge with them without sufficient handover or conversion of tacit knowledge, even though the organisational attitude to knowledge sharing might be favourable; the process was suboptimal.

Interview 1-Female

...I think a lot of them at the point of retirement are happy to download the knowledge but how much time have they had with their new person that's taking over their role or have they documented it, that particular knowledge somewhere ... or is just the basic, oh well, we will pair you up with X (name deleted) for three weeks and you can do a bit of a handover.... that's not really a long enough period to pass over, all that knowledge....

Interview 2-Female-

.... however when some people leave, it takes years and sometimes it takes only a day ... that knowledge if it's not shared or it's maintained, some people walk away and it takes us a long,

long time ... I've seen that happen in the organisation but as seeing that not only in my area, but like I said, it's complex. It's changing, we are constantly putting it in one place and then maintaining that, that's a job for one person.

Knowledge holders - Knowledge sponges

When questioned about knowledge holders the opinion was that these sources were known and the main question was how to capture their knowledge, before their departure. But at present processes for this de-briefing are inadequate.

Interview 13-Female-

The interviewer probed further, to clarify if knowledge holders as key sources of knowledge, were easily identifiable or accessible. The participant replies:

.... People know within the organisation who these people are but then it's, how do we capture that information before they move on? Yes so getting that information out, making sure that we've captured itIt's squeezing a sponge and getting all the water out.

The sponge metaphor implies a rigorous process by which to extract or elicit tacit knowledge; yet this participant does not feel the current system is failsafe.

Missing knowledge-picking up the reins

When asked by the interviewer whether she thinks the issue of missing or lost knowledge is important the participant responds:

Interview 12-Female-

No, I just had a conversation about this today actually, people who were exited, someone had to pick up where they left off and these people had no idea what they were doing, it had different implications..... Knowledge transfer is not happening and no time has been given for that to happen.

...there was no time for people to be given to transfer knowledge to other people about what they did, it was just... it was the assumption that, she'll be right, it couldn't be too hard to pick up...

She expands

... so and so normally did all these things, we think she did these things, we don't know what else she did, there were no procedures left behind, how are we going to know that were doing everything we need to do? it doesn't matter, we will figure it out, it'll all come out in the wash.

Retail operations and erosion and degradation risk-quirks

When asked about initial impressions of knowledge and knowledge erosion and degradation, in relation to the retail industry and its quirks, one participant commented as follows.

Interview 9-Female-

...I think that the retail industry...I have never worked in any other environment, it's particularly difficult to retain knowledge because you have that high turnover of staff and you don't have a lot of written work done by the staff that work there,..... It's difficult to pass information from one person to the other except through practise or on the job training so I suppose that's a particular...difficulty within retail- particularly operations level. Retail...has a lot of quirks on how people buy and why they buy and why they buy at certain times...

Role splitting challenges

The participant reiterates concerns about being able to fully embrace his new job role by being equipped sufficiently with the knowledge given he needs to cover two job roles, pending a suitable replacement.

... this time of year it's busy. They haven't replaced my role as of yet either so that's another issue. So I'm still basically doing my role at present... I haven't the time which I've brought up because as soon as they can get someone into replace me I can put the whole 100 percent concentration into my new role.

The participant's experience highlights how knowledge degradation through role splitting or role overload can lead to knowledge diminution.

Self-perception and knowledge transfer efficiency

The participant expanding on experiences of knowledge erosion recollects:

... with my last job I was the Operations Manager so I spent a lot of time implementing the systems so I spent a lot of time learning it and passing that on.

This is not helpful as there is no objective parameter by which to measure the participant's capability to transfer knowledge.

Historical knowledge – New people and imparting knowledge

The participant, encouraged to share additional perceptions or experiences, adds:

Interview 13-Female

...I talk more of a historical knowledge.... because I've been here so long and there's been people coming in...and because I know the organisation, part of my role is understanding your structures in the whole business... how it all works, how it all goes together... One of the biggest things, biggest comments I hear, and I get a little bit frustrated, is that the new people aren't working and don't understand the business.... well hang on what have you done to help them understand the business? Have you imparted your knowledge or have you gone and helped them to understand.....

The participant highlights knowledge gaps due to new employees not meeting performance expectations. The participant implies abrogation by managers and supervisors.

... It seems to be the very easy way out for people to say if they don't agree with a new person on board or a new manager or something, oh they don't understand the business... hang on, you're the person that's been here for a while, you should be imparting that knowledge with them and talking to them.... I suppose it works the other way with the new person taking time to speak out to understand. It's a sharing of knowledge, and I think that's probably what we really need to work.....

Go to the people with know-how and the Go to Person is gone.

The participant strongly asserts the value of sourcing internal specialist knowledge and know how.

Interview 3 - Male

Yes. The next step or whatever could be to actually go down to the point where to my level or even below and ask them their opinion or seek some ideas from their contribution. If you get people who contribute ideas and knowledge, as I said, when you're trying to find them, you go to the starting point. People that know how to pick boxes are the storemen. The people that know how to process invoices are the Clerks. ...you've got to go to the people who are actually doing the job and then you can do all that from there.

One participant recalls a key event with the passing of a respected work colleague and knowledge impacts arising from the sudden loss. The impacts on business operations cannot be understated and their lessons to learn including restorative strategies.

Interview 4 - Male

In this organisation actually...somebody, he passed away 5 or 6 years ago...his knowledge was immense. I wasn't directly involved with his customer service role and our retailers knew he was the go to person for all those things.... when he passed away, there was so much that he had up

there. Some of it would never be reclaimed but might not necessarily be in a computer somewhere. It might take a little bit longer to restore the momentum of what that person could do... .. It's really a case of how long it takes to come back to speed with what that person was responsible for...

I think that there probably could be a strengthening of the sharing of knowledge...

Transitioning knowledge - Learning in a day

This retrospective demonstrates how the nature of social relations and individualised interactions has a strong bearing on shaping perceptions and experiences around knowledge. The participant acknowledges how times have changed compared with previous job induction practices and less thorough induction processes exists where job incumbents need to learn faster on the job.

Interview 11 - Male

... I think how I learnt when I first got here, the guys doing that role, he's doing that job day to day so he had the time to sit down and show me things, wasn't that I had to learn it in a day, and it was like bit by bit...

Exactly, if something came up that I didn't know he was there to ask, so in that position there was no sort of erosion.

Knowledge in bits and knowledge transfer- Picking the brains

Expanding on his earlier examples of erosion, this participant indicates risk exists where less time is invested in knowledge handover. This leads to knowledge or information in bits rather than a holistic form. The impacts from handover creates knowledge and learning gaps or apertures making for less than optimal transition into a job role that can impact productivity and performance.

Interview 11 - Male

.... so I obviously want to pick his brains and learn as much as I can so when it's, when he's gone, I haven't got all these questions..... So I think learning from your peer or who you're replacing, it can be eroded.

One participant asked if he believes knowledge erosion or degradation exists in the organisation, responds:

I think in parts,.... but I'm finding it more certainly in this new role... the person I'm replacing he's got his role to try and learn too, so it's a bit of erosion.

Key information and knowledge for and from suppliers: Anyone could get hit by a bus tomorrow – and Financial impact risks

A core element of one participant's job role involves strong liaison with suppliers and ensuring effective information and knowledge transfer between supplier and retailers. Managing stakeholder relationships and imparting key information and knowledge is therefore the epicentre of the job role.

Interview 9 – Female

Currently my role involves planning promotions with suppliers and ensuring that information is successfully transmitted to the retailers so they know what promotions are on what week and organising deal upgrades to make sure the retailers are competitive...ensuring there is enough stock in the warehouse...

The participant emphasises the importance of managing relationships and corporate memory around information for sustainable or long-term relationships. She suggests new employees do not understand the significance of relationship building when exchanging and capturing information to support such sustainable strategic relationships.

The issue of risk associated with knowledge not being transferred via a structured process or augmented by codified knowledge practices can have serious impacts. There appears to be a lack of contingency planning in the event that key knowledge goes missing.

Interview 12 - Female

... It's the old philosophy of anyone could get hit by a bus tomorrow. You've just got to pick up and carry on and it's not always that easy. In some of the roles, I know it wasn't that easy, six months down the track there's still ongoing implications... financially, there was one situation where we claimed a particular rebate from suppliers, that wasn't happening for six months because people didn't know or they'd been too busy to reconcile because the person that went used to do that stuff. No one was given that job to do.

The interviewer asks if the rebate issue has revenue or financial impacts to the business due to delays lodging and receiving rebates.

Interview 12 - Female

.... it wasn't small money, and the thing I found as a business ...professional is that I found it kind of embarrassing because it was a supplier that told us it wasn't happening. Well because they were expecting it and they had accrued for it and they were wondering when it was going to

come because they were probably more concerned that...they might get hit with a bill for twelve months' worth of rebates.

The above examples demonstrate evidence of financial and associated impacts arising from eroded or degraded knowledge.

Temporary workers – “Give them the bare minimum” and knowledge scarcity

Encouraged to speak further about knowledge accessibility for newer employees, this participant discusses the situation for temporary or casual workers.

Interview 9 – Female

...within my department there might be one particular staff member doing a specific job. It only requires one person to do it but of course they have to follow it. So then you have somebody in for training to try and make sure they understand the role and can cover the holidays... give them the bare minimum of information to be able to cope with the job...and no more because I don't necessarily know them, but...there's that sense of fear that if the person that's covering them does too good a job, well, they might be wanted back...

The participant suggests knowledge transferred to temporary or casual workers is basic or minimal and often piecemeal, and is an example of degraded knowledge.

The feedback would be, I tried to understand it...There wasn't the willingness to teach, you know, or I suggested we do it this way because I think that this would be quicker... and they just ignored my advice and just carried on doing it the old way.

Having articulated challenges faced by casual employees in accessing knowledge, this participant may be projecting aspects of herself into the experiences she has shared and her own frustrations where knowledge is not deemed as valuable, as well as the diminished value of temporary employees. These sentiments support previous discussion (Chapter 4) about knowledge risk related to temporary or novice employees. The participant suggests this degraded form of knowledge / learning is deeply embedded in the organisational culture.

Knowledge and change: Why do you do it like that?

Another participant suggests her organisation is more susceptible to knowledge transfer risk due to the complex nature of job roles and issues surrounding handover of knowledge during times of transition and change.

Interview 12 - Female

...where you have all the new people coming in and the old people going and there's no, a lot of times there's not a hand over, the handover of that knowledge.... like that intricate finance system, we do things a certain ways. Lately it's come up with people asking, why do you do it like that? ...the people who knew why aren't here anymore.

Discussion

The distinction between knowledge transfer and knowledge sharing can be a grey area. However, following general research in this knowledge management as depicted in Chapter 4, the focus of distinction is knowledge transfer can be an exchange between respective parties which can extent reflects an agency principal type of relationship they can be more strongly bounded in social relations to ensure the quality of knowledge and the quality of the process is safeguarded. Both knowledge transfer and knowledge sharing can be organisational wide such as practices through knowledge sharing forums or repositories. Participant perceptions and experiences in relation to knowledge transfer highlight concrete examples of erosion/degradation risks and barriers transfer, as in the area of handover of knowledge when job incumbents transition or migrate into other job roles.

Apparent erosion and degradation knowledge risks are attributed to numerous factors in particular the idiosyncratic nature of retail operations and the complexity of task knowledge in this context. Additionally the time or nature of knowledge handover lessens the capability of the transferor to provide deep or intensive knowledge to the transferee which has impacts on productivity.

Earlier in the discussion of knowledge sharing, barriers risks relation to new employees was observed. These knowledge erosion and degradation risks suggest exchange of knowledge is at a lower grade rather than higher order grade knowledge that is also tied to HRM practices and how some people view temporary employees perhaps as substitutable at odds with the resource based theory of the firm. Similarly knowledge transfer in explaining task and job role knowledge to newcomers can be a risk and barrier if insufficient knowledge imparted. An example that connects with theme of knowledge preservation is how new people become acquainted with historical knowledge to enable a broader understanding of the organisation for contextual understanding.

The challenge of knowledge transfer raises erosion and degradation risks when job incumbents rather than migrating into other roles, depart the organisation. The resultant effects of rapid departures leaves transitioning of knowledge within compressed timeframes and requires people to be adept at learning rapidly. The need to learn faster has been previously discussed as part of a contemporary organisation and societal challenge. The impacts also implicate little or no room for reflective practice or going other levels of knowledge such as know why. The implications are that rudimentary knowledge such as know what is also compromised. This observation Ryle, Polanyi and Russell noted thinkers discussed in Chapter 2 would have found interesting.

Another perspective that imputes knowledge erosion forward/degradation is how job incumbents such as managers provide or communicate knowledge in the transfer process given the impressions from participants that knowledge is deconstructed or in small bites. The concern about this approach to imparting knowledge is the cognitive recall and sense making to get a full picture. Repeating discussion from earlier parts of this study, having a coherent form of knowledge noted by Lehrer (1986) and Kavanig (2012) and in Chapter 4, helps bridge knowledge gaps or possible forms of selective exposure and perceptual distortion in interpreting the knowledge (Schiffman et.al, 1997).

Interestingly, the idea of multiskilling or spreading knowledge across individuals may also be susceptible to the risk of erosion or degradation, if procedures and approaches are inconsistent. The above participants describe situations of knowledge being allocated across individuals where knowledge is explicit and there may not be a know why factor(introduced in earlier chapters)and contemporary views where the knowledge is imparted in a surface or minimalist sense to cover interim job incumbents and key knowledge is still retained with job holders on leave.

An external perspective in relation to knowledge transfer erosion and degradation risk concerns key stakeholders in the quality of information and knowledge that is transferred such as with suppliers noted by a few participants. There appears to be an absence of an ecosystem to capitalise on knowledge transfer and collaboration. An atypical practice a supplier has picked up on missing knowledge and filled the gap as transferor to a new job

incumbent. The empirical evidence from participants supports the proposition that risk of poorly executed knowledge transfer can impact an organisation's bottom-line performance.

It seems to be an accepted norm for people to muddle through and navigate knowledge through remaining employees, using survival instincts devoid of structured knowledge management practices. The risk here is that response from surviving organisational members and ongoing changes in reactions from retained employees may not ensure sustainable knowledge.

6.3.5 Theme 5: Technology, systems and knowledge barriers and risks

The theme technology, systems and knowledge as implicated forms of knowledge erosion and degradation risks and barriers highlights questions about quality of knowledge management practices interwoven with knowledge and systems. Subsequently many participants some from an IT background, felt the topic warranted discussion in relation to knowledge erosion and degradation. Participant views varied depending on which of the respective business pillars people resided in and whether they worked within IT or systems domain areas. There is consistent opinion as to the importance of systems to generate, store or provide useful information. Some generational differences are reflected in: receptiveness to new systems; tools, including social views that knowledge can be at risk; and how work is performed if the main communication medium defaults to emails, particularly when fathoming complex knowledge work.

Knowledge repositories –designed by IT for IT-“It’s not going to work”

When asked for an example of whether technology is an enabler for knowledge, the participant is critical of IT's dominant role in designing such systems which is in contrast with IT participants' views of the perceived importance of their roles.

Interview 8-Male

...for example I had to look up something today and it was refrigeration fees. I wanted a report, so even though it's there and I typed in every word that I thought sounded like the same meaning ...I couldn't find it. So again, the fact it's designed by IT people for IT people, it's not going to work in what I call the real world...It's all good having that, but you've got to turn it something that you can use...

These comments echo those from the siloed world view, using attribution and implicit obfuscating to support the view that IT does not have the capability to meet the needs of end users.

Knowledge management systems moving beyond handshake agreements

For articulating knowledge the participant believes knowledge management systems have instrumental roles, particularly when interfacing with retailers.

Interview 18 - Male

...a group in the business called Pluto came up. Pluto are an IT space. It's all about offering systems support to our retailers. It makes sense to me that knowledge management... The rest of the business though, it was all handshake agreements, it was all relationship, you built that relationship that's how you got that agreement. It is not documented.

Knowledge dissemination and knowledge benchmarking

Interview 6-Female

The participant promotes IT solutions as enablers for supporting the business by providing better quality information and reporting.

We've got the ability to share the knowledge and disseminate knowledge throughout all aspects of the business. It's always been a case of how well, let's say the controllers of the technology, the IT people. The IT people have to understand what are the requirements...of the various functions of the business?...I think the sharing of information through technology, is reasonably well done in this business. ...having worked within the business for the last 10 years and then go outside and see how much technology changed in 10 years. I don't have a benchmark to see technology in other businesses.

Interview 2- Female

...we have a tool that we used to record ... in the tool itself we've got the knowledge base so that as soon as a call is coming, it doesn't matter if I get a new person in. I have no problems because it's there, at hand

Knowledge to service business requirements

The participant indicates how IT is a focal point for knowledge about business improvements.

Interview 5-Male

It's really around trying to service a business requirement ... we get requests from other parts of the business about our improvement, how they think we can improve things and then because

we're sort of integrated with a lot of those sort of requests coming into IT, because it's an IT source of entry.

I get the opportunity.... to be able to pass on those previous experiences or previous knowledge in that particular area so then it's basically shared through discussions or work groups or workshops. Not a lot is shared through documentation.

No one is irreplaceable

The participant suggests individuals who leave are not indispensable, yet suggests rather more planned or KM related approaches to circumvent or compensate for such lost knowledge. The idea conflicts with the intellectual capital view of people as knowledge assets and the idea of expert roles being more value added. The view is also suggestive of replication theory posited in Chapter 4 imputing knowledge can be readily captured.

Interview 5-Male

.... I don't believe anyone is irreplaceable. We have had people leave the organisation that had some key roles, particularly in IT, but we have managed to solve the issues ... whether it's taken a significant amount of time or resources to be able to come up with either a work around it or alternative solution.

Embedded forms of knowledge

Interview 5 - Male

No, I think at the moment this other knowledge is either embedded in email or if it is documented it's embedded in a word document on a shared drive somewhere very difficult to find. I think there are lots ...to improve...

Habitual practices and behaviours are seen as strongly embedded and socially constructed. Generation and demographic difference may affect how managers or employers communicate and impart knowledge.

Email dependence – “Get off your butt” and ask the question- emails as cocoons

When asked if there were other examples for examples of knowledge erosion and degradation, participants flagged emails as a dominant knowledge transfer and storage medium. The propensity for reliance on emails in lieu of face-to-face communication he believed hampered the quality of knowledge and experience. Email systems....can see knowledge quality rapidly erode.

Interview 8-Male

We have recently seen some younger managers that everything was done by email. They wouldn't answer the phone, they didn't want to be told; they didn't want to be taught because they knew everything....I prefer resolving things face to face or over the phone because I believe emails can be misconstrued and they have been and I've actually written emails and got a weird response andother people reading it saying am I writing in a different language.....

Interview 15- Female-...if someone goes through something and says something to me I'm going to apply that knowledge and hold it a lot more than if they're just sending me something in, an email....

Interview 10 - Female

Years ago we used to be able to go and see the buyers to check out the pricing and what was wrong...Whereas now, everything's via email from one site to another site. So yes, we used to solve a lot more things quicker and easier on the same site. You'd just get off your butt and go see someone and ask the question... If it's face to face and it's 100% communication it would be a lot better.

Participants suggest moves towards impersonal communication mediums has changed the nature of relationships with stakeholders or strategic partners, raising risk of misinterpretation and misunderstanding. Concern about the breakdown of social bonds or ties is also another factor that could further erode or degrade knowledge between stakeholders.

Email use, as a default communication vehicle, is seen as a major factor contributing to knowledge erosion or degradation. Additionally, these participants portray a picture of a rather closed or less socially oriented work environment, supporting other participant views about reliance on emails where employees are operating in partitioned workspaces or cocooned environments.

One participant sees increased reliance on email usage as an underlying causal factor for knowledge inadequacy and operational inefficiencies, where stakeholders are not provided with complete knowledge.

Technology shortcuts to aid knowledge

Having highlighted how technology platforms such as email can possibly contribute to degraded knowledge. The participant is encouraged to share overall impressions about the efficacy of technology as a knowledge enabler.

Interview 8-Male

Technology is great in a lot of areas, an organisation like us were very in the forefront with some technology and we're actually behind in other areas.... consistency is the key and then there's probably technology out there that is given to certain people that perhaps hasn't made it any better..... it's rolled out instead of involving the people that are using it and getting their ideas and then seeing if it's going to actually benefit anything....we've got to use technology but we've also got to realise and understand that the way it's used is the correct way and that using the shortcuts that will impact somebody else...that's what these people were doing, they were using emails, it's quick and easy because they didn't want to talk to anyone.....

Technology - all the information needed

As the participant was speaking from an operations systems perspective, he also wished to discuss technology in relation to knowledge.

Interview 11-Male

...the technology is basically all on computers, gathering information out of systems.... So a lot of that information, because we run two systems like I said the warehouse operating system...which runs the day to day and then our information, our enterpriser day to day, placing orders So I mean the technology you can get pretty much all the information needed...

Putting knowledge into practice - A good system and information open to interpretation

The interviewer asked the participant about exposure to technology and its relevance to knowledge management.

Interview 13-Female

....I think there's only certain amounts of knowledge and it's how you put that knowledge into practice. You can have something written on a piece of paper or in your system or locked away... It's how you use that and how you gain, how you interpret the knowledge that's on that system.

The participant acknowledges that capturing information also contributes to knowledge building, but qualifies that by emphasising: the need to minimise degradation; the fact that voluminous information does not automatically translate into knowledge; and considerable interpretation of voluminous information is needed for it to become valuable knowledge.

Value of IT enabled knowledge and Content Management

Asked if he felt there is a level of awareness about the importance of preserving knowledge, he replies:

Interview 14-Male

Yes I do. I think we are...what we're trying to achieve now and how we manage that content and that knowledge and that information that everybody sort of accesses and sees on a day to day basis.....It's only going to become more relevant I think in the future as to how we understand what we do, the ways that we can improve that, what our customers do.

... some of the information that we do hold at the moment is not in the way that it's useful knowing who holds that knowledge across different pillars and where it's accessed from. So I think from an IT perspective is how we centralise that information, we bring it all together, that it's readily accessible, definable, and updatable by multiple people at the same time. That whole content management or enterprise content management is becoming very important.

Knowledge: Getting more skin in the bone: Systems based knowledge

The cultural pushback in relation to IT and its knowledge capability and value also draws commentary.

Interview 14-Male

I think it's the knowledge that you hold and maintain and the systems that you keep and tick over and that sort of stuff, nothing's really said about it while it's working. You only ever hear something when it stops working...we need to sell the importance of what we provide and what that actually does and the benefits that it gives to the company and once you change the businesses mindset into, hey if this is critical to how we move forward then you start getting a bit more skin off the bone, bit more clarity as to understanding the importance and wealth of that information and knowledge...

Intermittent or half-baked systems a form of knowledge erosion and degradation

The participant provides examples of how lack of standardisation is exacerbated by poor integration of new systems that affects quality of knowledge transfer.

Interview 9 - Female

...so when someone else has stepped into the role it would make no difference because there's only one way to do it. However, this can be an issue in another way in that this new technology needs to be implemented and integrated and everybody needs to be trained ...and then all of a sudden 6 months later it's like well, there's a new person there and now we have to train the new person but there's no action, there's no documents... we've just had a new computer system implemented in the last twelve months...

Technology enablers and collaboration

The participant expanded on technology and explained how the organisation is adapting to the digital and social media space.

Interview 15-Female

...There's a focus to be able to collaborate the digital aspect so anyone who is a decision maker in terms of all that digital space finally we've come to a point where Organisation X has recognised that and they're collaborating; a group of people to share that information ongoing to make sure we are all maximising the benefits of all the different tools that Organisation X can pool together.

Technology Systems: Work in progress and resistance to change

Asked about his experience with technology and knowledge, the participant comments:

Interview 18-Male

... we don't really have the systems in place technology perspective I guess that is why IT are working on these things at the moment and introducing this new system.... There's a lot of people who are resistant to change in the businessplus a large percentage of our workforce is nearing retirement age with that perception that computers are difficult to use, systems can be confused, ... I think technology is vital but maybe that is because of my age you know mid-30s, so I think if we can get these people to embrace these systems

Navigating the intranet - "not user friendly"

The participant suggests that the main knowledge source is the intranet, of which he provides a disparaging appraisal explaining that it is a legacy rather than a modern technology platform.

Interview 18-Male

The main source of knowledge is our intranet.... It is not user-friendly it was created many years ago...the intranet spreads across all pillars yes so they have their own little systems, so I guess those systems are more about gathering data from our retailers so it's not really about knowledge management.

Discussion

Discussion of technology, systems and knowledge clearly has a bearing on deployment of knowledge management practices covering the respective activities and areas depicted in models in Chapter 4. The discussion in Chapter 4 about strengths and limitations to system driven solutions to enable organisational knowledge acquisition through to preservation. Such debate and concerns about design and implementation of systems also was a strong feature in this study.

Participants looking through the lens as IT specialists naturally had differing perceptions about the efficacy of such systems. Interestingly some of the IT participants, flag knowledge preservation related to legacy systems introduced in Theme 1 and importance of safeguarding knowledge risks or having backup systems.

More specific to the study topic itself, erosion and degradation risks observed by participants, surrounded creation of knowledge repositories and a prejudicial view that a functional areas such as IT is devoid of collaborative practice and this will result in ineffective or non-user-friendly knowledge based systems. This knowledge erosion and degradation risk is also linked to empirical evidence noted in Chapter 4 surrounding Systems rollout. In Chapter 4 a model for design through to implementation depicted iterative steps to ensure minimisation of problems.

Participants had views about content and types of knowledge that need a more bespoke type system to ensure knowledge is effectively captured and transformed to service business requirements. The idea that some systems can be viewed as suboptimal systems noted earlier in this section has implications about trade-offs in investment and knowledge management infrastructure. Hill and Hill (2018) warn of risks when organisations sacrifice investments in operations and how infrastructure choice needs to feed through all levels of strategies which imputes the factoring in of knowledge strategy (Zack, 1999) discussed in Chapter 4.

In a different, the social implications prefaced in Chapter 3 about changing behaviours and practices reliance on technology such as through emails and other platforms was viewed as a major concern for extracting and building quality knowledge. This form of knowledge erosion and degradation risk suggests that depth of knowledge is socially embedded and the email dependent approach to acquiring and exchanging knowledge limits the ability for useful discourse which would have been a topic for Socrates and Socratic debate. The example here is where one participant stated “Get of your butt” and ask the question.

The issue of knowledge being eroded or degraded as noted by participants can also be depending on the quality of knowledge that is uploaded onto such systems and people’s contribution. Earlier in the theme on knowledge sharing, the risk of low take-up rates for ideas and knowledge sharing confounded by an apparent lack of infrastructure to support

frequent knowledge building was noted. Research findings about systems review in Chapter 4 support participant insights of knowledge and systems erosion and degradation risks regarding quality and screening of content.

6.3.6 Theme 6: Knowledge, Learning and HRM Considerations

The theme knowledge, learning and HRM considerations as implicated forms of knowledge erosion and degradation risks and barriers is an amalgam due crossover of these domains (elucidated in Chapter 4) and given these areas represented smaller subsets or subthemes.

The quality of knowledge several participants premise on the basis of the quality of how they learn including quality control and continuous improvement areas. Given the overlap and less common responses, these areas have been collapsed into one core theme with the corresponding areas classified as sub themes.

Knowledge degradation - human error or sabotage

The participant cites experiences of knowledge erosion and degradation associated with quality and human error issues. The following experiences demonstrate impacts on the business and customer. This experience also highlights several behavioural and ethical issues related to knowledge and knowledge quality, where an employee has sabotaged information and knowledge, requiring strong action by the organisation.

Interview 8 - Male

... so a negative one might be where a person has mis-picked some products for a customer, so it's impacted them, so that's a negative, but why did the picker do that? So we can ascertain why that occurred, stop it from happening again, and sometimes it means he loses his job because he's doing it deliberately but at least we've fixed it, we've addressed it, we've rectified it. If you did it as a once off because you had a personal problem at home...we can address it, we can fix it so it doesn't happen again. As long as we've got the knowledge to deal with what had occurred, it turns our negative into a positive.

Knowledgeable people but not everybody can teach

When asked about other possible barriers or inhibitors to knowledge, a number of participants point to people's ability to pass on knowledge. Not everyone has the skillset to impart knowledge and teach which many felt was a as a major source of discontentment aside from being a knowledge erosion and degradation risk.

Interview 9 - Female

My first thought with inhibitors is definitely just people's ability to pass it [knowledge] on. Not everybody is a good teacher, right? So if somebody might be the best in the world at doing a specific task... ..how can you share that knowledge? It might not be because they don't want to, it's because they haven't got the ability to...

Knowledge barriers - He didn't teach me much

Another participant also recounts experiences in relation to teaching and learning, and how the degraded form of learning has affected knowledge.

Interview 11 - Male

The person I'm learning from actually was teaching, my national person. She rang me the other day and I said I'm struggling to get information from the person I'm replacing.... She goes, I know exactly where you're coming from, I learnt nothing either...he didn't teach me much. So I think a lot of it may be personality.... maybe they don't want to pass on information.

Asked for an interpretation of why the personality style might create a barrier to knowledge building and teaching others he responds:

Oh I've got no idea. If it's up to me, I'm happy to help or show anyone what they need to know. Maybe they feel threatened, I don't know. Maybe they don't want everyone to know what they know. other people, like when I first started I had people helping me out, to fit in and get settled and so I mean I suppose that's one example....just coming back from that week management course I had met people networking from different, and they're happy to sit down and discuss what they do...

Learning approaches

Another participant comments on knowledge erosion and degradation of knowledge from a learning perspective.

Interview 3 – Male

...everyone has a different skill set, a different way of learning... Because some people like to be shown some people like to be spoken to, some people like you standing over them and showing them while they're doing it...All these people learn in different ways...So we learned from experience someone that wasn't picking up a particular thing because we were showing everyone the same way. Then we realised, no we can't be doing it right, so we found yes we need to identify the way people like to learn... this one particular case this person didn't like one way but as soon as we gave them something to read and then they started doing it themselves they picked it up like that....

Learning from peers and learning the ropes

The participant notes how knowledge can be lost to memory but also has an unconscious level.

...So they do obviously put time into people here to learn things but as I said the only erosion that I can see at the moment is learning from your peer....Yes so he's been away learning his other role, so I'm getting his people that would normally contact him are trying to contact me and I can't really answer a lot of the questions at the moment and he's feeling like he's going while I'm trying to learn...

This above experience highlights the important connection between learning and knowledge discussed in Chapter 4. Time pressures and workload demands suggest leadership and knowledge is fragmented and basic versus an advanced level.

The participant new to his work area, acknowledges he does not have an awareness of the broader environment and how others might perceive or view knowledge. However, he avows the importance of knowledge.

I haven't got enough, I've only been here fourteen months and just sort of the years had gone quick and I'm just learning the ropes basically and now I've moved up into another role... I think it's an important part of business to pass knowledge on to your peers... if you're not showing the people underneath you, how they are going to move up?

Learning through others and degradation risk shaped by personalities

Another participant highlights how individuals can either be effective in assisting with learning for knowledge building or, in some cases, can act as filters where the person is toxic.

Interview 3-

You can learn by watching others and learning from others. But you can also learn what not to do as much as what to do..... But if someone is very good at knowledge but is an absolute pig to people, it has an impact on whoever you're going to contact

Organisational rationalisation impacts on job knowledge: Learning and knowledge on the run

The participant asked about perceptions of erosion and degradation reflected on the loss of knowledge arising from redundancies and sudden departures, leaving major job knowledge gaps.

Interview 10 - Female

... in one of the accounting departments, I think there was something that someone used to do and they were made redundant and left on the spot. So there were jobs that that person used to

do, and no one knew how to do them...They had to find it, how to do it themselves which would have been better if it was probably handled a bit better.

The learning on the run affirms earlier discussion in Chapters 1, 3 and 4 about challenges to learning faster, at break neck speed, which risks lower absorption. Those individuals who demonstrate profound knowledge have a particular acuity or skill set. But here he qualifies that being knowledgeable does not automatically mean that one has the capability to teach or impart knowledge to others.

Attitudes to learning and knowledge - "It's up to the individual"- upgrade or downgrade and Individual volition and knowledge

Various participants held views about opportunity. Many of them stated opportunity gaps exist whilst others, such as the following participants, suggest individuals can either be passive or proactive in response to learning and knowledge. This imputes the drive comes from within and it is a matter of choice. The question of risk of eroded or degraded knowledge is viewed from an individual rather than social or organisational perspective.

Interview 10 - Female

...everyone's got an opportunity it just depends on how much knowledge you want to learn yourself....you can come in and sit here and do your job and do a fantastic job or you can stand up and go and do some courses and get involved and ask people and learn what you want to learn.

This rather libertarian, freewill perspective suggests knowledge building is largely within the domain of the individual and his or her choice whether to value and facilitate knowledge.

Another participant makes similar assertions that the responsibility stems from the individual rather than the organisation or broader macro environment. She views knowledge as an output of skill building, with the onus of learning and skill building primarily left to the individual. Her views may also reflect her own cultural and learning background.

Interview 1 - Female

....if people at an individual level, contributor level are given the opportunity to be able to, for those that are interested or would like to gain further knowledge and further skills,....it's being given the opportunities from managers and so forth that you can go on and do further training, whether it be externally,.... management within the company are happy to sort of give you the opportunity.

Interview 17 - Female

.... I would say the need of wanting to actually learn or upgrade yourself and if one person in the team is, doesn't want to bring themselves up to that level, then it brings other people down as well.... If I see that one of my team members is lacking excel knowledge or whatever, I will then promise them that you can do a course, whether it's offsite or onsite. But it's up to the individual then.....

The above participant has direct experience with individuals who refrained from accepting or receiving knowledge from other parties presenting challenges.

...I have an employee who I believe shouldn't be in her role. She's at the stage where she needs to step up. Now she's restraining herself from stepping up, she doesn't want to...it's all up to the individual. Me, if I've got the opportunity mate- I'll go for it...

The above response is emblematic of a personality with expectations that other's mirror her style in order to execute an acceptable set of performance standards. Her views of knowledge align learning with job standards and performance, reflecting a utilitarian perspective and also the responsabilisation principles where knowledge and learning devolves to individuals.

“Don't care anymore” “I don't want to learn”

The participant comments on psychological reasons for erosion and degradation and its prevalence.

Interview 17 - Female

...when people don't really care anymore or they don't get recognised for their jobs or even people that have been in a workplace for so long...I've seen it first hand, all they know how to do is maybe think will they get made redundant?

The above participant then adds:

When you join a workplace like Organisation X and you know that people have been there since they were 16 and they're in their 40s or 50s, well you can just see they don't want to learn, they don't want to expand....They even say I don't want to learn, they don't want to know...

The above response could reflect the psychological contract noted in Chapter 4 between an employer and employee. When this is broken it creates a void, where the prospect of further knowledge building or sharing is eroded.

Knowledge quality, knowledge capture and deep learning

The participant adds further insights about knowledge and quality, reflecting a principle introduced in Chapter 4:

Interview 18-Male

So when I think of quality I think...it has to have this structure around it so it's not just about putting down something. It has to have a flow to it has to have an objective or goal it has to have some sort of measurements... it has to be achievable....

...deep learning is the best type of learning so contributing factors that they knew before so I definitely think that having that level of knowledge is really important in trying to link it back to something that they already understand or give them that base knowledge ... we have had a lot of knowledge from a linear perspective but how deep that knowledge goes we don't really have that documentation or that mind set of knowledge management is probably not as deep as it should be.

Specific knowledge or intimate knowledge and hiring outsiders: HRM practice

The participant, when asked to comment on the value of knowledge, expands:

Interview 12 – Female

... I think in some areas there's a struggle to get people who actually know the business. One thing that always frustrates me is to see that they're bringing people from the outside into the business... We're not like, like competitor 1 and competitor 2 like competition, because we don't own retail stores. There are differences in the way that we do business, but sometimes as a business training, they recruit people, rather than promoting within. Whereas, people with that knowledge of the business, intimate knowledge in some cases of the business, get left behind....

HRM practices are questioned here from a knowledge management perspective. There is an inherent view here that home-grown or internal talent rather than imported personnel is more beneficial to the business and that formal qualifications are not always a guarantee for enhancing quality or deep knowledge.

Relevant employee for knowledge building and acquisition

The participant in seeking employee input and voice, recognises how knowledge can take many shapes and forms where knowledge be in small doses or increments. She has a reality check on expectations about employees and knowledge contribution.

Interview 12 – Female

...you don't want people there who aren't relevant so I try and invite all the relevant people ... When we were in there, the amazing thing was, a lot of those, I invited all came from that same area. The reason being, we think we might learn something from this and that to me has sort of rung bells because I thought, wow we've got five people coming to the workshop that didn't need to come....they came because they were hoping that they might pick up some knowledge

that they didn't already have about what they do from other people... the more people that know what they're supposed to be doing, the better for us.

... there are a lot of people who just want to come in, do what they do, know what they know and go home... We need those people, the specialists, to come and do their thing and go home...

Discussion

The interconnectedness of knowledge, learning and HRM was observed in Chapter 4. Notably, numerous participants consider knowledge erosion and degradation from a humanistic perspective that leans towards areas such as learning for knowledge building and how HRM practices have an integral input into shaping knowledge practices.

Participants were quite vocal and held strong opinions shaped by immediate experience regarding knowledge building and learning as well as some having a somewhat prejudicial and parochialist (Deresky & Christopher, 2012) views about outsiders being hired.

There are various erosion and degradation risks barriers highlighted in this section. The first erosion and degradation area notably relates to how people acquire and build knowledge through learning of which a considerable amount of learning is on the job managers. The concern about lack of competencies in managers harks to seminal work by Boyatzis (1982) noted in Chapter 4 and the multiple competencies needed in managers to effectively manage and develop people.

The notable gap in how managers can facilitate knowledge and learning is observed in the experiences of numerous participants. Clearly as with knowledge transfer hard knowledge transfer requires the ability or competence of a manager or employee to apply methods and approaches to enable effective learning which results in new knowledge. Many participants identify managers who in their views were not effective teachers or coaches which represents competency gaps and also management style and personality factors. In Chapter 4 such types of factors around challenges associated with leadership and management styles as well as risks associated with the tension that is could be possible influences around quality of learning. It was noted in Chapter 4 that superior performance of learning double and triple loop learning to include reflective practice rather than linear or once off learning which appears to be an apparent gap in how people have acquired knowledge through learning.

Similar to comments about having to learn faster noted under theme 4 Knowledge transfer, participants highlight impacts of organisational rationalisation and resource constraints and pressures (discussed further under Theme 8). Such impacts in participants' minds means that deep learning and knowledge is unreachable and subsequently erosion and degradation risks here allude to knowledge quality, knowledge capture and deep learning. This also stymies opportunities to garner specific or intimate knowledge which to some is a concern about where external or outside parties are imported into the business.

A different focus around knowledge and attitudes to learning concerns individual employees and the mindset or psychological state is a predisposing influence on propensity for effective learning and knowledge building. Some participants highlight unintentional mistakes and errors as a form of degradation reflective of insufficient knowledge or all inadequate. Whilst others point to deliberate negative behaviours as a form of sabotage which has HRM implications. Participants with an attitude of "Don't care anymore" reflect the disengaged employee and a possible wrench reaction related to the psychological contract (Boxall & Purcell, 2015) who fall into the low conscientiousness category noted in Chapter 4. There are motivational issues noted by participants. The response of not wanting to learn can be due to multifarious reasons and is also a management and HRM issue to diagnose reasons for lack of buy-in where due to post cognitive dissonance (Schiffman et al, 1997) or learning barriers also flagged in Chapter in the context of contemporary society approaches to how people learn. What these participant stories and experiences depict is how HRM practices need to harmonise or align with strategies including knowledge management practices (Boxall & Purcell, 2015).

6.3.7 Theme 7 Leadership, Management and Organisational Culture Considerations

The theme of leadership, management and organisational culture considerations as implicated forms of erosion and degradation risks and barriers is also an amalgam given the connection between leadership and culture. Additionally, there is also a link exists between management and learning and boundary setting as prefaced in the introduction was not a clear cut exercise; some similarities exist across the respective themes.

Numerous participants highlighted examples of variations in experiences with the quality of managers and leadership that can strongly influence the quality of knowledge and risk of knowledge erosion or degradation. While a large portion of participants were classified as managers, and therefore considered knowledge management through respective management lenses, the small number of senior level managers contrasted with those at a more supervisory level. This can affect how knowledge is perceived and the extent to which work functions being managed or supervised are knowledge intensive and value adding roles.

Knowledge takes a holiday key decisions on hold- delegation and knowledge handover

A participant's recent experience concerns how knowledge is not fully utilised and people not sufficiently equipped or empowered with knowledge to enable decisions to be made. In a busy seasonal driven and, customer facing environment, this form of degraded knowledge has ricochet effects throughout not just warehousing but within operations retail and relationships with stakeholders such as customers.

Interview 8-Male-

Yes, as recently as Christmas just gone by you know I interact with not only our retailers but key stakeholders within the business. I have a very good relationship with the warehouse and so I'll go to the warehouse with an issue and there's nobody there to make a decision because the key people are either away or the new people are too scared to make that decision or haven't been empowered to so I was working with them to make those decisions because I knew it had to be done. So that was a bit concerning, but we got through.

Impediments to knowledge building-managers -systems, broken relationships

The same participant notes other barriers or impediments to knowledge.

Interview 8 - Male

...I've had managers in the past who will not change, will not bend, were not be very flexible. So growth can be prohibited...it's not just you, it's that person above you, you need to have that working relationship, you need to have an understanding and you need to have a direction in the same way... we've had a significant change in senior management here in the last few years and as a result of that, there are a lot of positives there and we focus now on values; we rebuild relationships that were broken.

Managers/leaders and knowledge stewardship, quality knowledge and empowerment

Another participant recognises the need for mentoring and effective delegation and equipping middle managers and supervisors with skills and tools to facilitate knowledge building.

Interview 13-Female

...I know a couple of characters quite well in this business that have done exactly that ... It's about showing them that imparting their business knowledge to others is not going to hurt them... The participant acknowledges the critical role managers play facilitating gathering and providing knowledge to support people development.

...I come back to leadership really. Different styles, I just feel that managers are such a great aspect. They can make or break and especially in imparting knowledge. I just think quality knowledge...we don't give people knowledge that's really not going to help them.

Knowing a lot about a little - High ranking people but not high ranking knowledge

The participant following the "Peter Principle"¹⁴⁷ and echoing sentiments raised by other participant believes some people have progressed up the career ladder whilst having less depth of knowledge.

Interview 12 - Female

...there have been a few people that I've seen rise through the ranks, who are those people who know very little about very little....

In some areas, more than others. I just find, in my experience that people... people tend to discover, suss out who the guy is that knows a lot about a lot and who's the ones that knows very little...Then what happens is that guy who knows a lot gets all the [kudos] because they have the confidence that person is going to be able to help them so then they do five times the amount of work. These people cruise a long, people go around them because they know they're not going to get information they need or want...

Management style

The participant raised points about less layers of management. The interviewer encouraged her to expand on the influence of managers in addressing knowledge erosion/degradation as part of knowledge management practice.

Interview 15 - Female

...our management style is quite flat so therefore the erosion of knowledge probably doesn't... it's not a huge hierarchy that's filtered down and then by the time you've heard about it, you're hearing it literally straight from the person who is delivering that knowledge, which definitely

¹⁴⁷ The Peter Principle is an expression that posits how individual can be promoted through nepotism into more senior yet lacking competence.

helps with the degradation or erosion of knowledge...the quality of the knowledge is important as well because how it's being delivered to you can make such a big difference...

This participant, unlike others, depicts the organisation design as less of a traditional pyramid structure, but does support other perceptions of how communications can be less personalised therefore diminishing depth of knowledge.

New CEOs and challenging mindsets

The participant further observes about how the CEO was selected and how such decisions can reflect bias towards status quo thinking, a form of degraded knowledge.

Interview 3 - Male

... the new CEO actually had taken up a board position last year- twelve months before when everyone was supposingI actually discussed it with my boss and he was saying, who do you think it's going to be and I said well I quite praise this other chap that's come on board, down there.... look at his experience, he's got experience in this, in wholesale but also retailing. Retail experience at the top level and that's what we need - I pick him. Everyone else would pick this other particular chap that was heading up, was much in the same mould as our previous one... So we needed a new approach and I said our board will realise we need a new approach...

Organisational culture - IT: Like herding cats

The participant, at the commencement of the interview, wished to share his impressions of the organisation and its culture.

Interview 18 - Male

The business is cold... so our accounts payable area upstairs on the top level of this building every Christmas they decorate their whole space and their whole space is as big as the building the whole floor. To me they are over the top to decorate their space to engage and motivate their staff so if we use them as a benchmark for what the culture should be... so I actually went around to the teams a couple of weeks ago and told them I want to do a decorating competition down here to compete against them upstairs because I want to start to expand that culture out of upstairs and bring it to other levels. IT sits in the middle and I think it will be like herding cats to try to get them to do anything when it comes to a culture especially a Christmas culture.... when I floated the idea with the Y they jumped on aboard straight away and said yes absolutely... but Jordan [name changed] started this banter between the teams that he is going to be better...

So that's the benchmark, that's where we want to be, we want to be engaging, nobody else does it or very few people in the business do it, I want the culture to be inclusive and open and engaging and inviting and supportive.... At the moment it is probably not supportive.... there is this political culture in the business as well.

The theme working in silos as form of knowledge erosion and degradation risk has featured strongly though throughout participants' discourse reflective of the previous culture and structure designs detailed in the background to Organisation X and the drive for internal competition across business units. The residue of the backstory some would argue has not totally dissipated.

Residue from past internal competitive structure, insularity and business pillars

Interview 18 - Male

So we had all these businesses working under the Organisation X pillar but they were all competing against each other and it was set up that way...So of course you are not going to share your experience with the competition because you want to be the winner so for 10 maybe 12 years the business ran very siloed mentality direct competition with each other, the great thing about that was it pulled the business out of close to bankruptcy and put it in a point where we were making double digit growth for many years...So they don't alter their own L&D [Learning and Development] component...I would have an amazing management program, leadership program... written with my knowledge and delivered them to Alpha(name withheld)but I would never ever share that with organisation Y distribution so cooperation is weak...

The participant demonstrates facilitating cultural change is incremental and a confluence of factors means improving knowledge capabilities including sharing and building is not a quick process. The aftermath of having a competitive siloed structure is still evidenced in knowledge hiding and withholding behaviours.

.... Over the last couple of years we are working to break the silos down again to make the business understand that what happened before what worked before (a shift in business models and a more corporate sort of approach of a whole business approach) a centralisation idea that's what we're trying to go through at the moment so rather than have people working remote to each other let's bring everyone together and share our ideas... and a cultural change can take a number of years, and we have only been on the cultural journey of in the business change for about 12 months...

Interview 18 - Male

... It really does come back down to that protection or that silo that we have been talking about. Some teams will say everything is great other teams will say that it is dire other people will be big picture focused whereas others will be insular and very focused on their own little team... so I guess it will be about deciphering, what are they talking about the company on a whole, their own department, are they talking about their direct manager... people that are a different level, different areas of the business high-level ones will probably think a bit more big picture than the lower-level ones..

Interview 5 - Male

Work environment. I think it's become specialised. Each role has its function and I don't think enough people see the bigger picture outside their role.... The culture is probably to me it's not as social as I'd like it to be..... I think it's difficult since I've been focused on IT this whole time, but talking about other areas of business, I think everyone is focused on their own area.... I'd say people are quite open. If you asked someone about it, they will have interest and they're certainly willing to share or point you in the direction of trying to achieve that.

Interview 15 - Female

...I've always felt that the company worked very much in silos. I don't really know what's going on in other business areas obviously Organisation X has tried to close that gap more recently with video content, quarterly reviews to let us know how the business is tracking. ...From a degradation point of view, and erosion point of view rather than share the information more openly and make sure we're all doing similar things in terms of marketing we could be doing that, we could all be doing a better job. I think that's slowly changing...

Interview 16-Female

Another participant differs in her view of the silo structures, seeing an evolving and more unified purpose throughout the organisational pillars, in contrast with the past.

....we have certain divisions within Organisation X or business pillars. So each business pillar specialises in a field. Whether it's food, whether it's liquor, whether it's hardware..... I love what's happened now within Organisation X I've seen it grow with all the changes. Now we've...I guess common values if you want to call it as such or goals and really we are now each of those pillars looking at supporting our retailer and our independents.....

Breaking down silos is seen as a major challenge, to improve knowledge practice across the enterprise.

Interview 18 – Male-.....I would say the competition between pillars, you have major issues, it's secretive, it's between an us and them type of environment, it is about breaking down that behaviour, that's probably the biggest one...

Organisational Culture - Leadership change and occasional hiccups

The participant shared her perceptions about the organisational culture and changes in management.

Interview 16 - Female

I think the culture of Organisation X is growing. I think there are some changes occurring. I think with the changes there needs to be serious consideration of how those changes are implemented.

I think what I see at our Christmas party it was the first time our CEO actually got dressed up and attended our Christmas party for the full event. That's our cultural change, and the comment from people was, yes it was a great evening thank you very much but how lovely was it to see Andy [name changed] dressed up.....We might have hiccups and we might have people fall down occasionally and do all that sort of stuff but I think it's an exciting time.

The participant reinforces other views about the importance of socialisation and social interaction, to encourage more effective working relationships by creating better bridges between senior management and employees.

Projects and executive knowledge needs mandated: "Throw in the ball" knowledge

Asked if she had any other insights regarding willingness to share knowledge the participant notes the context of projects and changed management.

Interview 16 - Female

....I just worked on a project and I guess that's why I'm quite passionate about knowledge and sharing and doing business..... So for the first time ever recently I worked with a different department on a very big project. This project was a representation of most departments... So every time we worked through every step, there always appeared to be someone behind the scenes that said no I don't want to do change because it's too complicated or it's not, or no I don't want to.....then you'd have to throw in the ball - well the CFO wants it and the CEO wants it and the CIO wants it so we're going to have to do it, so go away and try and come up with a solution for me please....If you need other things, well let's go back to these three ...and say look, hey let's get it....it's okay I'm not taking away that responsibility, it's a shared project. We both have to make this work.... I'm working on the project to simplify processes and make things easier and that's where I face it sometimes and change is hard.

Fighting tooth and nail to safeguard systems- Beware the import and knowledge

Extending an earlier story, the participant is somewhat disingenuous in his views of imported personnel and their knowledge offerings. The participant recalls a person brought into the organisation in messiah-like fashion to roll out a new system that did not meet shareholders' expectations.

Interview 3 - Male

He was an import.... within a few years, he was gone. His project wasn't as great as he thought it would have been and all that sort of thing. It actually impacted. It was very lucky that, I fought tooth and nail They were going to switch off the legacy system and to this day, we still use part of that legacy system... I just put the facts on the table... with these effects in mind, you can't switch this off...

Don't "expect to be hand-held" but come back for the "20 clock dinner"

New hires he asserts need to be self-starters, adapting to fast paced environments and the adoption of agile and lean operations.

Interview 18 - Male

...you have to be self-motivated, it's just what the business expects. So if you are not that and you walk into this business and expect to be hand-held or expect a lot of communication it doesn't happen. So we were moving a lot of people really quickly.....so from recruitment practices which started to see from a hiring perspective, you need to be talking about the culture ... from a tenure, length of employment perspective...we do something called a 20 year clock dinner so anyone who's been with the business in New South Wales more than 20 years gets invited...

The changing of the guard - Role of new leaders for building a knowledge culture

The participant emphasises the role of senior leaders including changing CEOs in shaping organisational culture to support knowledge.

Interview 3 - Male

They realise the value of experience of knowledge, but they also realise the value of having new people coming in the business with different experiences and different knowledge that can be imparted. A classic example is our new CEO... he's very positive, the last CEO who was involved with the take-over initially, he did a great job. He took the company from a certain point to currently, totally commercial success, being a top 100 company....I could tell that we needed a change. We needed a different focus....We were at the stage where we had sort of gone as far as we were going to go under his approach. He had a wholesale approach and we are a wholesaler, but today's market has moved to the retail focus....

Work environment - Conducive to knowledge

The participant, encouraged to comment, portrays a diverse and social work environment.

Interview 3 - Male

...Within my role, my work and our work environment because it's such a great and diverse team, we encourage a lot of team functions. We have team theme days and things like that and encourage a lot of people to be happy and have a bit of a laugh. You don't have to socialise outside but you've still got to recognise the great people as individuals...

The portrayal of a team culture that is still adhering certain norms and values that might be unknown restraints.

Interview 3 - Male

...I think it depends on the manager. Some areas would have the higher turnover of people, others don't... Most of all I think it's fairly good. When the new regime came in, they took away, no one wore a tie. I thought that was brilliant...So on the whole, there is an informal process and people sort of missed the formality but I don't think it's required because there's an understood formality. You know who your boss is....

Key people as knowledge pillars and knowledge complacency

The participant, when asked to expand on what factors might influence knowledge erosion and degradation, suggests dependence on key people referred to as key pillars. These key pillars are deeply ensconced through institutionalised as well as normative practices and are synonymous with being knowledge guardians or custodians.

Interview 9 - Female

I think one key factor is when someone has been doing the same job for an awfully long time. Because they become then a pillar of that department and because you're doing it so well for such a long time, everybody forgets that you're really there doing that job and well we don't need to worry about that...

This example mirrors the example of engineers noted in Chapter 4, and reliance on a few key individuals to solve problems. An additional concern raised by the participant is how complacency can set in, due to reliance on knowledge pillar people. This complacency reflects a lack of contingency planning in the event that key people are not available or an unexpected issue or event happens.

Interview 9 - Female

...it might not necessarily be that they personally hold onto the knowledge in the way we were talking about before, it might just be everybody has become complacent... that this person we go to and we've all gone fine, we'll turn up every day and we'll never have an issue...

Little feet stuck in the middle

This participant points to cultural pushback to knowledge building and professional development. Her perceptions are in stark contrast to those of longer serving participants more deeply ensconced and socialised.

Interview 9 - Female

Yes, there's still quite a lot of turnover of staff because this organisation is so big. So it's, I don't know, there just seemed to be a resistance to change...even though somebody might now be

allowed to work for a different department than they were previously, they still carried on with exactly the same job that they always did....they never learnt anything new and nobody else ever learnt what they were doing.

Duck shoving vs networking - Over here versus over there –differing approaches towards knowledge

The interviewer encourages the participant to enumerate further about her experiences of the organisational culture.

Interview 12 - Female

Oh very friendly and open, a lot more conversations going on, a lot more information sharing. People want to know stuff. If you don't know something they will ask ten people. As opposed to over there where if they need to know something, well I'll just ask that person. If they don't know well I don't know. A lot of that duck shoving of stuff going on, if there's a problem, oh you do it. Whereas here, people try and find out themselves, which makes a big difference, which helps you with networking.

Knowledge - not what you know but who you know- Golden Haireds climbing ladders

This participant proposes leveraging of knowledge is endemic in organisational culture, and expands further on her perceptions and experiences around underutilised knowledge.

Interview 12 – Female

....You know some people...like [IT] like, if you're not in the in crowd or you're not one of the golden haireds. There are some people that can work their way through the business or know the organisation without knowing much at all...There are some people with a lot of knowledge but they're not given opportunities as much as others who don't have the knowledge...you tend to find a lot of that, I think it's fairly cultural, fairly political.

Another participant portrays a contrasting view from her experience. She explains that new opportunities were given to certain employees to expand their knowledge and be put into another area, but they didn't want it. There is a negative tone reflected here in how other individuals respond to work opportunities. The stance also suggests a quasi- libertarian or non-interventionist approach mentioned earlier towards managing employees. Another observation is that there is little reference to the organisation and no discussion of organisational knowledge practices.

Knowledge barriers and hierarchical structures and management styles - where people won't speak up- Lack of employee voice “keep your head down” and do not engage

The following participants considers how knowledge might be suppressed and manifest. He echoes sentiments from other participants around Organisation X's culture. Rather than putting the onus on employees, this participant places knowledge management responsibility squarely with managers, to instil a positive work culture to foster knowledge. Alluding to traditional management styles, which are more directive and task focussed, he observes they can be major barriers to building employee confidence, broadening employee knowledge and skills.

Interview 18 - Male

....there are some areas of the business where there is a very hierarchical structure, people at the lower levels who have the knowledge won't speak up, or they don't care enough...there is definitely a bit of a fear culture in some areas so they won't speak up. I really do believe that that comes down to the manager because what we talked about what we are trying to change is this culture to be more open and there are managers who are completely happy to come on this journey and there are others who aren't, the ones who aren't are the ones who have created the culture....

Reinforcing similar messages communicated throughout the interviews, the participant points to post cognitive dissonance and survivor effects from change that may also contribute to lack of voice and engagement for knowledge building.

Aside from organisational and cultural factors highlighted earlier, the participant reaffirms individual attitudes towards knowledge sharing and learning, suggesting that some individuals assert or wield their authority whilst others may acquiesce and demonstrate withdrawal behaviours.

Interview 12 - Female

...A lot of these people were people who just sit and do what they do, keep their heads down people that had been there a long time but still didn't know what they were doing...

An additional inhibitor or restraint to knowledge is where people do not voice ideas or information about certain things The participant notes, they could provide much more value to a particular activity but don't. She adds:

...people aren't interested in that because they don't want to be told how to do something or why something happens, by someone that doesn't work in that area or that they don't see as being as

important....A lot of people feel that they don't want to tread on peoples toes. I don't want to be that know it all, so I won't say anything I'll just keep my mouth shut... I find that the biggest thing I need is just the opportunity to share the knowledge. There's no, there's not people coming out in the business asking people...People just feel like, oh well it's not my place to say so, so I'll just plod along...Keep my head down...

The above experience demonstrates organisational cultural issues and managerial style as impediments and influences on knowledge erosion and degradation. The participant also draws on a psychological response from past educational experience.

Perceptions on leadership - "Amazing, dictatorial and just floating along"

Interview 18 - Male

...So Mavis [name changed] our manager [title changed] is amazingly inspirational and I think as a manager in this business she is what people should be mirroring themselves against. There are other areas of the business where the leadership is fear based, it's dictatorial...and then there are the ones in the middle who are just floating along.

Jekyll and Hyde styles erosion and degradation experience

The participant recounts an example of organisational politics involving two differing personalities, both ego driven and self-focused, who were swapped in their management roles with noticeable impacts on knowledge.

Interview 3 -Male

...There's two people in particular, both are in similar roles right? Both, what you would say, have strong personalities. One is a very company focused, dot the i's cross the t's, follow procedures, is very set in that way, this is how you should do it...The other one still probably more confident in their own area, very, very intelligent person, picks up the ideas but then handballs the ideas to a team to work on. Takes the glory for the idea and then goes on to think of the next idea, doesn't follow through the previous one to make sure that it's working unless there's a benefit for them...these two people have changed roles...They've both got their different styles and there now trying to impart them on where the other one was...it's good, in the one that's moved over here has started to document system procedures in place where they were lacking before. But then, new ideas and that sort of thing...the other one needs to be influenced because they're a bit, no I don't really want to do it that way but yes, you should...

From the top down - Lead by example and knowledge expansion

The participant expanded on earlier discussions about sources of knowledge and ease of access. The participant enumerates on how leadership changes have altered the knowledge landscape.

Interview 15 - Female

I think that comes from the very top role...the fact that he has made a lot of effort to get to know different parts of the business and actually find out what we do in our jobs so he came around I guess part of his induction. He introduced himself to every part of the business, within every department, every pillar and for him, to acquire his own knowledge to be able to do his job the right way and better and I think it starts from there, leading by example, having all the leadership aspects.

Decision-making and inclusiveness and knowledge degradation risks verifying information and supplier contracts

One participant provided an example of how information, when not properly checked or verified, can trigger contract risk issues impacting the business.

Interview 13 - Female

...something at the moment that's happening is one of our areas trading terms has gone into preferred suppliers and without permission...they've gone and made decisions without... that have quite the impact on other areas instead of just not worrying about collecting information...and other parts of the business have already made arrangements with other suppliers which has now impacted and could have a risk.

The above examples suggest a degraded form of knowledge, in that key information for better decision-making is ignored, and could be viewed as a form of knowledge governance risk noted in Chapter 4.

Barriers to knowledge: free flowing at the top and not filtered down

The participant extending his views on organisational culture, shares his perceptions of managers and how they might view and manage knowledge and information.

Interview 18 - Male

...they are part of the problem at the moment, we recently did some work with an external consultancy company on how communication flows through the business and the outcome was that information between the top two levels of the business to the executive level and the general manager level is free-flowing so it goes back and forth. They are all aware of what's happening... the strategy they all know what their part is in the strategy. They know everything about what is going on. It stops. So there are three levels, the senior managers and supervisors

and the individual contributors, so if information is free-flowing with the general managers it doesn't filter any further down.

Discussion

The field of leadership and management is an expansive field of research as observed in Chapter 4. Additionally there is considerable research on organisational culture also discussed in Chapter 4. Participants shared lived experiences and longer serving employees from an oral history lens reflected on past leadership and management approaches to contextualise how knowledge has evolved or been managed over time. The findings here validate a common set of perceptions in some areas and variations in others depending on context conditions and contingent leadership style.

Leadership and management within Organisation X is a subject of debate depending on who one works with and which pillar of the organisation. This inconsistent in style and approach suggests a weak or fragmented or siloed organisational culture. The eclectic and rather disconnected business areas through pillars as subcultures may also treat knowledge in differing ways raising additional knowledge erosion and degradation risks and barriers. The continuum of "amazing, dictatorial and just floating along" highlights how quality of knowledge could be treated from a directive through to laissez-faire approach. Additionally criticism levelled at leadership and the organisational culture may also be reflective of an institutional or industry forces as noted by Di Maggio in Chapter 3.

One participant describing the organisational culture is cold contradicts several other participants perceptions. Interestingly younger participants with low lengths of service are more disparaging of the organisation culture and leadership and management compared with their long serving mature age counterparts. This can reflect how socialisation and belongingness organisation can sway opinion people can become in you would with a system when deeply embedded in their safe haven or protected (heritage jobs) and conventional succession management strategies keep these people in such protective roles.

Notably the criticism of such conventional succession management practices means the anointment of internal successors excludes importing new manager from outside of the organisation. An additional pointed perception is how some of these managers have been elevated beyond the level of competence due to nepotism and familiarity rather than competencies expected in the modern business contexts Boyatzis (2008).

The impact of weakened leadership and management can cascade through decision-making and judgment errors of knowledge barriers such as people speaking up the issue of lack of employee voice noted discussed in Chapter 4 where one participant observed the leadership/management style as more autocratic which constitutes another form of knowledge erosion and degradation in the form of suppression of knowledge and the post structuralist view (St Pierre,2000) about power structures an discussed in Chapter 3.”Little feet stuck in the middle” is emblematic of such feelings of lack of empowerment. The issue of knowledgeable leaders and knowledge for effective leadership is still an emergent process in the minds of participants as CEOs and their individual blueprints have shaped the culture from a family business through to an internally competitive bastion and endeavours to breaking down working in siloes.

6.4 Synopsis of Key Findings and Strategies to Prevent Knowledge Erosion and Degradation Risks

Detailed discussion was provided throughout the theme section including discussion and analysis at the end of each respective theme. This section provides a brief synopsis including observations in relation participant views and suggestions strategies for prevention of knowledge erosion and degradation and ideas for enhancements of knowledge management related practices.

Organisational constraints, pressures, stakeholder and other considerations are implicated as factors influencing forms of knowledge erosion and degradation risks and barriers Further details are provided in Appendix 6.

It is interesting to note that when the topic of knowledge erosion forward degradation features as a phenomenon, vast array of responses can elicit numerous perspectives on such risks and barriers. For some, contextual factors have giving have a significant bearing on knowledge practices in the organisation. Several participants demonstrate strategic insights and how organisational challenges such as constraints or pressures the organisation has to contend with in a highly contestable industry, may have a bearing on the facility to acquire and distribute knowledge

One participant as noted in this section proffered the term "financial impatience" which represents a focus on short term results and this has knowledge erosion and degradation implications where an organisation place primary focus on being cost driven rather than a learning organisation. Other participants enumerate external drivers and forces of change requiring the organisation to be responsive to changing stakeholder needs and demands. Such needs and demands include having the right information or knowledge of the right time.

Such external and internal pressures such as costing as financial viability including cost pressures impact on the organisation's capability to invest in dedicated programs and projects in areas of knowledge and learning. Resource scarcity and operating under lean conditions in some participants' eyes represents is factor that may contribute towards knowledge being eroded or degraded.

Impacts from organisational rationalisation including downsizing effects where people have exited from the organisation raises risks of knowledge gaps dissipated knowledge requiring risk management strategies.

Given the organisation has had ongoing changes of ownership combined with a conventional horizontal integration strategy of acquiring other businesses, this has also led to challenges in terms of integration of the business entities where one participant noted that the businesses acquire and bolt on other businesses which creates further silo risks and disparate knowledge and information across the respective pillars.

The eclectic and apparent fragmented or disconnected nature of the business entities is further compounded by various laws and regulations spanning various industries. Subsequently strategies at times were quite eclectic and contrasting given what parts of the business individuals operated within.

Changing business models to align with changing and evolving business strategy to remain competitive means knowledge needs to be renewed or discarded and some participants suggest the mindset of not living past is at cross purposes with the important mantra of preserving key organisational knowledge.

Time pressures emerged as a constant thread throughout and knowledge erosion and degradation factor also impeding room for reflective knowledge introduced in Chapter 1 (Disterer, 2002) endemic of the reality of the modern world shaped by neoliberal and globalisation influences Chapter 3 within which organisations are engulfed.

Appendix 6 provides detailed extracts on participants' views on strategies to enhance knowledge quality and stem risks of further knowledge erosion /degradation. A synopsis of the strategies is discussed below.

Participants were asked to identify recent examples of organisational measures to prevent knowledge erosion and degradation risks. Being a multi-business entity, with a complex business structure and operating model, there are questions as to how much capacity the organisation has to absorb, retain and extract key knowledge and information in order for people to be knowledgeable across the business.

The vast and possible fragmented nature of the business is further compounded by various laws and regulations spanning various industries. Subsequently strategies at times were quite eclectic and contrasting given what parts of the business individuals operated within. However, there are also areas applicable across all business operations.

6.4.1 Key Strategy Areas

Key strategy areas were broadly grouped under the following categories:

- KM systems
- KM considerations
- HRM and Learning and Development considerations

The assumption that technology is an enabler, to minimise knowledge erosion or degradation risk, mooted by the first participant response is rather general and subjective. But as noted in Chapter 3 there are advantages, to minimise human error and transactional activities can be done to reduce reliance on human input. However, questions and concerns still prevail about design limitations and likely impacts on key stakeholders (e.g. customers) in the event of less human involvement or contribution at work following earlier discussions centred on the role of technology and human centred work in Chapter 3. Subsequently, participants suggest the need for a shift in the IT role and more stakeholder inclusion.

A strong emphasis was placed on documentation business processes and procedures as forms of codification of explicit knowledge demonstrating that explicit knowledge initially appeared a priority and in particular the importance of procedural knowledge where there were perceived gaps. Additionally recognition of the importance of having an effective data capture system also featured and notably from an IT participant's perspective was not viewed as a simple exercise in that a higher level of knowledge is required arguably to be able to ascertain methods by which to convert data information into what is deemed as valuable knowledge.

Another aspect of the knowledge management systems side related to participants seeking a centralised repository system to be able to access information and also platforms and tools including digital solutions as a lever for greater collaboration and building ecosystem across the business areas. The other perceived benefits of such a repository would be to safeguard key organisational knowledge and to prevent loss of organisational memory.

An additional aspect to participants' views around knowledge management practices is the apparent lack of a coherent framework or knowledge strategy moving forward and subsequently the need to develop frameworks of which examples are noted within Chapter 4. Such models and frameworks can provide a roadmap for the organisation given that it is recognised organisation is at a novice end of a continuum in this arena.

The importance of building and knowledge sharing culture has been strong theme throughout participant interviews and notably communication channels and establishing avenues for greater opportunity for information sharing across functions feature in participant strategies. There are multiple roles and accountability is arguably the converge across HRM, management and employees in building a culture more conducive to sharing knowledge including changing behaviours which as noted in Chapter 4 requires consideration of motivational and other psychological factors.

Other HRM and learning related areas including mentoring and multiskilling and upskilling including refresher training for knowledge retention. The issue of utilisation people's knowledge also featured as an important given that knowledge if viewed as an asset may mean knowledge untapped is a wasted resource a view that complements the companies approach to Lean thinking practices.

Strategies also include changing work practices supportive of a spread of knowledge across a number of employees rather than being at risk of having knowledge reside in deep pockets

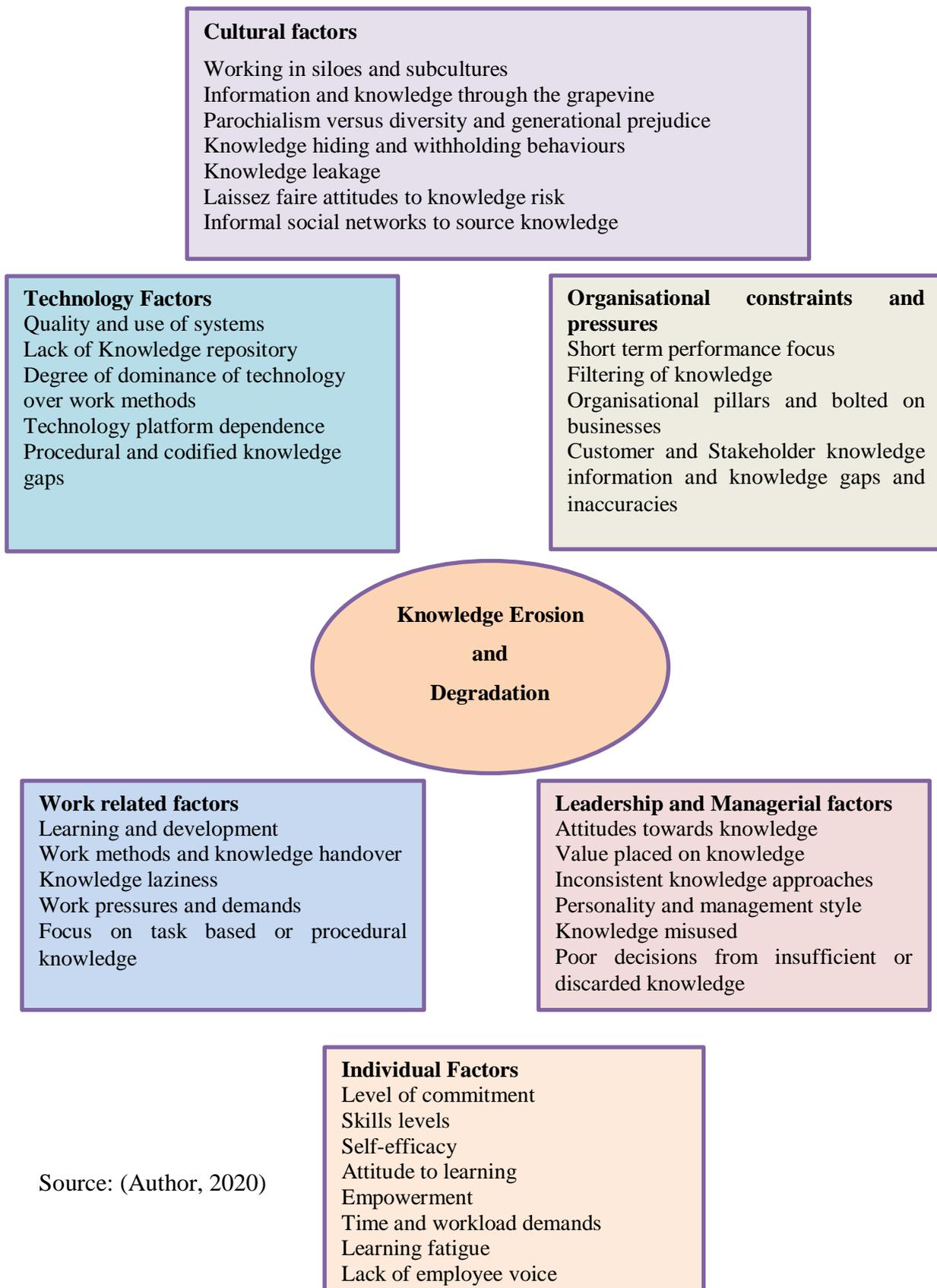
and specific job roles. A form of job rotation less formal and structured, is known as cross knowledge opportunities where managers or employees can move around the business environment to gain additional insights into errors that is less time intensive than a formal job rotation process as one participant noted for “picking up knowledge” (Interview 8-Male). Role sharing is another initiative to reduce risk of a build-up of tacit knowledge and where deep knowledge resides in an individual’s head.

The strategies reflect varying levels of experience across the participant cohort. The strategies suggest a blended approach including both systems and humanistic approaches towards addressing knowledge risks within Organisation and many strategies are borne out of lived experiences and lessons learned.

6.5 Conceptual Frameworks

Given the iterative and emergent nature of the study, the researcher developed a conceptual framework on factors affecting key knowledge erosion. See Figure 6.1 below. Unlike a purist Grounded Theory approach as prefaced in Chapter 5 and elucidated in Appendix 5, the type of study and findings reaffirmed that a mix of common and varied responses would not lead to a definitive theory also due to the complexity and multifarious nature of knowledge erosion and degradation as phenomenon.

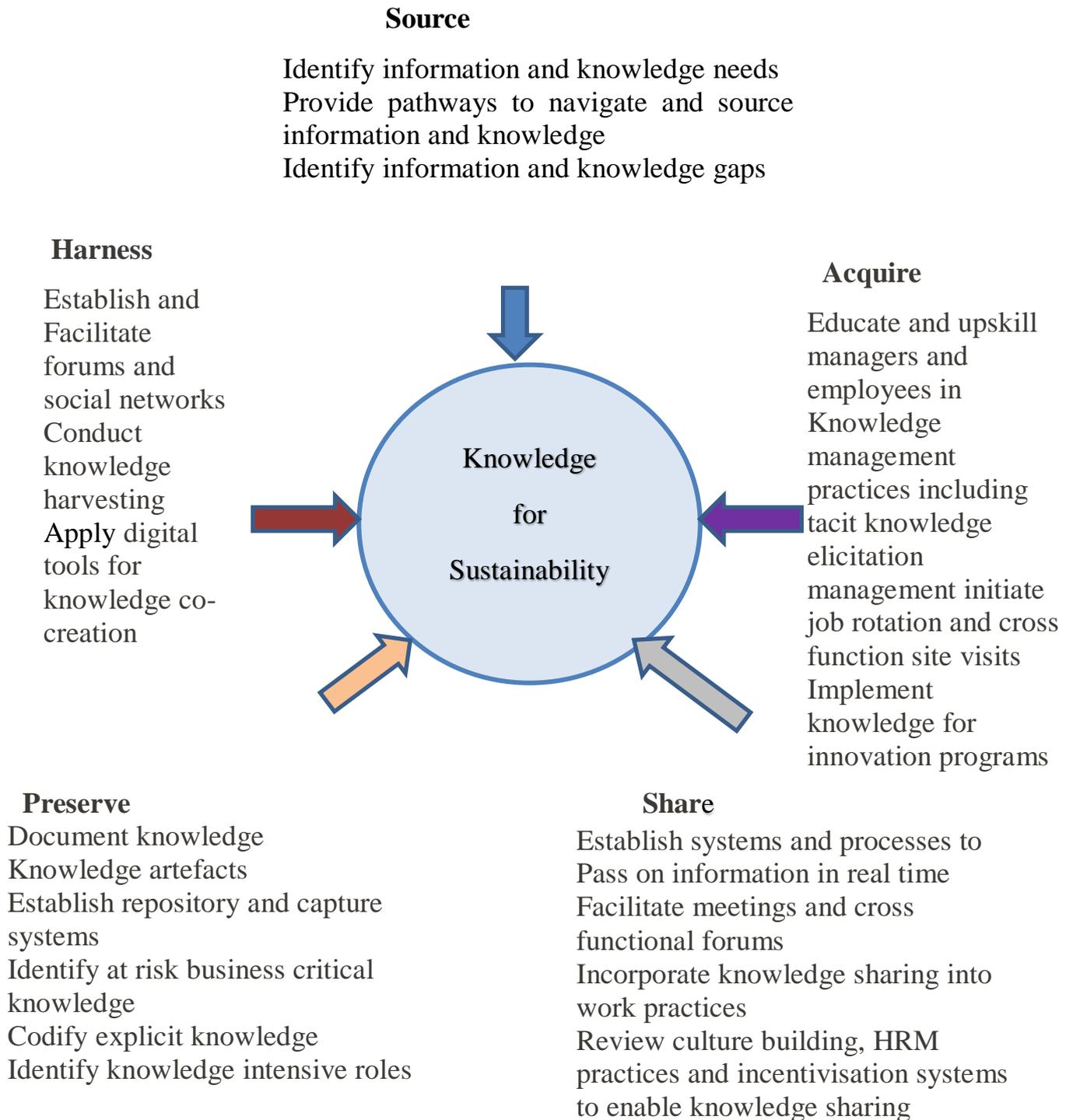
Figure 6.1 Conceptual framework of some observed Knowledge Erosion and Knowledge Degradation Risks and Barriers



Source: (Author, 2020)

Another conceptual framework (see Figure 6.2 below) developed by the researcher, depicts a synthesis of ideas from strategies to support reducing risks of knowledge erosion and degradation and optimise knowledge for organisational sustainability.

Figure 6.2 Knowledge Optimisation Framework for Sustainability



Source: (Author, 2020)

Another conceptual model developed by the researcher (see Figure 6.3 below), conceived through empirical research findings and possible connections between knowledge and organisational effectiveness and performance.

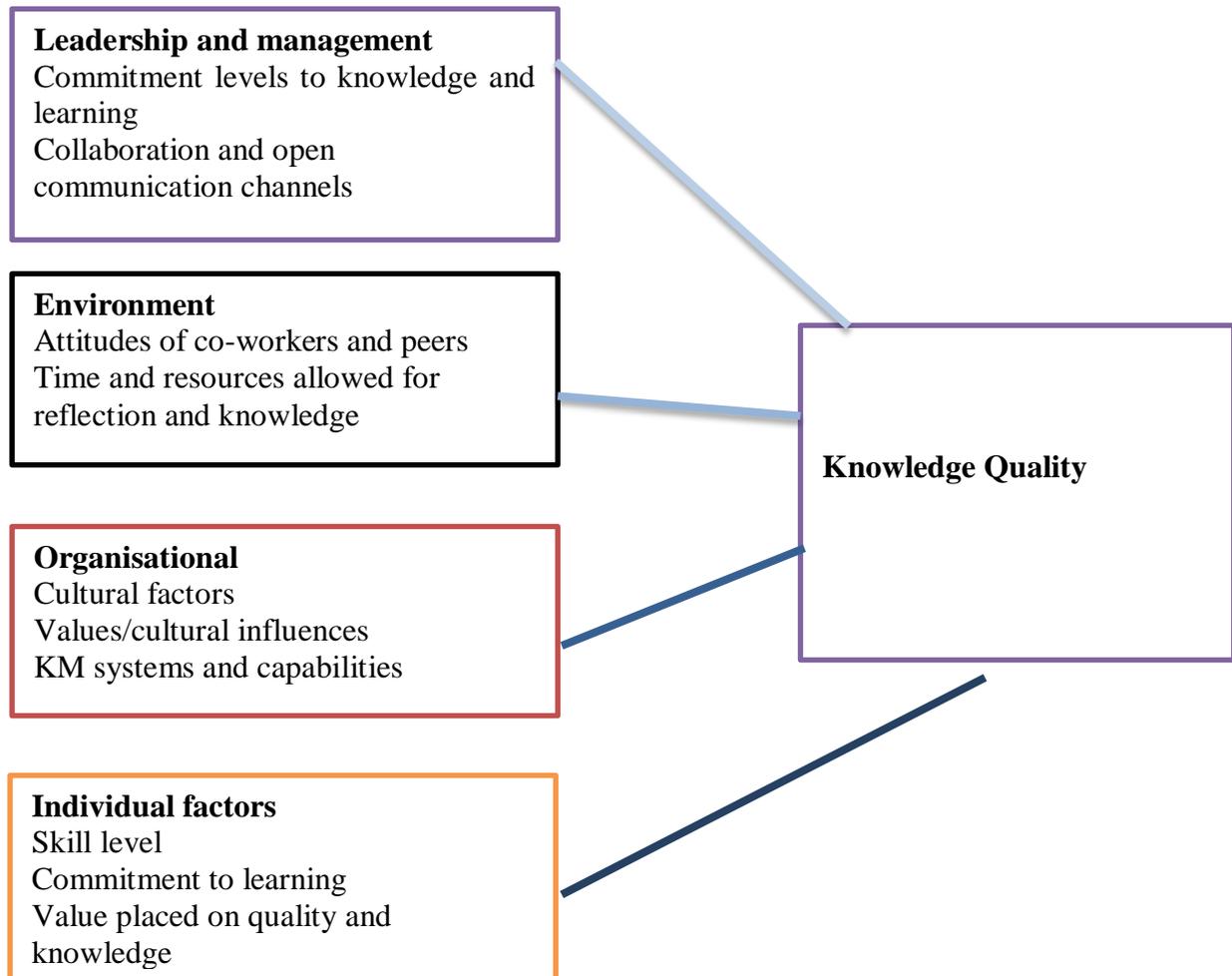
Figure 6.3 Conceptual Model of Links between Management of Knowledge Quality and Organisational Performance and Effectiveness



Source: (Author, 2019)

Another conceptual model developed by the researcher drawn from the empirical research, depicts possible pre-disposing enablers for quality knowledge and knowledge building. See Figure 6.3 below.

Figure 6.3A Pre-disposing enablers for quality knowledge and knowledge building within organisations



Source: (Author, 2020)

6.6 Summary

The bulk of this chapter presents data and findings from a hybridised approach (incorporating Phenomenology, Phenomenography and Grounded Theory), recognising areas of commonality with participant views and experiences and variations given function and work context differences.

This chapter initially explored the background to case Organisation X and the industrial context in which it operates. While a major player, as a wholesaler and distributor, Organisation X is confronting mixed economic conditions and, changing consumer and customer demands that expose it to financial and operational risks; these require the organisation to continue seeking avenues for operating more efficiently and deliver perceived value to its customer base - to reduce threats or risks either from regulators or competitors. Providing a point of difference to its customers and strategic partners, means providing value-added information to support these stakeholders in improving their competitive advantage. But the value of knowledge, and the importance of it not being eroded or degraded in the eyes of customers, coupled with managing key knowledge to avoid risk of loss (where knowledge resides in individuals) has impacted the company's competitiveness and performance.

Chapter 7 Conclusions and Reflections

7.1 Introduction

The purpose of this final chapter is to draw together all key conclusions as well as findings from the participant research data discussed and analysed in Chapter 6.

Before addressing the core research question, concerning knowledge erosion and degradation or loss, it was necessary to consider the nature of knowledge and its origins. The major Western philosophies relating to knowledge as a construct were reviewed, with an emphasis on how such contrasting perspectives and paradigms may still be applicable to contemporary organisations and how knowledge is viewed or valued. It was concluded that more rational perspectives of knowledge in westernised organisations are more relevant to how organisations might apply rules-based and practical knowledge.

How knowledge is approached within modern societies is shaped by neo-liberalism and capitalist forces including deregulation and decentralisation. Fragmentation of expert knowledge and the emergence of contemporary organisations and challenges operating in fast-paced environments are all relevant for this research topic. The role of the Internet and increased access to information has created a phenomenon of knowledge laziness, diminished attention spans, and preponderance for accepting less credible sources to inform decision-making.

A detailed literature review revealed scarcity of research on the study topic, but that interpretations of the meaning of knowledge erosion and degradation align with other themes within the literature such as knowledge loss, knowledge preservation and knowledge risk. The theme of knowledge management and its evolution from a systems focus to other domains was explored, further reinforcing gaps within the extant knowledge management field.

This contextualist study recognises knowledge erosion and degradation as intertwined constructs concomitant with dynamic external and internal environments and how increasingly organisations face pressures and demands that expose organisations to risks of various forms of knowledge erosion and degradation.

This study fuses elements drawn from phenomenology, phenomenography and grounded theory principles shaped by significant statements, common themes, and variegated responses supporting a nuanced and more flexible approach to the topic.

This Chapter recaps the core focus and intent of the study together with case study findings and their implications. This synthesis includes a series of recommendations elicited from review of the research and researcher reflexivity. Finally, limitations of the work are briefly outlined, followed by recommendations for future research.

7.2 The Research Design and Core Research Question Revisited

Given the apparent gaps within the literature, the study sought to answer the following overarching question:

“Is there an erosion and degradation of knowledge within the organisation?”

The aims of the research study were:

- To investigate and understand macro-environmental, organisational, managerial, individual and other issues that may influence the propensity for knowledge building in organisations
- To investigate the perceptions of case organisation respondents in relation to whether there is knowledge erosion and degradation
- To examine managerial attitudes towards knowledge and what prevailing knowledge paradigms exist and the extent to which this may affect knowledge erosion and degradation
- To identify if there is a relationship between knowledge erosion and degradation and organisational effectiveness or performance
- To develop various conceptual models and frameworks suitable for Knowledge Management

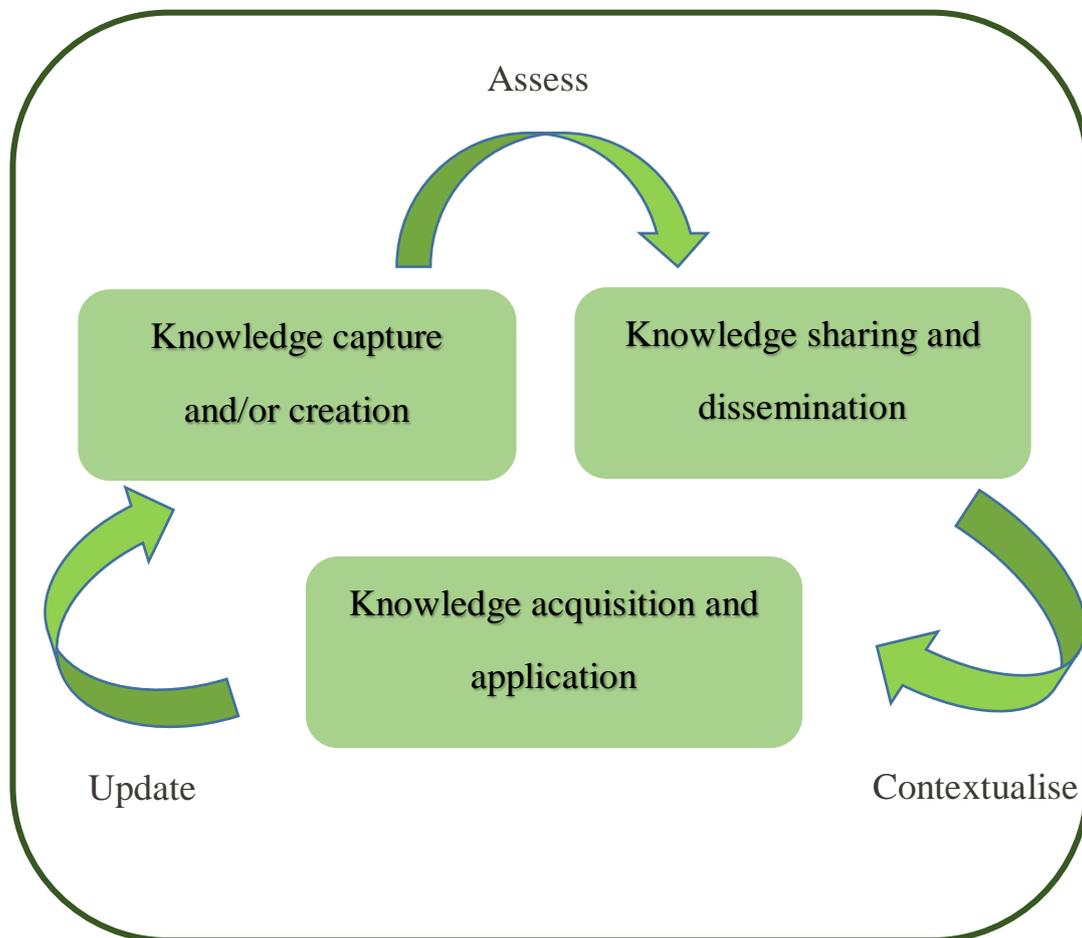
7.3 Case Study Findings

In reviewing the concepts of knowledge and development of KM systems, it became clear that there are numerous potential ways in which knowledge can be eroded, degraded or lost at individual, organisational and societal levels. Although discussed in detail in Chapter 6 the significant findings from the interviews are summarised briefly below, as a prelude to consideration of their implications.

7.4. Implications of Findings

The value of knowledge has been highlighted as well as the importance of having safeguards to preserve critical organisational knowledge. Identifying and preserving key knowledge requires more than the mere establishment of knowledge systems, but also a cultural shift in how the organisation embraces and fosters knowledge; this includes socialising newcomers and instilling knowledge management frameworks and practices to gauge the effectiveness of knowledge strategies including a knowledge management cycle. See Figure 7.1 below.

Figure 7.1: An Integrated KM Cycle



Source: (Dalkir, 2017)

How people feel treated, and are valued, can have a significant bearing on employee willingness to share knowledge as raised by several participants. The style of leader or

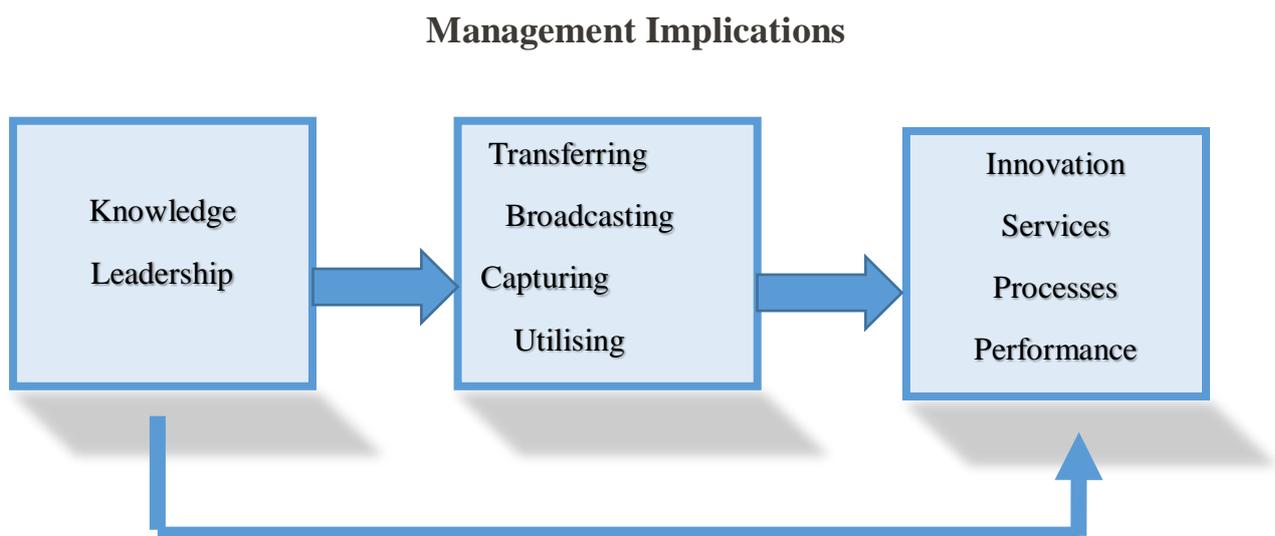
manager can be the key contributing factor to whether people feel secure and comfortable to voice ideas and suggestions.

Knowledge resides in pockets throughout the organisation with long-serving individuals holding deep knowledge indicative of an ageing workforce risk. Aside from regular duties these individuals also need to be allocated time to impart knowledge and empower others coming through the organisational ranks.

The organisation is still somewhat hierarchical with functionally distinct pillars, which reflects concerns that when key decisions are made, the key knowledge remains purely within the confines of an elite or senior executive group and trickle down diluted form, rather than be made transparent and systematically passed down. This situation reflects an interpretation of the concept of an upper echelon as a separate social strata where senior executives are perceived as a somewhat exclusive enclave of decision-makers who are custodians and holders of strategic and other key business knowledge.

In a contrasting light, a model developed by the researcher, conceptualises links between leadership, management and key knowledge areas. See Figure 7.2 below.

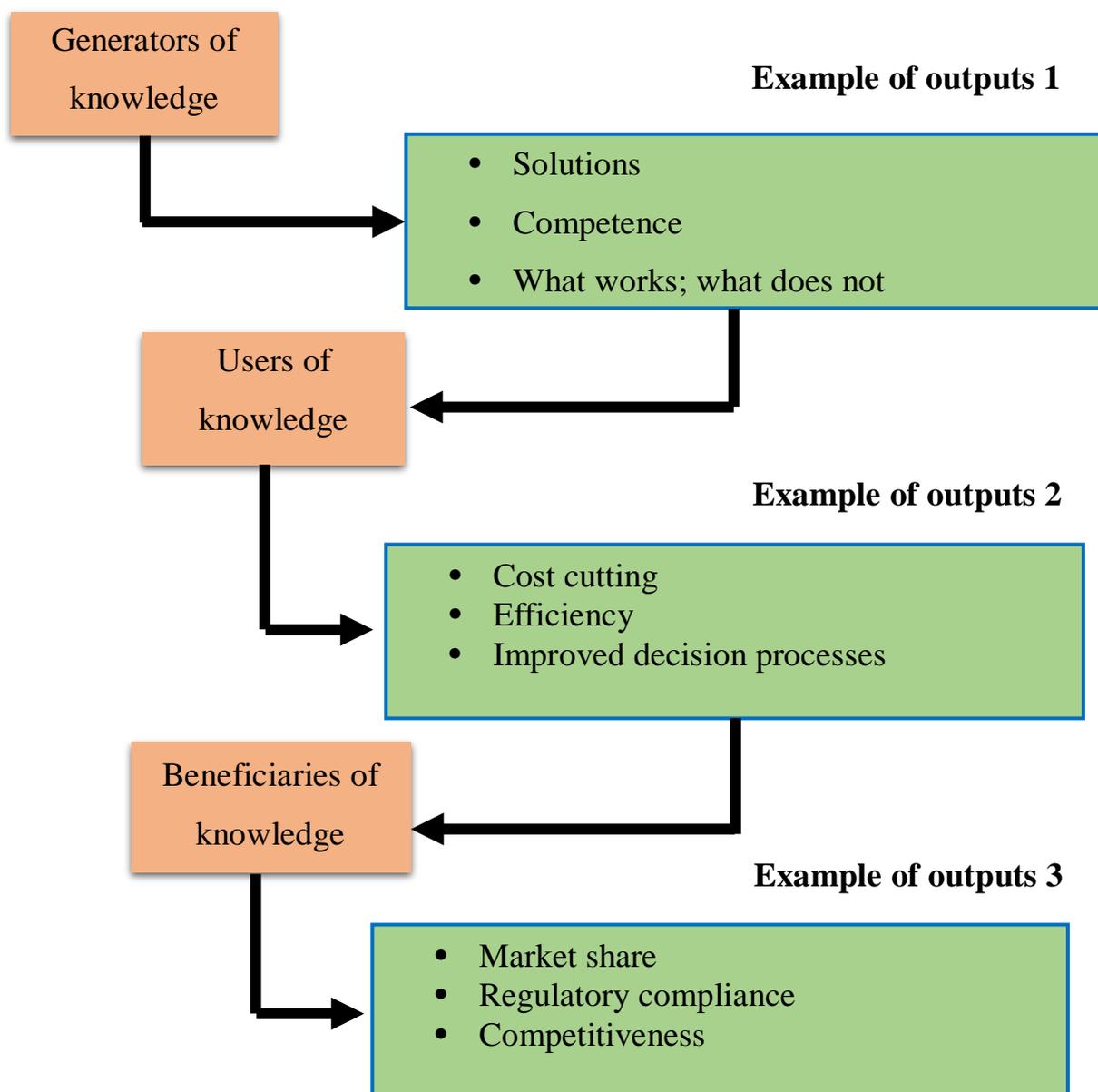
Figure 7.2 KM Functions



Source: (Author, 2020)

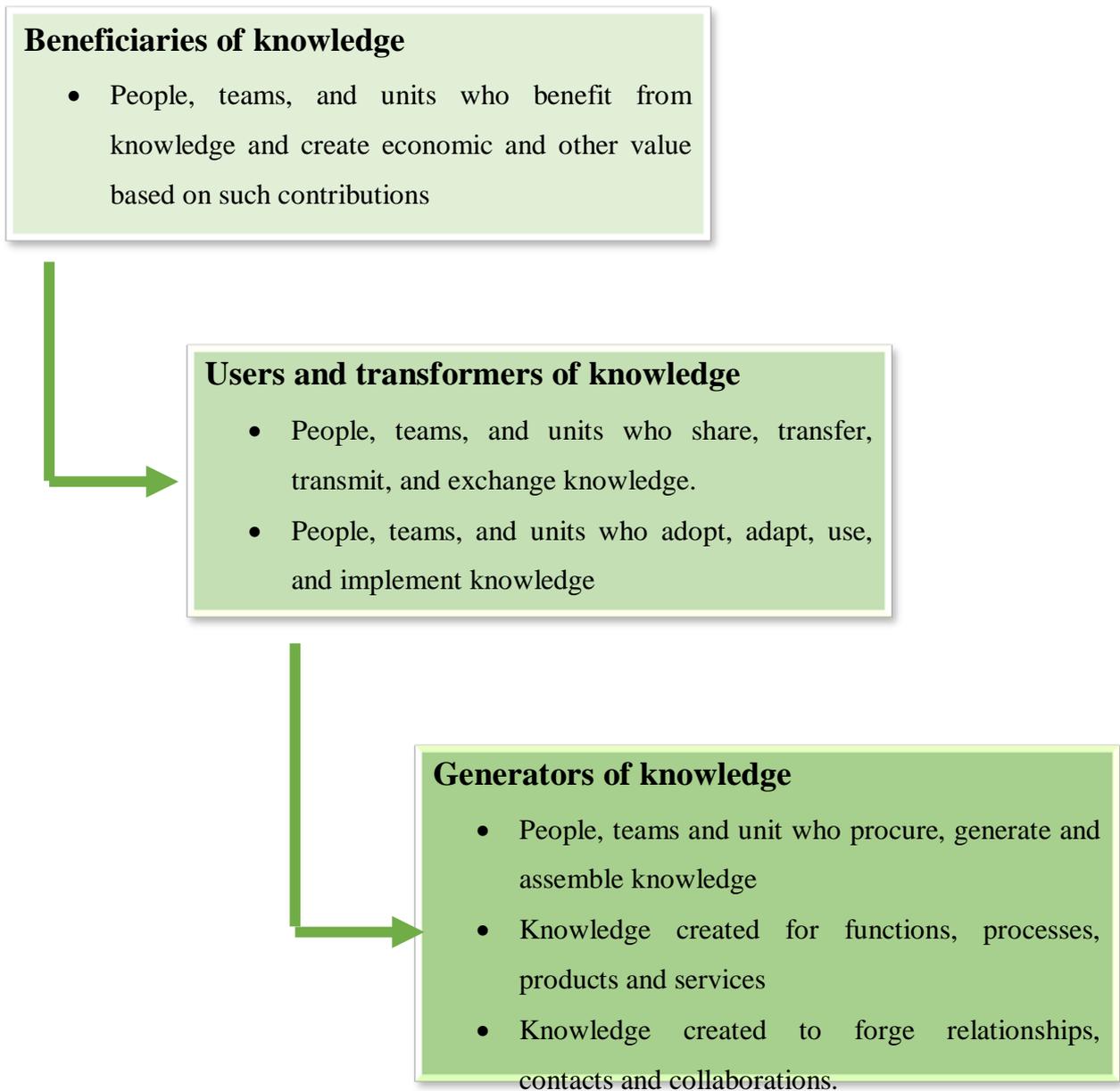
Making knowledge and information more accessible throughout the business enables all levels of management and supervisors to have consistent and timely information to build knowledge; they also have a more comprehensive and composite picture of the business and its intricacies to enhance day-to-day operations and improve quality decisions. This also reflects how one distinguishes between generators, users and beneficiaries of knowledge and the apparent lack of a quality process to assess the value of knowledge. See Figures 7.3 and 7.4 below.

Figure 7.3 Process model of the relation of intellectual assets to creation of value in the Enterprise



Source: (Geisler & Wickramasinghe, 2015)

Figure 7.4 Contextual Hierarchy Model of the Relation of Intellectual Assets to Creation of Value in the Enterprise



Source: (Geisler & Wickramasinghe, 2015)

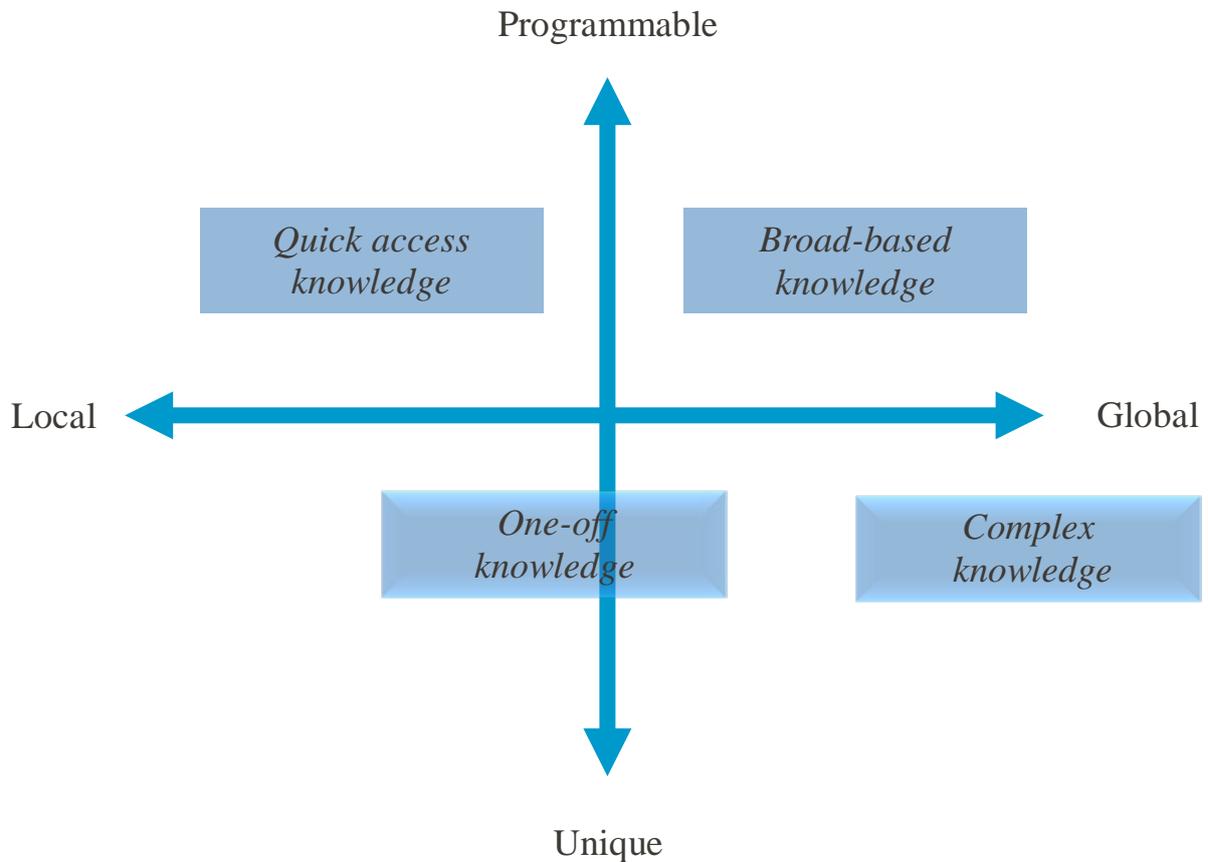
Managing knowledge at the coalface of work area operations can infiltrate bottom-line performance, such as quality control of knowledge, to avoid missing details or incorrect information. This was demonstrated in the Chapter 6 example, where information, not input meant that the organisation could not capitalise on rebates thus impacting revenue performance.

Siloed structures in mature industries, in which the case organisation is positioned, can create sub-cultures where collaboration efforts are suppressed or contained within particular departments. Inaccessible or unknown knowledge can have effects on other areas. If certain knowledge and information is not known by other departments who then interface with strategic partners, such as retailers, they are at risk of communicating outdated information or providing insufficient knowledge. Additionally, suggested risks of knowledge retained in work areas can arguably lead to suboptimal knowledge transfer practices. This raises challenges to build ecosystems through digitalisation to enable greater collaboration and knowledge sharing across departments for breakdown of cultural barriers and siloes.

One cannot be complacent about knowledge, especially where information quickly dates. Explicit knowledge can be easily replicated. However, managing unknown gaps appears less apparent from discussions with participants, due to an apparent lack of systems and strategies to optimise knowledge as a valuable asset - including utilising or leveraging knowledge people possess.

Knowledge, whilst quite nuanced, is still viewed by participants as of significant value, to support the organisation remaining competitive and a value proposition to key customers and partners. Although, participants cited different examples of knowledge some which is quick to access whilst other forms appear more complex knowledge. See Figure 7.5 below.

Figure 7.5 Four Useful Categories of Knowledge to Manage



Source: (Armstrong & Novins, 1998)

Several participants raised concerns about overreliance on technology such as use of emails as a communication medium to distribute information and as a primary tool for knowledge exchange. Emails were considered susceptible to misinterpretation, especially where subtext is lost when the knowledge sought becomes detailed and complex. One observation related to how habits can become ingrained with concerns that younger employees are more likely to default to impersonal platforms, or non-interactive forms of communication, such as emails. This researcher notes that email usage is a trend not just within younger employee cohorts and has implications for risks of knowledge being eroded or degraded. It was recognised by participants that knowledge was socially constructed and that its value flourished through social interactions.

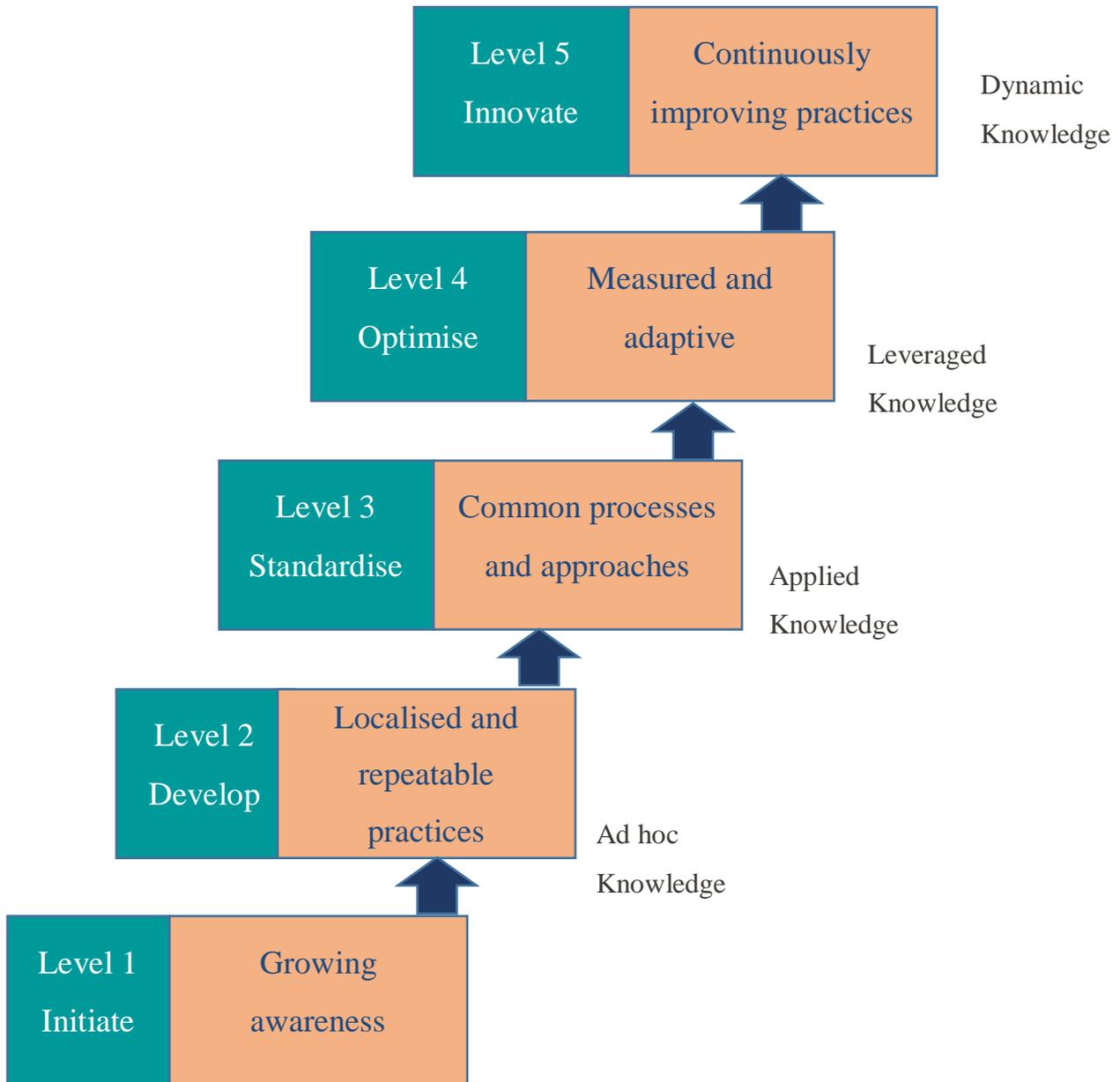
Concerns about the risk of loss or devalued knowledge as examples of knowledge erosion and degradation are levelled at basic levels of knowledge: know-what and know-how

including lack of procedures or insufficient time for the quality handover of knowledge when people migrate into other job roles. Concern about know-why relates to withholding of information or lack of disclosure of key strategic knowledge and information and inadequate dissemination throughout the management tiers as prefaced earlier.

Generally, the study participants portrayed the organisation as a siloed situation, where practical knowledge and experience rather than conceptual knowledge or formal qualifications take precedence – although this may be partly due to the participant demographic profile. Participants with longer lengths of service were strongly inculcated with beliefs and prosocial knowledge practices, where newcomers are viewed as outsiders or strangers entering the organisation. From a newcomer perspective, sourcing and building knowledge can be daunting with existing metaphoric knowledge fortresses and further hampered by not knowing the go-to people for information or knowledge; this has risk implications for temporary workers operating in seasonal peaks, such as the Christmas season, where mistakes can be costly.

Strategic acquisitions, leading to as one participant mentioned bolted on business, can also create risks of knowledge erosion and degradation because knowledge may not be transferred or integrated into the business operations - given the separate nature of how acquired organisations are attached to the original firm. The portrayal of ideas schemes and lacklustre take-up rates by employees suggests an organisation and culture that is more ad hoc with knowledge, reflective of knowledge management maturity levels. See Figure 7.6 below.

Figure 7.6 Knowledge Management Maturity level



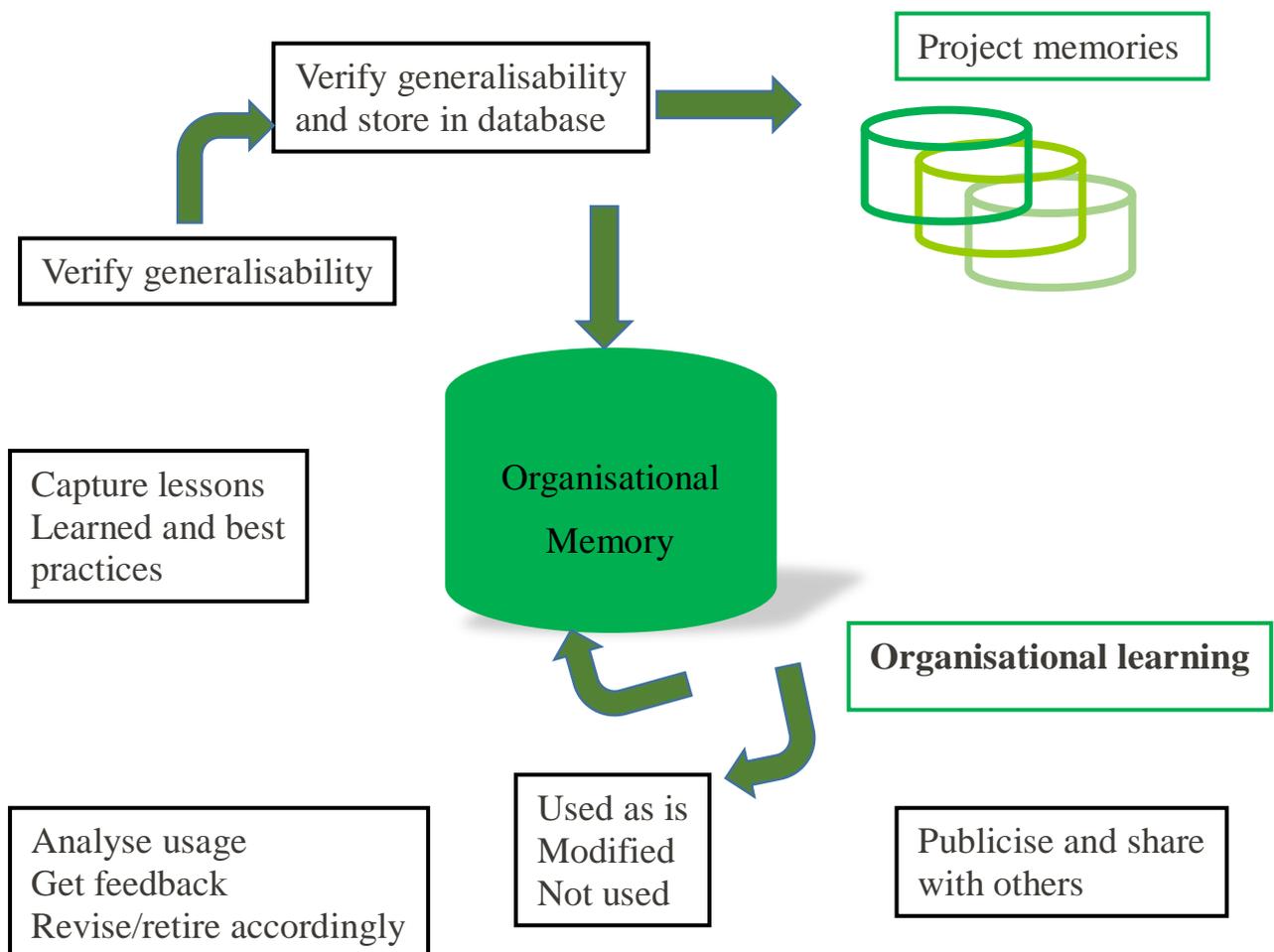
Source: (Hubert & Lemons, 2015)

Approaches for innovation and ideas, viewed from an internal competitive rather than knowledge strategy or organisational improvement or competitive advantage perspective, were discussed in Chapter 4.

Subsequently, low-frequency of forums to generate ideas and knowledge could constrain opportunities for improved organisational performance and competitive advantage.

Participants felt knowledge sometimes remains suspended in time or inaccessible when job holders go on holiday. There can be intentional actions to bypass knowledge proffered by employees; however, this could be interpreted as reflecting a form of degradation where inputs into decision making are somewhat restricted. Knowledge erosion can also be reflected in other ways, such as with lost records and procedures to deal with emergencies. An example was the instance of the warehouse flood discussed in Chapter 6. Managing organisational memory requires capture of lessons learned and storage of key information. See Figure 7.7 below.

Figure 7.7 Organisational Learning and Organisational Memory - Lessons learned process



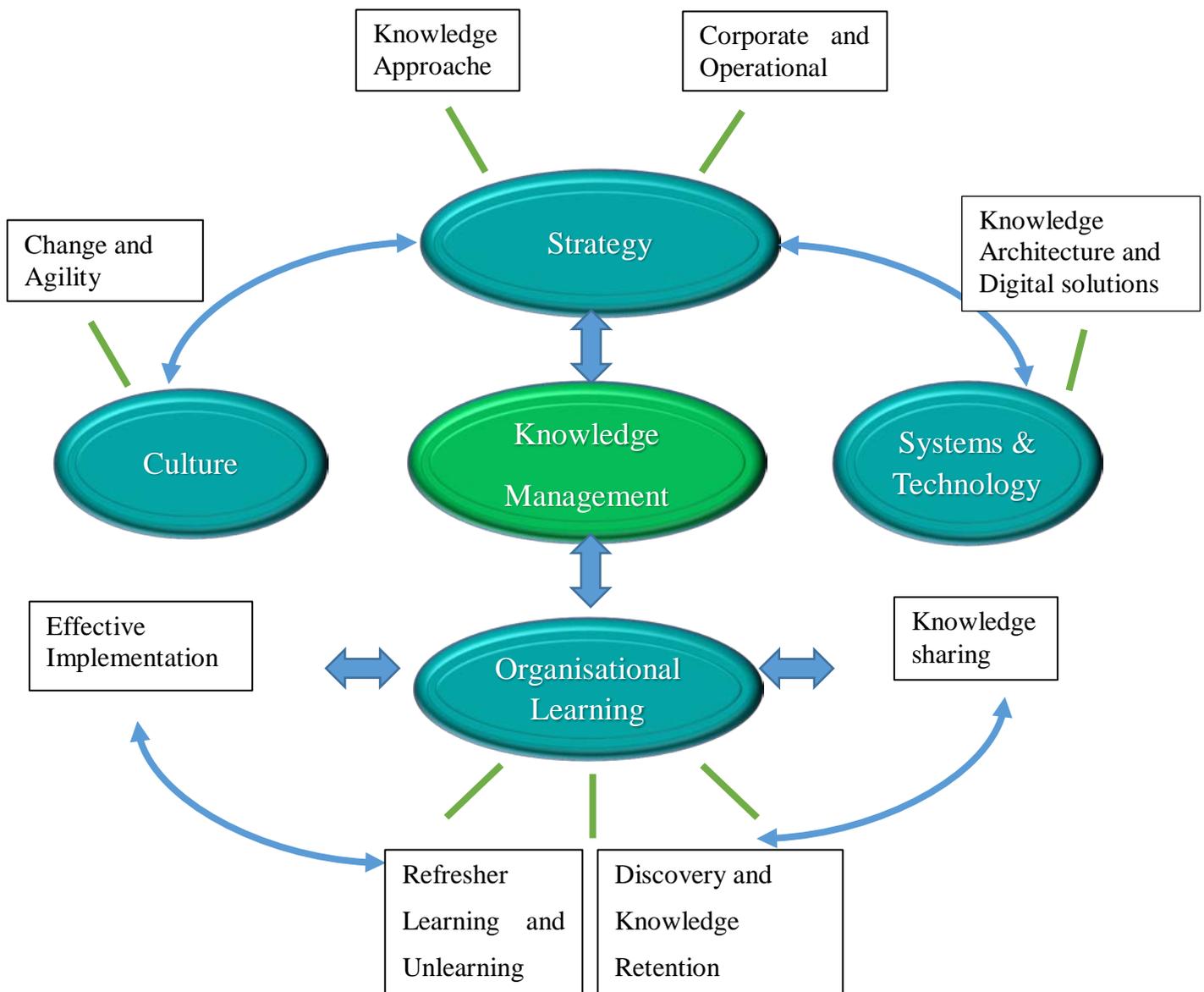
Source: (United States General Accounting Office (US GAO), 2002

Knowledge intensive roles are not confined to senior executive roles and suggestions were made that it is important to document or codify knowledge and information related to these roles, to ensure that knowledge is not lost and is easily transferred to other job incumbents.

Participants observed that the quality of knowledge management practices was mainly influenced by the management or leadership style, acknowledging the need for a shift in leadership approaches and behaviours. Over the years through its evolution, the case organisation has undergone various structural and strategic realignments; participants recollect areas where key markets or other knowledge has disappeared and major legacies of past learning are not being preserved.

Moreover, the findings suggest a non-integrated approach to knowledge management that also may have a bearing on issues identified by participants. Figure 7.8 below demonstrates a model of the dynamic yet integrated components for effective knowledge management as a buffer against risks of knowledge erosion and degradation.

Figure 7.8 Integrated Model of Knowledge Management



Source: (Author, 2020)

7.4.1 Recommendations from the Study

Having explored the overarching question as to whether knowledge erosion and degradation exist, the aims of the study also considered risks, barriers and enablers. Several participants provided ideas for strategies to lessen or mitigate such risks and how the organisation could enhance or optimise knowledge.

These strategies extend from the lived experiences and perceptions supported by scholarly sources on what constitute useful knowledge practices. The following recommendations for knowledge preservation and safeguarding and building of critical knowledge are listed below:

1. Establish a collaborative and inclusive process through which to develop a centralised knowledge repository system to ensure enhanced buy-in and contribution by organisational members including capability for continuous updating and modifications to the system based on regular feedback and monitoring processes.
2. HR and Learning Development Department areas collaborate with senior executive level to review existing organisational development strategies to include a knowledge management framework to align and integrate knowledge management practices across the whole of business and an ageing workforce strategy for effective handover and extraction of tacit knowledge- and review of currency and relevance of tacit knowledge.
3. Develop strategies to build a knowledge ecosystem with strategic partners not owned by the organisation X and other key constituencies.
4. Conduct a systematic knowledge audit across the whole of the business and its operations to identify knowledge and information management and employees including identification of possible knowledge risks and knowledge gaps. The audit process would include design of a framework and methodology for evaluating knowledge and KM practices.
5. Integrate knowledge risk into corporate governance and business continuity planning systems and frameworks by which to monitor at risk organisational knowledge including risk mitigation strategies.
6. Align and harmonise Human Resource Management (HRM) and knowledge Management (KM) policies and practices including development of ageing workforce and succession management and developing culture building strategy and rewards systems.
7. Review existing communication channels and knowledge and information dissemination protocols including review of National forum for cross functional knowledge exchange and frequency of such forums.
8. Establish knowledge harvesting mechanisms including theme days to share and transfer knowledge and other methods by which to share and transfer knowledge such

as communities of practice forums with guidelines that ensure non exclusivity- a risk noted in the literature review.

9. Focus on building rotation and mentoring programs to broaden management experience across different areas of the business to broaden mindsets and spread depth of knowledge.
10. Review hiring practices and on-boarding practices to enhance the quality of knowledge to new employees, temporary staff and contingent labour such as employees and establish metrics to assess net benefits versus costs for investment in knowledge management practices.
11. Create bespoke knowledge management models and frameworks to guide knowledge management practices and, set KM measures to benchmark within and outside the organisation.
12. Establish an educative process to engage all levels of management in the value of retaining and building knowledge including a charter of key knowledge behaviours and strategies for fostering a culture more conducive to knowledge sharing and incentivising contribution from employees.

7.5 Lessons learned

There are numerous lessons to be learned for not only Organisation X but also potentially other organisations seeking to address challenges of maintaining competitiveness or remaining sustainable amidst conditions of complexity and other compounding pressures intimated in previous chapters. Generally when lessons are learned there has been a systematic reflection or after action review of where processes have fallen down or gaps identified. In this instance, participants were acquainted for the first time with an opportunity to voice perceptions and lived experiences about their constructions of what knowledge erosion and degradation might mean through their world views.

Accordingly, as denoted in the preceding section recommendations are numerous and suggested strategies from the small ratio of participants are initial responses for possible lessons learned. Cogitating on lessons learned can be a protracted and retrospective practice that also may not be flawless as noted in the study when individuals drawn on recall and memory. However, there are a few salient areas noteworthy to consider as a pre-emptive discussion of the contribution and significance of the research. These key lessons are

summed as two categories the first category related to the nature of the research study and the second related to case Organisation X.

7.5.1 Lessons learned- Research perspective

There are numerous observations and lessons that can be gleaned as a result of having embarked on this research path. Retrospect can be a useful facet for knowledge building. The researcher has learned several lessons from undertaking such a research study as summated in with following observations:

- Identifying a research area of interest is compatible with a qualitative research design although the researcher needs to be cognisant of potential risk of bias or hubris if working within the research field.
- At the start of the research process the researcher conferred with academics more quantitative driven. The importance of reality checking and aligning a study and its scope to a research design is not easily pigeonholed and furthermore researchers need to be mindful of setting themselves overly ambitious research goals.
- Having tentative hunches rather than pre-set hypotheses as evidenced in scientific forms of research is understandable if a phenomenon such as knowledge erosion and degradation is relatable to day to day work contexts and experiences. The key to recognising such possible hunches that a phenomenon exists and may have impacts on organisations, means being able to step back and allow participant views to be aired without pre-judgement or leading participants to reaching possible similar conclusions.
- The value of a more collaborative approach to interviews can lead to new knowledge as both researcher and participant form a socially embedded ecosystem.
- Analysing rich data with a phenomenologically shaped design can be time consuming and painstaking and therefore acknowledging the need to have a quasi and hybridised design tempered expectations and provided a reality check.
- The research process is not linear and highly iterative whereby one needs to continue to be open to modifications to research design.

7.5.1 Lessons learned- Organisation X perspective

There are numerous takeaways or lessons to be learned for Organisation X that have implications for other analogous organisations as noted below:

- The existence of knowledge erosion and degradation is confirmed, but factors influencing such loss are complex.
- Given participants had previously not had reflective time to articulate knowledge erosion and degradation means organisations are susceptible to issues around knowledge quality and knowledge preservation risks being dormant until a crisis or observable performance impact emerges.
- Having systems to enable employees to air ideas and share knowledge is endemic of organisational culture building to create environments for optimal knowledge sharing and knowledge capture.
- Process centric and technic form one part of the equation and the challenge for organisations such as Organisation X is to consider more holistic approaches to garnering and safeguarding key knowledge.
- Determining and evaluating key organisational knowledge at risk of erosion and degradation requires more in depth sense making processes and tools including reappraisal of the notion of key job functions and not being dismissive of the value of knowledge building and support practices for new employees and employees transitioning into new job roles for effective transfer.
- Knowledge erosion and degradation risk can permeate each aspect with a knowledge management chain of activities.
- Increasing pressure on wholesalers / retailers to deliver products more efficiently at low cost.
- Simultaneously, partner outlets demand timely, value-added information of many types.
- Mismanagement of knowledge or loss of key information (organisational amnesia) have diverse consequences.
- In Organisation X knowledge is perceived as a nuanced commodity - knowledge erosion and degradation are recognised as forms of risk and loss.
- Differentiating current, relevant valuable knowledge from previous obsolete information is difficult and not all knowledge is explicit.

- There are degrees of increased organisational awareness of erosion and degradation in a less definitive or conceptual sense that has implications for a consistent enterprise driven approach to managing knowledge.
- Implications include: more focus / resources for knowledge gathering; changed working practices allowing more reflection and mentoring to exchange implicit knowledge; development and encouragement of more transparent, accessible IT systems that preserve knowledge and minimise erosion and degradation; the need for an organisational knowledge management framework that assists decision-making and investigates the benefits of new technologies.

7.6 Contributions and Significance

7.6.1 Contribution to Academic Knowledge

A comprehensive review of the literature from 2009 to the present has highlighted several major research gaps. First, there is virtually no reference to the terms Knowledge Erosion and Knowledge Degradation (KED) as researchers have placed more emphasis on Knowledge Loss and Knowledge Retention (Refer Chapter 4). Additionally, the field of Knowledge Management that is moving from knowledge as an asset is still evolving.

Second, the link between Knowledge Erosion and Degradation and organisational performance/effectiveness is minimal; knowledge loss is mainly addressed in terms of exiting employees taking key knowledge with them. Third, there are extensive studies investigating knowledge and learning in the area of knowledge transfer, but less emphasis on inhibitors or enablers of knowledge building to counter risks of knowledge erosion and degradation. Fourth, considerable research is predisposed towards quantitative methods, but when considering the investigation of phenomena, it would seem logical to be adding value to have a hybrid or augmented approach involving both qualitative and quantitative methods.

Whilst there is a dearth of research in the area of KM, particular focus is on areas such as systems, knowledge transfer and knowledge as a resource or stock (intellectual capital). Research to date has seen a virtual absence of discussion about the topic of knowledge erosion or knowledge degradation from a phenomenological and grounded theory perspective. Thus, investigation into whether depth of knowledge is related to organisational effectiveness and organisational performance required development of new conceptual

models and concepts that extend outside the traditional field of knowledge management. Another major gap existed with in-depth case study analysis of wholesale and retail areas within the food and grocery related sectors of this knowledge risk related area.

The current research sought to overcome these gaps by (1) documenting the various gaps through an extensive literature research (2) developing various conceptual models and frameworks (3) developing a mixed methods approach to sourcing contrasting perspectives. Finally, this research being cross disciplinary including aspects of philosophy, and sociology and management literature, differentiated this study from conventional KM perspectives.

In summary key contrasts from the extant research are based on four key areas (1) knowledge and KM concepts still appear limited; (2) the topic area focus remaining virtually non-existent within the KM field; (3) case-study focus being industry specific ; and (4) consideration of social change and contextual factors.

7.6.2 Significant Practical Contributions

This research study positioned itself within the KM field. As an organisational consultant and Sessional lecturer in the organisational behaviour and Knowledge management fields I have been able to apply practical experience and incorporate my knowledge working in this field to further refine the topic and its potential contribution.

This study will be of interest to KM and learning and development practitioners as new KM frameworks models and potential links between quality or critical knowledge, organisational effectiveness and organisational performance. The study generated new conceptual models and frameworks that could be adapted and implemented to assist in prevention of knowledge erosion and degradation.

The research is relevant to post graduate studies and in particular Masters subjects in related areas such as Management, Organisational Behaviour and Knowledge Management. More specifically the research acquaints students and researchers with insights into the importance of knowledge, manager's attitudes towards knowledge and possible links to organisational performance.

7.7 Limitations and Future Research

Despite extensive efforts to develop a mixed methodology to address issues more effectively, this study has several limitations that should be noted. First, the data collected was of an explorative nature, given that participants had no prior exposure to constructs of erosion and degradation or similar research. Second, this research study concentrated on a single case organisation in a wholesale and supermarket industry context. Additionally, the case organisation has a unique business model and complex configuration in how it interfaces with key partners, and so is somewhat atypical for comparative purposes. Third, given the knowledge management arena, whilst this researcher was able to access in-depth interviews across corporate, retail and wholesale operations, the small sample skewed to longer lengths of service highlighting both similar and different accounts of knowledge erosion and degradation. Fourth, being a cross-sectional or snapshot study also limits forming strong conclusions as to the extent of the phenomenon and whether the value of knowledge and risks of knowledge erosion or degradation might shift over time.

Despite the above limitations, this study has made valuable contributions raising questions for future research. The findings have implications for the broader industry contexts in which the case organisation nests in relation to knowledge management practices. Although, individual perceptions and experiences are socially situated rather than generalisable, key findings still seem relevant or transferrable given the connection with participant insights and themes identified in the extant literature. Additional areas for exploration could include closer examination of the experience of knowledge and newcomers, such as temporary employees, and strategies to alleviate risk around generational differences in relation to knowledge.

Knowledge laziness as a construct could be pursued to ascertain knowledge sourcing practices and heuristics for decision-making. In a different vein, several participants aired concerns about knowledge systems and how technology is changing the work environment. Research into perceived impacts of the Internet of Things (IoT) and smart technologies, including artificial intelligence, is another specialised area to investigate for possible impacts on knowledge erosion or degradation risks. Finally, research into methodologies for evaluation of knowledge and KM practices to ascertain knowledge erosion and degradation risks still remains an area for more exploration and practicum.

7.8 Summary and Final Comments

The global competitive landscape continues to place pressures on wholesalers and retailers such as organisation X to deliver products and goods efficiently, at low cost. At the same time, partner outlets needs and demands place increasing pressures on organisation personnel to deliver timely and value added information and knowledge, at times outside the bounds of conventional supplier and customer relations. It is clear that costs of mismanagement of knowledge and information and or loss of key knowledge as well as organisational amnesia, through lack of knowledge preservation, can have far reaching consequences on financial, structural and social forms of capital.

This study affirms that whilst participant experiences can vary across different parts of a complex business, there are notable similarities when utilising knowledge as a nuanced commodity and operationalising knowledge erosion and degradation as forms of risk and loss. The central focus of the study, to ascertain whether the phenomena of knowledge erosion and degradation as socially constructed prevails, was confirmed. Factors influencing the extent of such erosion and degradation can be complex and intentional or unintentional or accidental. Differentiating what is valuable knowledge and what knowledge is past its use by date can be less clear cut as not all knowledge is explicit or codified. The study has increased awareness within the organisation of the importance of reflection and need for adoption of knowledge enabling practices to mitigate possible risks and impacts of knowledge erosion and degradation.

As the dynamic commercial conditions and pressures on knowledge management, described in this organisation, are widespread it is to be hoped that the recommendations will be relevant and helpful elsewhere.

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Appendix 1 - Key Terms

Key Terms	Definition
A Phenomena	Ideas obtained through empiricism, start from the belief that knowledge of the world involves information obtained through the human senses
A Priori Categories	Referred to as forms. Forms of perception and understanding can be complementary.
A Pseudo A Prior Knowledge	A priori knowledge, in Western philosophy since the time of Immanuel Kant, knowledge that is independent of all particular experiences, as opposed to a posteriori knowledge, which derives from experience.
Accidental Knowledge	Acquire knowledge in an accidental manner.
Advanced Knowledge	The concept fits with views from Philosophers that higher orer or level knowledge may come from the mind and is contrasted with basic or rudimentary knowledge that is privy to a general populace rather than experst or enlihghtemned individuals.
Aetiology	Construed where there is a question as to the capacity of any form of human knowledge to arrive at a complete or impartial understanding of the social world.
Agile Work Systems	More flexible and lean work organisations
Analytic Knowledge	A critical mind for knowledge acquisition which includes integrating external or observable phenomena
Analytical Versus Empirical Knowledge	
Anatropic Culture	Anatropic culture is a culture originally interpreted by Plato concerns how society can be susceptible to degration through how knowledge

	is applied such as cultural knowledge.
Archaeology of Knowledge	The order of things underpins epistemic assumptions rather than evaluating the truth value.
Armchair Knowledge	Armchair knowledge is another form of information that has been queried in terms of its credence given, it is not an a priori based knowledge.
Based Knowledge	In Chapter 2 the concept of rules based knowledge and the philosophical aspects to interpreting rules in a baseball game was noted and the complexities around how individuals construe rules as knowledge
Breadth and Depth of Knowledge	The concept of breadth and depth of knowledge is noteworthy (Turner & Bettis, 2002). The authors differentiate between specialist breadth of knowledge and group or collective depth of knowledge with breadth and depth linked to decision making and problem-solving. Other authors focus on critical knowledge specialists or deep smarts with breadth and depth of knowledge (Leonard & Swap, 2004).
Bureaucratic Knowledge	Socially distributed cognition by following the steps of a high-ranking official that led him to discover a rich silver ore deposit.
Calculative Rationality	With systematic and methodological steps and processes analogous of how contemporary organisations follow compliance and quality assurance procedures and where computer algorithms and computerised tools such as with predictive analytics are bringing “smart systems” and tools to supplement or replace the mind as prefaced in the previous chapter and noted in Chapter 4).

Causal Ambiguity	Concerns uncertainty from both inside and outside strong performing organisations and this makes for difficulty for competitors seeking to derive improved competitive advantages whereby resources underpinning superior performance determine sustainable strength of competitive advantage.
Certain Knowledge	The view of knowledge procured from within is based on mediation and self-reflection or going into oneself and being somewhat disengaged from external influences to source ideas.
Chronological Knowledge	Different categories of organisational knowledge exist ranging from management policies through to chronological knowledge (Beijevevit, 2000 in Cole-Gomolski, 1998).
Citizen Science	Communities undertake data gathering with less verification than pure science.
Cognitive Economy	Call minimalism, the hypervaluation of parsimonious heuristics, a modern cultural prejudice driven by a lack of time, a need for it efficient productivity in the interest of personal accumulation. (Kramer, 2000, p. 33)
Cognitive Labour	Delineating individuals and groups with specific or specialised knowledge and expertise (Sloman & Fernbach, 2017, p. 14).
Cognitivist Knowledge	A focus on knowledge linked to the mind rather than external senses and beliefs and thinking processes.
Coherentism	How knowledge might or might not be meaningful or complete when considering what knowledge represents.
Commodification of Knowledge	Human knowledge relates itself with capital as the phenomenon

Common Knowledge	In Chapter 2 common knowledge as knowledge construct was also introduced and discussed.
Common Realism	A pursuit of reason or orthos logos incorporating eudaimonia or completeness.
Common Sense Knowledge	Learning by doing is a template for more pragmatic approaches
Conditional Scrutability	Allows for justification of traditional belief which can be dependent on subjects existing empirical evidence and beliefs.
Confirmatory Bias	Individuals and groups may seek information to confirm what they believe or want to know which can contradict the evidence forwarded by expert opinion.
Conservative Knowledge	This critique supported social reforms and a departure from conservatism
Conservative Wisdom	Common experience and common sense.
Contrastivist Knowledge	Focus on knowing this versus knowing that. It is a form of explicit knowledge and articulates alternatives and reflects characteristics of the alternatives. Gilbert Ryle (1971) highlighted the distinction between <i>knowing that</i> and <i>knowing how</i> or <i>techne-knowledge</i> (Allen, 2004)
Core Knowledge	primal focus of importance
Corporate Isomorphism	Inhibiting some organisations' capacity to step outside orthodox business practices and demonstrate agility for new market opportunities and the future business environment which is more turbulent (Hutchins, 2013).
Criteriaology	Not merely what one knows but also how one knows.
Critical Knowledge	Connoted as core or key knowledge or wanted versus unwanted knowledge which may have a

	lesser value as perceived by another organisation.
Cultural 'Illiteracy'	Stereotyping or equality bias whereby certain social groups' views on knowledge can be more acceptable than others such as with the case of drawing upon the knowledge of positional authority over subordinates' knowledge or disregarding knowledge and ideas due to characteristics such as gender.
Cultural Erosion	Marcuse (1966, p. 58) refers to modern society and how the 'higher culture of the west', has been 'eroded and invalidated by technological society'
Cultural Hegemony	Relating to the ruling class and social control to regulate social members through the establishment of a dominant culture hegemony analogous of risks around the nature of company boards of directors and senior executive groups where organisational power structures can establish a dominant culture to align social members to the vision and values of the organisation which may not be in the interests of the organisation.
Cultural Knowledge	Belief systems developed over time and shapes the organisations practices including how it responds to the external environment.
Data Friction	Data friction occurs where data is distributed across various social groups including organisations and machines (Edwards, Mayernik, Batcheller, Bowker & Borgman, 2011, p. 669) and use of data is viewed as uncontaminated or pre-interpretive information that can be outside of the groups' interests (Scheel & Ustek-Spilda, 2019, p. 11) with alleged shortcomings as noted earlier with the healthcare case example.
Data Inflation Ch 3 16	Another perspective in the sphere of education and

	modern society concerns ‘data inflation’ also brings with this phenomenon conspiracy theories (Rudolph et al., 2018).
Decentralised Knowledge	Where knowledge has been in the hands of expert or in traditional institutions, knowledge work is being outsourced or relegated to intermediaries and more dispersed groups.
Deflationism	An increased popularity in subscribing to minimalist or deflationary theories of truth.
De-Knowledging	De-knowledging of the firm (Littler & Innes, 2003) means a dramatic rather than gradual form of knowledge loss.
Direct Knowledge	Relates to personal experience
Discarded Knowledge	The idea of redundant knowledge which is legitimised based on a rationale of continuous improvement and innovation where knowledge categorised as stock can depreciate and subsequently be discarded which ‘implies wear and tear of knowledge’ (Bitzer, 2005, p. 379).
Dispersed Knowledge	Knowledge is taking place across borders
Dominant Logic	Where a particular set of views prevail that may create a path dependency that guides decisions in organisations or society.
Dubitability	One cannot know a particular object or thing by direct acquaintance such as a mobile phone.
Dunning- Kruger-Effect	A less informed or lower competent individual might dominate the discussion yet have incorrect facts and information on the subject.
Earned Knowledge	Knowledge is drawn from lessons of hands-on experience. The authors refer to ‘earned knowledge’ (Bennet & Bennet, 2008, p. 25). This form of knowledge is a sense of knowing by individuals based on experience and frames of

	reference used to influence decisions and actions.
Echo Chambers	Knowledge refer to IOs reifying ‘echo chambers’ (Goldie et al., 2014).
Eidos	The eidos of something is its look, shape, or form. Identifying forms and distinguishing features of objects or items provides a generic set of categories for universal understanding with forms denoted as unchanging and providing knowledge clarity.
Empty Cabinet	Coming from within the mind devoid of initial impressions and external influences.
Epiphenomena	Concerns the ‘colonizing of the world’ and level and in making the world a global culture. (Kramer, 2000, p. 47)
Episteme	Another concept of wisdom depicted in the Platonic dialogues is a form of highly developed scientific knowledge
Epistemic Authority	Contains epistemic authority whilst having intellectual capital and ‘epistemic authority’ (Scheel & Ustek-Spilda, 2019 p. 5) and where the value of such knowledge is deemed as a ‘reliable source of information’ (Geuss, 2001, p.38).
Epistemic Failure	The issue of epistemic failure as a signpost of knowledge degradation cannot be assumed when considering the Gettier perspective. One author suggests that lack of knowledge which is an example of a type of ‘epistemic failure’, does not automatically correspond with an individual demonstrating an insufficient or lack of knowledge reflects a gap in information or possibly being deceived perceptually or otherwise.
Established Knowledge	societal knowledge decline as manifested partially through an increased recalcitrance towards

	learning and an admonishment of ‘established knowledge’.
Ethical Knowledge	Ethical knowledge in determining moral considerations in relation to right versus wrong actions.
Evidence Based Knowledge	The empirical focus on verification that is objectivist and a more rationalist view of knowledge that may be suggestive of fact based knowledge.
Existing Knowledge	Contextual influences are factors in how organisational knowledge is managed. Experience noted in a Japanese contexts, imparts a credo that managing ‘existing knowledge’ imputes a baseline rather than renewal perspective around knowledge as an asset (Umemoto, 2002).
Expert Knowledge	As a higher level knowledge domain can be challenged and not immune from doubt.
Explicit Knowledge	knowledge that is expressed in a formal manner including diffusion of explicit knowledge (Choo, 2000)
Exteriorisation of Knowledge	Computers and systems to maintain internal governance and conformity to rules and standardised practices as part of a social control system.
Factual Knowledge	Truth or known factual knowledge appears more elusive than it is perceived by a structuralist and the application of rigorous knowledge does not clarify the situation (Lewis, 1996).
Fallacy Of Knowledge	supports a context driven view of knowledge where organisations are context sensitive or situation specific.
Fallible Knowledge	A perspective on fallibility relates to knowledge from belief, and concerns ‘defeasibility conditions’

	(Levy, 1977), where conditions ensure there is no strong counterevidence to undermine a knowledge formed by beliefs.
False Knowledge	False Knowledge (Smithson, 1985) can be shaped by dominant instruct forms of knowledge and inclusive of result can see ignorance take over from knowledge.
Firm Specific Knowledge	Firm specific knowledge concerns having a detailed and specific knowledge of the firm's processes, customer processes, systems and methods for organisational efficiencies. Additionally, firm specific knowledge involves two elements general knowledge (GK) which might be extracted from the external environment or knowledge of the market and the second element being specialised knowledge of ways and particular function within an organisation which may contribute towards competitive advantage given its derivation from specific tacit embedded knowledge deeply into work processes and is difficult to imitate due to the complexity and causal ambiguity. Quality and level of interaction with customers demonstrates application of firm specific knowledge through information flows (Skaggs & Youndt, 2004).
First-Hand Knowledge	Knowledge by acquaintance also known as first-hand
Forms Of Knowing	<ol style="list-style-type: none"> 1. Knowing why 2. Knowing how and 3. Knowing whom
Foundationalism	Concept of knowledge
Fourth Industrial Revolution	Earmarks development of smart manufacturing and smart systems (De Propis, 2016).

General-Abstract Versus Particular-Concrete Knowledge	The distinction between conceptual and analytical models and theories as contrasted against an empirical approach that draws on practical knowledge and experience.
Genuine Knowledge	Truisms such as the earth exists
Given Knowledge	Results or consequences reflect the efficiency of knowledge. This form of knowledge needs to add value and demonstrate utility.
God's Eye View of the World	Supported by surveillance of migrant movement patterns and the notion of an 'all-encompassing world' (Pickel, 2004) adopts a universalist assumption about knowledge.
Higher Order Knowledge	Based on scientific exploration of systems and ideas rather than internal thoughts and experiences of individuals.
Historical Knowledge	The term historical knowledge fits within aspects of philosophical questions around knowledge. Sometimes mundane and uninteresting historical facts are sourced from what one can selectively remember (Pollock, 1974).
Human Knowledge	A distinction is made between human and machine knowledge the latter through Smart technologies and Artificial Intelligence.
Hume's Fork	Split between relations of ideas and matters of fact. Hume adopted as radical tool for distinguishing between well-founded and groundless ideas
Hypokeimenon	Human beings functioning as the subjects
Inauthentic Culture and Social Decline	Inauthenticity is characterised by lack of commitment, disrespect, irresponsibility, dehumanisation and devaluation of individuality.
Incidental Learning	Incidental learning refers to any learning that is unplanned or unintended.

Incoherent Knowledge	Result from these competing and contrasting sources of knowledge generation where local and scientific knowledge controversies can arise polarising stakeholders in making sense of a problem or issue where local knowledges diverge from experts and scientific researches as explicated in the following the experience of sheep farmers in Umbria and concerns raised about impacts of the Chernobyl meltdown on pastures.
Incontrovertible Knowledge	Knowledge that is grounded as justified through proof and testing to eliminate doubt.
Indeterminable Knowledge	The speckled hen example (Bonjour, 2001) challenges the idea of direct knowledge by acquaintance such as subject matter experts having full knowledge
Industry 4.0	Industry 4.0 includes applications of advanced technologies such as robotics, data analytics and Artificial Intelligence (AI) (including cognitive capabilities for problem solving) (Alvarez et al., 2016; Wang, 2016; Ustundag & Cevikcan, 2016, 2017; Davenport & Ronanki, 2018) and framing the organisation as a ‘cognitive company’ (Davenport & Ronanki, 2018)..
Ineffable Knowledge	Ineffable knowledge denotes ideas that may be too abstract or complex to communicate or concretise that may remain tacit and inaccessible (Lowney, 2011).
Inexact Knowledge	The recognition that knowledge is elastic and there can be no categoric conclusions drawn in an an a priori sense.
Information Bombardment	A term aligned with information information overload where individuals are exposed to

	voluminous dat and information that may not be in a comprehensible form and it is difficult to discern or differentiate between good and poor quality information.
Information Waste	Information technology repositories such as Google and depict such platforms as a source of knowledge decline with facts rather than knowledge becoming available and discerning wrong opinions is obviated.
Innate or Inherent Knowledge	Socrates in a different vein from Plato, proffers a view about knowledge and learning where recollection overrides learning as the locus for higher knowledge reinforcing knowledge as cognitive or constructed from the mind.
Incomplete knowledge	‘incompleteness of knowledge’, need not be ‘negative knowledge’ (Knorr-Cetina, 1999, p. 164). Moreover, such knowledge gaps arguably can prove insightful and assist in ‘identifying errors’ and uncertainties.
Instrumental Knowledge	Knowledge that has a value or practical purpose critical for an organisations’s for operations as an example.
Intellectual Capital	A view following the resource based view of the firm that knowledge is an intellectual asset.
Internal and External Knowledge	Internal versus external knowledge can also reflect where discerned is more around which forms of knowledge are preferred such as the influents from outside sources (Menon & Pfeiffer, 2003).
INTERREGNUM	The concept of interregnum, Gramsci designates transitional periods of the crisis in which “the ruling class has lost its consensus, i.e. is no longer leading but only dominant, exercising coercive

	force alone.” In this phase, according to Gramsci, “great masses have become detached from the traditional ideologies and no longer believe what they used to.”(Solty, 2013, p. 90).
Intuitive Knowledge	Viewed as superior to the former two knowledge types. Intuitive indicates that the connection between the individual essence and the essence of God or understanding is grasped in a single act of apprehension and not arrived at by any kind of deductive process.
Invisible Colleges	New knowledge in the educational context is also generating ‘new knowledge structures’ and forms through which knowledge is produced and disseminated whereby the means exist for altering knowledge with the emergence of forms of ‘invisible colleges’ (Crane, 1972 in Mølstad et al., 2017 p. 870) as social groupings (Molstad, Petterson & Forsberg, 2017, p. 1870).
Intuitive knowledge	Intuitive knowledge and knowledge of the essence of things including various connections and interrelationships. The human mind is viewed as the dominant carrier to transport and grasp valuable knowledge
Justified True Belief	Justified true belief is knowledge and what distinguishes knowledge from belief or opinion. Beliefs it is surmised can be proven to be true or false.
Just-in-Time (jit) Knowledge	Knowledge accumulation being limited to accessing and managing information in real time, with minimal time for introspection and knowledge sharing happening on a selective or voluntary basis (Snowden, 2000).

Knowing by Acquaintance	Direct interaction with sourced facts and information. Knowledge by acquaintance, later to be modified (Pears in Savage, Anderson & Feigel, 1989), typifies a direct route to knowledge through a person's close or firsthand knowledge and experience.
Knowing by Description	Process by which to gain knowledge about someone or something of which one does not have direct experience or familiarisation in order to formulate descriptions.
Knowledge Acquisition	Another field within KM emphasises processes and methodologies for sourcing and developing knowledge, knowledge transfer and diffusion, and willingness or capacity of engagement of organisational members.
Knowledge Capitalism	Modernity has exposed public sector institutions to 'market forces' and positioning of education as a form of knowledge capitalism.
Knowledge Depletion	With the societal changes including changes to funding and governmental policies, several scholars have communicated concerns in relation to good public research decline associated with the depletion of specialist knowledge
Knowledge Decay	A term used to align with knowledge erosion and degradation where the quality of knowledge has deteriorated due to various changing conditions or been discarded.
Knowledge Hegemony	Knowledge hegemony is where common models and methodologies for big data preferred over more specific tailored information and can be construed as one aspect of knowledge degradation or decline of diversity of perspectives.
Knowledge Dilution	Knowledge across different entities lead to

	fragmentation, and dilution of key sources and repositories of knowledge.
Knowledge Economy	The idea linked to globalisation and neoliberalism and the emergence of a new wave of services and recognition of the value of intellectual capital.
Knowledge Fragmentation	Knowledge work can become fragmented given diverse client goals. This fragmentation and complexity can make it difficult for organisations to absorb, assimilate and value knowledge across projects given multiple cross border constituencies, varying professional identities and mindsets and views of stakeholders.
Knowledge Governance	Be formal or informal examples of formal mechanisms include Information Systems, reward systems decision-making rights and authorisation levels. Informal mechanisms comprise culture, networks and communities of practice (Foss, 2007).
Knowledge Hegemony	Where common models and methodologies for big data are preferred over more specific tailored information and can be construed as one aspect of knowledge degradation or decline of diversity of perspectives.
Knowledge Inheritance	This aspect embraces at risk knowledge due to loss, attrition, oblivion and theft (Zieba, 2016, p. 984).
Knowledge Laziness	Interpreted as an organisation's or individual's reliance upon quick and easily accessible information for expediency purposes which is the satisficing principle
Knowledge Leakage And Seepage	Knowledge lost from an organisation that should have remained specifically within an organisation's boundaries and leaked information

	or knowledge is therefore accessible outside the (Frishammar et al., 2015).
Knowledge Loss	A broad term aligned with knowledge erosion and degradation representing exodus of personnel from an organisation resulting in loss of knowledge that can impair organisational performance.
Knowledge Management Activities	Knowledge management has been construed as ‘KM activities’ (Beesley & Cooper, 2008, p. 48).
Knowledge Management Cycle	One model to support strategies for sustainable advantage, depicted as the Knowledge Management Cycle (Salisbury, 2003)
Knowledge Of	a governance or conformist approach to knowledge which prevails in all forms of modern social institutions and organisations.
Knowledge Producers	Forms of knowledge can be either cross or trans-disciplinary where knowledge is created in context and entwined with sociocultural systems.
Knowledge Reuse	The idea linked to knowledge reproduction and replication that knowledge is being effectively utilised.
Knowledge Safety	This aspect embraces at risk knowledge due to loss, attrition, oblivion and theft (Zieba, 2016, p. 984).
Knowledge Spillovers	The concept of spillover in a knowledge management sense referred to as knowledge spillovers (KS) whereby accidental or unintentional inflows and outflows of knowledge between networks or other forms of knowledge may affect decisions and actions hampering an organisation’s performance (Ferreira et al., 2017).
Knowledge Stagnation	Individuals and organisations fail to make a valuable contribution.

Knowledge Suppression	Self-knowledge it is postulated, can have constraints and limitations that can be influenced by repression, suppression and forgetting.
Knowledge Transfer	Knowledge transfer can occur internally where individuals pass on knowledge to new job or temporary incumbents or be a form of exchange information and knowledge between stakeholders,
Knowledge Upgradation	Highlights the fallible nature of knowledge and where knowledge or truth is founded in what works.
Knowledge Ventriloquism	
Knowledge Work	The notion that certain job roles are knowledge intensive thereby assigning a perceived higher value and complexity around such roles with individuals designated as knowledge workers.
Learning Myopia	'the weak linkage between organisational learning and performance' (Yeo, 2003, p.3).
Marginalised and Partisan Knowledge	Marginalised and partisan knowledge is another aspect of post modernism and social change.
Material Knowledge	With smart systems and advancements and inventions that can be artefacts which behold knowledge outside of humans (Baird, 2003, 2004, p. 39).
Mental Atrophy	'Atrophy of the mental organs' (Marcuse, 1966, p.79) is a suggestive form of lost cognitive or critical thinking capability arising from one dimensional and institutionalised thinking.
Metis Knowledge	Is a neoliberalism applied to pedagogy and how people learn and acquire knowledge in modern society
Metro Logical Realism	It's a contemporary knowledge epistemology that support matters and facts (Espeland & Stevens, 2008, p. 447).

Misapprehended Knowledge	Knowledge can be fully recognised using the proposition that individuals can be susceptible to a misapprehension of knowledge as reality or where perception of an alleged reality such as with a shape or form can be taken as fact only to be deemed unfounded knowledge based on erroneous assumptions.
Mission Critical Knowledge	Mission critical knowledge (Ihrig & Macmillan, 2015) reflects purposeful of knowledge optimise an organisation's goals and use of strategic knowledge assets.
Need-To-Know Culture	The idea that information and knowledge shared on a need to know basis and such determinations may be made by senior managers as to the appropriateness of releasing or disseminating certain knowledge.
Negative Knowledge Ch 3 P17	A view that ignorance or knowledge gaps can create risks with possible negative consequences. New learnings can arise from mistakes due to poor judgement or incorrect knowledge.
Non Knowledge	Knowledge gaps in a modern society and certain scientific cultures and practices.
Noumena	The thing in itself
Nous, Intuition and Wisdom	Nous as a construct seeks to glean or determine what is known and unknown (Keller & Ozment, 2009) as in the noted context of logistics and operations environments. Intuition or 'gut feel' represents intuition as another possible form of wisdom where knowledge can be applied to guide strategic thinking and managerial decision-making (Dane & Pratt, 2007; Kutschera & Ryan, 2009). There is a view of a hierarchical relationship between data, information, knowledge and

	wisdom with data being in a primary or all whereas information is processed and provides usefulness and knowledge is the outcome of judgement and discernment (Rowley, 2006). Other authors examine application of knowledge and wisdom in relation to corporate governance as within Islamic banking (Nathan & Ribiere, 2007).
Observable Knowledge	Weber considers interpretive understanding through observational or direct understanding (atuelles Verstehen) and exploratory or motivational understanding (erklarendes) real knowledge would appear to Verstehen).
Ontological Vagueness	Concerns tensions around the disconetd (Chorev, 2019).
Ordinary Knowledge	Constituted through introspective evidence. Ordinary truths the author suggests represent knowledge derived from court evidence.
Organisational Amnesia	Increased reliance on other partners and providers, transition arrangements between knowledge holders, service providers and the transportation of knowledge across different entities can lead to fragmentation, and dilution of key sources and repositories of knowledge. This is what has been identified as “corporate amnesia” (Hashim & Othman, 2004).
Organisational Knowledge	
Organisational Memory	Capturing and retaining corporate knowledge has been flagged and also investigated to consider the implications of cross-border and cross cultural considerations (Bengoa et al., 2012).
Partial Knowledge, Production Knowledge and Task Knowledge	Other authors recognise varieties of knowledge exist in organisational settings (Mele, 2010). Partial knowledge (Wilkinson, 1982) recognised

	the need for revision. Production knowledge is reflected through artefacts (Wæhrens, Cheng & Madsen, 2012). Task knowledge interacts with other form of knowledge including inputs from networks (Wong, 2008).
Perceptual Knowledge	Goldman is also concerned about knowledge quality or where justification can be diluted due to false perceptions and weak justifications which brings into question reliabilism and or reliable knowledge as forms of perceptual knowledge (Brewer, 1997).
Phroneis (Practical Wisdom)	Individuals undertake particular actions without succumbing to particular senses deemed irrational or deceptive.
Plausible Knowledge	Sufficient conditions required for determining what constitutes plausible or valid knowledge.
Policy Knowledge	Cross participation between industry, organisations and collaborative partnerships enables knowledge building where commonality of interest drives knowledge initiatives.
Polychronicity	The term ‘polychronicity’ has been flagged and task load preference and conditions can affect knowledge building and impacting creativity (Madjar & Oldham, 2006).
Polymaths	People who have diverse skills and knowledge sets and a plethora of experience in stark contrast to that of the expert as specialist who has narrowly defined skills therefore limiting his or her ability to see the broader picture.
Practical Knowledge	Knowing how the theorist asserts, is a skill needed to be able to perform an activity deemed more as practical knowledge.
Practical Knowledge	Practical knowledge applies to managerial roles

	and how managers can draw upon experiences (Gibson, 2008; Mele, 2010). Practical knowledge introduced in Chapter 2 is acknowledged as knowledge that can be used (Guzman, 2009).
Practice Knowledge	Organisations may adopt best practices through analysis of other model organisations however this does not necessarily acknowledge depth of knowledge so much as ‘practice knowledge’ within an operational and procedural framework.
Pragmatic Knowledge	Pragmatic knowledge has a practical and function feature which it is asserted, enables delivery of social and other benefits beyond more than other subordinate or intangible forms of knowledge.
Pragmatism	Emphasising principles such as utility, usefulness, work ability, practicability or practicality of thoughts, ideas and policies.
Primitive Knowledge	Levi Strauss (1908-2009) in placing value on knowledge, distinguishes between ‘ <i>primitive knowledge</i> ’ a term construed by Russell (1914, p. 592) ‘ <i>higher order knowledge</i> ’
Procedural Knowledge	Procedural knowledge is action based, focusing on the knowhow aspect and organisational practices whereas ‘declarative knowledge’ is about meaning ‘information about things or situations’ in contrast with scientific knowledge which is linked to causal knowledge. Knowledge from an operations and an action oriented perspective also fits within the realm of procedural knowledge (Kogut & Zander, 1993; Jensen & Szulanski, 2004; Ferdows, 2006, p. 2). Von Bertalanffy (1968) espouses principles of entropy and equifinality and where knowledge has a role in process development. The knowledge

	paradigm endemic within procedural knowledge it would appear is skewed towards verifiable knowledge.
Procedural Knowledge	Procedural knowledge is action based and focuses on the knowhow aspect and organisational practices whereas ‘declarative knowledge’ is about meaning ‘information about things or situations’ in contrast with scientific knowledge which is linked to causal knowledge.
Product Knowledge	Additionally, of managing specialised forms of knowledge such as product knowledge, implications further risk of knowledge erosion or degradation if such product knowledge is not applied (McGuinness & Hutchinson, 2013).
Profound Knowledge	Based on the work by Deming. A broad concept that suggests depth and breadth of knowledge that goes beyond rudimentary knowledge.
Real Knowledge	Real knowledge it would appear resides ‘outside of the mind’ (Vernberg, 2000 in Berdayes & Murphy, 2000, p. 101). This perspective opts for an objective rather than subjective approach to knowledge.
Relational Knowledge	The notion that knowledge is embedded in social relations and also knowledge of relationships as distinct from factual and task related knowledge including knowledge about customers can benefit an organisation.
Relevant Information	Is excluded and knowledge erosion may be a sign of a reductionist perspective by adopting a rational scientific approach to solving complex problems.
Reliable Knowledge	The writings of Renee Descartes bring into question conventional paradigms of philosophy and a ‘reconstruction of knowledge’ (Cottingham,

	2008, p. 21), where doubt prevails in discussion of what constitutes reliable knowledge.
Repressive Desublimation	The concept of 'repressive desublimation' (Smith, 2001) where interests and activities have influenced more superficial activities and lifestyles
Responsibilisation of Knowledge	Where to broader the society or to the general public which can become a burden.
Rigorous Knowledge	Rigorous knowledge does not necessarily clarify or resolve situation (Lewis, 1996).The idea that a clear result or answer is always achievable from rigorous investigation may not be the case in a complex world where uncertainty prevails.
Rules Based Knowledge	Tanney (2013) criticises the view that rule following explanations are a meaningful form of knowledge.
Scientific Knowledge	Individuals who possess knowledge of specific nature and principles underpinning behaviours.
Secure Knowledge	Having a matrix and logic provides a starting point and formalisation of logic extends to stricter language and elimination of meaningless statements and the need to effectively anchor procedures to empirical based reality.
Self-Reported Knowledge	The view that individuals will form their own beliefs to guide decisions and actions.
Self-Evident Truths	Individuals can source information akin to a pseudo form of a priori knowledge another possible example of a form of erosion and degradation (Nichols, 2017).
Self-Objectification Theory	Self-objectification theory asserts downgrading of the value of the human function downgraded to being treated as a transaction or commodity further accentuated with a diminution of quality

	social relations.
Self-Referent Knowledge	Self-referent knowledge concerns reliance on one's own tacit knowledge rather than deferring to other knowledge such as from experts.
Skepticism	In contemporary settings, getting to the root cause can be problematic and dealing with complex issues and the notion of indeterminacy such as seeking to make sense of a possible phenomenon around knowledge erosion or degradation and organisational complexity may still resonate.
Social Production Ignorance	The idea that society through the internet may generate new forms of ignorance through non-credible sources as influences to sway views.
Sociology of Knowledge	Includes ideas, cultural and organisational discourses, informal knowledge sharing and renewal practices
Specialised Knowledge	Specialised knowledge fits within specific contexts such as spacecraft operations (Dow & Pallaschke, 2010).
Spiritual Knowledge	The term aligns with realms of wisdom as a form of higher level knowledge that can include intuition and opportunity for discovery and enlightened knowledge as a contrast from concrete knowledge that focuses on facts and objective reality.
Spontaneous Knowledge	Acting or activated without deliberation and implies lack of prompting and connotes naturalness.
Sticky Knowledge	Knowledge that is viewed as more nuanced and malleable and less easily categorised.
Strategic Ignorance	The concept of 'strategic ignorance' manifests in socio-political contexts such as with the debatable area of migration policy and how to

	ignorance practices fell under areas such as omission of key information and knowledge gaps and risks around compression of varied forms of information on migration patterns for a one world generic accounts that can lead to a ‘deflection of knowledge’ (Scheel & Ustek-Spuilda, 2019, p. 1).
Strategic Ignorance	The concept of ‘strategic ignorance’ manifests in socio--political contexts ignorance practices fall under areas such as omission of key information and knowledge gaps and risks around compression of varied forms of information on migration patterns for a one world generic accounts that can lead to a ‘deflection of knowledge’ (Scheel & Ustek-Spuilda, 2019, p. 1).
Synthetic Knowledge	Facts can be drawn from the mind not merely empirical reality.
Systems Knowledge	A focus on procedural forms of knowledge as the dominant forms linked with codified or explicit knowledge.
Tacit Knowledge	Is deemed as significant knowledge individuals possess and accumulate from learnings and practical experience
Taken for Granted Knowledge	How social member methods can guide practical actions through common-sense knowledge and discovering properties of commonplace, practical common sense actions from within.
Technocracy And Knowledge	Technological derived knowledge
Technologies of Truth Production	Use of data and use of ‘biometric databases’ and other digital applications including satellites to ensure more detailed information to support statistical analysis. It is here that ‘technologies of truth production’ overtaking front stage (Urla, 1993, p. 819).

Temporalities of Work	Can be seen with casualisation and externalisation of the workforce through ‘teleworking’ (Felstead & Jewson, 1999, p. 43) and increased trends in contingent and non-standard work arrangements. Here there is a risk of preventing knowledge building and depth of knowledge and risk of degradation of the quality of work performed.
Thought Collectives	Self- replicating as in acting as an agent for socialisation of knowledge which can narrow or dilute knowledge as one possible form of knowledge erosion and degradation.
Triological Approach	is an approach to knowledge creation via a type of learning involving collaboration, knowledge opportunities to ‘reproduce ideas’ (Reynolds & Camilleri, p. 2).
Triple Helix	Is a construct whereby institutions such as academia, industry and governments combine technology and knowledge hubs.
Troubling Knowledge	Avoiding ‘troubling knowledge’ (McGoey, 2012) is also another reason to legitimise non-knowledge where notknowledge can display in non-transfer of knowledge from one social on to another.
True Belief	Reliability and externalism connote belief or opinion based on a reliable process as confirmation of true belief.
Truthful Knowledge	Socrates (c427-424 BC) in meno c385BC suggests extraction of reliable and truthful knowledge is facilitated via a systematic process to ensure a pathway to a state of enlightenment.
Unrepresentational Knowledge	Unrepresentational knowledge (Styhre, 2004) is knowledge less easily recognisable or realised such as tacit knowledge.
Unwelcome Knowledge	Knowledge that can challenge tstatus quo thinking

	or provide research findings that counter establishment views.
Useable Knowledge	Modernist approaches departing from foundationalist philosophy are more pragmatic and elect methods for knowledge and its construction through use of trial and error, or 'what works' (Smith & Riley, 2001, p. 239).
Warranted Knowledge	where power influences as to what seems real and legitimate knowledge
Wicked Problems	How we can lack skill and knowledgeability when dealing with different types of problems
Working Knowledge	Results or consequences reflect the efficiency of knowledge.
Working Knowledge	Less ensconced in theory and dialogue and how what one learns can through 'cognitive autonomy'

Appendix 2 Background Notes on Historical Philosophies and Approaches to Knowledge

Scepticism and truthful knowledge

Academic scepticism

Arcesilaus (c.316-240 BC) influenced the tradition of skepticism in an academy lasting into the first century BC inspired by Socrates. Arcesilaus argued for and against any given position, ultimately showing neither side of the argument could be trusted. This thinker further argued that one can never be sure that the way in which one has perceived or judged an object via the senses is either true or false therefore, concluding that one should always suspend judgment. Carneades (c.213-128 BC). The thinker asserted no claims could be made to knowledge, as neither position for arguments could be proven as correct.

Pyrrhonian Skepticism

Pyrrho (c.360-270 BC), in his form of Pyrrhonian skepticism differentiated from Academic skepticism showing degree of detachment or disinterest in codifying or seeking to explain this position on knowledge. Pyrrhonian Skepticism (Perin in Bruno & Rutherford, 2018, p. 114) refutes dogmas and opinions and adheres to indeterminacy, positing the idea that “nothing can be known”. Aenesidemus (c.80-10 BC) a Pyrrhonian Skeptic, advanced the “Ten Modes”, highlighting problems with informed judgements. This philosopher in distinguishing between humans and animals, posited how species have different characteristics reinforcing higher levels of relativity based on social, natural, cultural or other considerations. In contemporary settings getting to the root cause can be problematic and dealing with complex issues meaning notion of indeterminacy such as seeking to make sense of a possible phenomenon.

Knowledge through recollection and innate or inherent knowledge

An example depicted in meno is where Socrates interacts with a slave boy. The boy demonstrates strong competencies in solving a mathematical problem. Socrates maintained that it was an innate or inherent knowledge within the boy due to the fact he was uneducated. Socrates observed the boy work use a problem-solving method on how to reach the correct solution to a mathematical task set by Socrates. The process mirrors the concept of self-marking which is undertaken in modern education pedagogy, whereby a correct or incorrect response is given which forces the individual to retry. In this example whilst at an arm’s-length there are hints of coaching and guidance from Socrates which is a form of learning.

Deductive or true knowledge

This form of logic uses reasoning where a conclusion is deduced from two propositions as shown below:

All men are mortal. Socrates is a man.

Therefore Socrates is mortal.

This classic form of deductive reasoning has been used in organisations to check or confirm initial ideas or theories. The notion of validity is strong within Aristotle's approach to verifying knowledge through proof and validity known as formal logic.

Another example of Aristotle's logic and reasoning comprises the four causes: (1) material, (2) formal, (3) efficient (moving), and (4) final cause. This schema typologises a causal chain. To know a thing thoroughly, Aristotle postulated was to know its cause (aitia), or what is responsible for making a being who or what it is. For instance, one might think of the causes of a computer. The material cause is the materials such as those used to build a computer. Yet, these materials could not come together as a computer without the formal cause for sensemaking.

Appendix 3: Supplementary Notes on Knowledge in a Social Change context

Knowledge and truth sit alongside language, discourse and rationality (Adams St. Pierre, 2000, p. 477) for post structuralist interpretation, recognising ‘vertiginous’ places for analyses. This author considers humanism and post structuralism as modems, through which to define information and knowledge, and is critical of Locke’s societal forms of humanism that might generate extremism as well as social or cultural biases. St Pierre discloses her discourse is based on Foucault also acknowledged by others (Burrell, 1988; Barratt, 2008), and created from socially construed rules and regularities that permit entry of ‘certain statement’ and ‘not others’ (Barrett 1991, p. 126 in Adams St Pierre, 2000). Discourse has boundaries and often questions to imbue new knowledge are modelled from people who can be trained or socialised to what is deemed as acceptable discourse.

Challenges facing industries and organisations

Institutional theory also applies when considering social change, organisations and knowledge. Institutional theory concerns influences on organisations such as reactions, or behavioural responses. Levels of ‘coercive, mimetic and normative work pressures’ (Kondra & Hurst, 2009, p. 39) exerted within organisations may be important in inhibiting knowledge building. Mimetic processes relate to replication within industry and also to minimise risk exposure (Kondra & Hinings, 1998).

Institutional theorists (DiMaggio & Powell, 1983; Strong & Meyer, 1993) suggest organisations adopt similar ‘social frames of reference’ and replicate mood and attitudes towards strategic decisions such as downsizing and outsourcing of roles and functions. This institutional similarity is endemic within certain types of industries with particular cultural traits and common practices (Gordon, 1986; Tamasko, 1990). Budros (1997) argues that contemporary organisations have tended to follow classic organisation theories such as Taylorism and economic rationality models. This indicates that institutional theory still has application to contemporary organisations operating within the new capitalism framework as noted below.

Institutionalists (Meyer & Rowan, 1977) argue that societies have powerful social rules or “myths” that specify prevailing conceptions of acceptable organising principles, without demonstrating empirically the economic rationality (technical efficiency) of the principles. Institutionalists posit that organisations feel pressed to adopt practices that are isomorphic (compatible) with rationalised institutional myths, even when the practices are inefficient economically, and that adopters are rewarded with enhanced social legitimacy and, ultimately, survival prospects... (Budros, 1997, p. 245).

Organisational ecologists such as Carol and Hannan (1995) and institutional ecologists such as DiMaggio and Powell (1983) explore processes regarding similarity across industry sectors and organisations, recognising firms face pressures to conform in order to gain social legitimacy. To obtain competitive advantage organisations arguably need to have some unique or distinctive characteristics to drive superior performance such as greater ratios of profitability.

Choosing appropriate strategies and matching these with appropriate resources and methodologies continues to be challenging for firms, so as to compete and operate in markets either at a new entrant level or as an existing player. In the wholesale and supermarket and hardware arenas in which the case organisation is located, competitive pressures and constraints force strong margin based competition in lean environments (Pfeffer & Salancik, 1978; Zahra & Bogner, 2000; Sirmon, Hitt & Ireland, 2007; Yuen & Thai, 2017; Hartmann & Vachon, 2018). These firms, like others experiencing profit decline, are also susceptible to partnering with ‘goods centric’ firms in business-to-business (B2B) contexts (Worm, Bharadwaj, Ulaga & Reinartz, 2017).

Multi-business firms, such as with Organisation X discussed in Chapter 6, can experience added complications when operating across industries and differing markets, and endeavouring to deploy harmonised Human Resource (HR) and Knowledge Management (KM) practices (Boxall & Purcell, 2015). Corporate performance can vary depending on knowledge synergies and the extent of complementarity of knowledge resources and ‘cross business knowledge’ (Tanriverdi & Venkatraman, 2005). Organisations that have extensive resources and comprehensive networks within the marketplace may be prone to use strategic knowledge to engineer growth and stem profit decline. Several commentators have expressed the view that McDonalds took a misstep, in 2015, with its knowledge of customers by

adopting a new slogan: ‘How very un-McDonalds’ (Carter, 2015); this initiative reportedly delivered less than optimal financial results and customer response.

The challenge of sustaining competitive advantage is that it is difficult for an organisation to continue to maintain the competitive advantage. Barriers to imitation time can be subject to erosion (Reed & DeFillippi, 1990). There is always a challenge of ‘Schumpeterian shocks’ where capitalism can create major shock events that disrupt or change industry; these are denoted as ‘gales of creative destruction’ (Schumpeter, 1950, p. 84), where new innovations or technologies or changes to products and processes can ultimately destroy firms or sectors. The introduction of Airbnb and Uber to disrupt traditional industries are two examples. Founded in 2008, B&B provides an alternative to accommodation for travellers, by matching service with travellers and individuals to rent out houses and apartments. The venture has grown dramatically and spread across 200 countries (Takashi, 2011).

Firms need to consider suitable goals and ways to organise resources to meet their strategic aims. Having a successful competitive strategy, in terms of market entry, means that financial and operational strategies (including technology and digital strategy) and HR strategies all need to be in alignment. Some environments are more benign or ‘munificent’ than others (Pfeffer & Salancik, 1978) and strongly constrained by competitive forces driving intense low margin operations.

Organisational flexibility

When addressing organisational flexibility, it is a balancing act between meeting short-term goals and objectives as well as being responsive in the longer term in an agile or nimble way. Short-term responsiveness can include strategies such as downsizing or rightsizing to ensure the appropriate balance of staffing needs. Short run responsiveness also requires workers to be more cross trained than in previous eras. Long run agility (Dyer & Shafer, 1999) concerns the question of long-term survival in an industrial context that involves adapting and incorporating major transformative changes to systems and technologies.

There has also been an increase in the nature of the flexible organisation and flexible, worker that has led to the demand for ‘Just-in-Time Production’ and ‘Just-in-Time Labour’ via numerical, temporal, functional, and locational flexibility (Burchell et al., 1999). This has possible ramifications for knowledge. Concomitant with this shift to more flexible and lean

work organisations, is the notion of more agile work systems and practices to manage complexity and be more responsive to rapidly changing customer needs and remaining competitive (Scwartz, Bohdal-Spiegelhoff, Gretczko & Sloan, 2016; Hill & Hill, 2018; McKinsey, 2017; Capgemini, 2017).

Given the dynamic and interdependent relationships that exist between external and internal organisational environments, it is contended that ‘modern’ organisations need to be able to adapt, be flexible and quickly respond to external changes (Clegg, 1990; Heckscher & Donnellon, 1994). This is also supported by demonstrated fluidity when planning to better synthesise and convert managerial knowledge (Mintzberg, Lampel, Quinn & Ghoshal, 2003).

Labour availability and labour scarcity

Firms need to also compete not just in products and commodity markets, but in labour markets as well (Dolph, 1986; Rubery, 1994; Deloitte, 2016). The ongoing challenge to secure appropriate and talented employees with the requisite skills, which in some industry sectors can be quite narrow and specialised, is coupled with retaining key people in a context of ‘new domain knowhow’ (European Roundtable of Industrialists, 2018). The problem of labour availability, versus scarcity, is a global issue when accessing and valuing human capital (OECD, 2007). There is an associated problem of having the right types of employees with the skills and attitudes (Boyatzis 2008); this is where the nature of employment contracts may vary as employment relationships and structures have become more deregulated. Contracts may also depend on the substitutability element, where labour supply exceeds demand and the bargaining power may skew in favour of the employer rather than employee.

Social degradation, inauthentic culture, cultural erosion

Inauthenticity in this context is characterised by lack of commitment, disrespect, irresponsibility, dehumanisation and devaluation of individuality. This supposition of social decline follows a ‘philosophical moralist’¹⁴⁸ position (Kierkgaard et al., 1992, in Newman, 1997) postulating a negative trajectory towards continual cultural and social decline.

¹⁴⁸ The value of modern society knowledge is enshrined through use of rational thinking which supports socio-economic forms of knowledge and political policies and decision making through governments which he believes are being denigrated. The theorist is concerned about internal erosion of such narratives and how narratives have been distorted or narrowed through masculinist, racist, sexist and homophobic lenses. Imputed is a form of knowledge erosion and degradation reflective how this thinker he denotes the state of knowledge and its condition in modern societies. Knowledge through Lyotard’s lens, is affected by political and other forces and governing bodies including boards of directors. The theorist argues that the metanarrative machinery used to validate or legitimise knowledge has been depleted or dispersed amongst

Fromm (1979) distinguishes between *relatedness* and *narcissism* and considers productive love in the form of care, responsibility, respect and knowledge. This theorist is concerned about transcendence into destructiveness rather than creativeness.

Fromm (1979), in a pre-digital world, laments how the human face or character has been compromised through a more transactional relational base, shaped by exchange-based or instrumental factors driven by mutual gain and self-interest.

This scholar characterises human beings as compulsive and, at times, irrational driven by the need for short-term satisfaction or the '*pleasure principle*' consumed with buying 'the latest gadget, the latest model of anything that is on the market' (Fromm, 1979, p. 135). Fromm also suggests the concept of new '*automatic brains*', as a form of intelligence that can potentially substitute human knowledge with technology. This also introduces the possibility for potential dehumanisation of knowledge in modern society.

Forms of Capitalism, late Capitalism and new capitalism

Earlier thinkers question modernity and capitalism and how it shapes culture. Fromm (1979) was also concerned about the erosion of society through economic features of capitalism skewed in a direction towards quantification or hard data and *abstractification*. The following extract observes in the context of large organisations operates in a neo-capitalist era:

This transformation of the concrete into the abstract has developed far beyond the balance sheet and the quantification of the economic occurrences in the sphere of production. The businessman not only deals with millions of dollars, but also with millions of customers, thousands of stockholders, and thousands of workers and employees; all these people become so many pieces in a gigantic machine which must be controlled, whose effects must be calculated; each land eventually can be expressed as an abstract entity, as a figure, and on this basis economic occurrences are calculated... (Fromm, 1979, pp. 111-112).

"clouds of pragmatic valencies" (Lyotard, 1979). The focus on optimising system performance and efficiency as dominant paradigms within the post-modern condition this philosopher postulates, influences and shapes *metanarratives* strongly dominated by technological prowess where concern for discretionary judgement is deficient.

Forms of Capitalism, late and new capitalism

Cultural dominance, massification and knowledge risk

Theorists such as Adorno and Horkheimer (1997) contended that the dominant culture is characterised by pragmatism-which was discussed in Chapter 2. These thinkers argue, enlightenment has eroded over time and been replaced with rationalist and scientific bases of knowledge infiltrating everyday social life; this has been interpreted as a more narrow or pragmatic form of rationality. This theory supports a notion that there has been a decline or degradation of other forms of knowledge, resulting from an underlying ideology driving modern society. These authors further maintain that bureaucratic, technological and aetiological forces have stymied human creation through massification.

Economic reductionism, anatomic culture and cultural lag

Extending views about modernism and culture, Veblen (1899) believed view, individuals are perceived as largely controlled by economic factors and subsumed by an '*anatomic culture*'¹⁴⁹ endemic of American capitalism' (Newman, 1997, p. 134). Anatomic culture is a culture originally interpreted by Plato concerning how society can be susceptible to degradation through its knowledge and how knowledge is applied, such as cultural knowledge. Quality education and knowledge are seen as critical to overcoming such threats of cultural and knowledge decline.

Social system structure and integration

Durkheim's social theory aligns with *functionalism and positivism*. Durkheim subscribed to the systemic integration of society or a social system bounded by a sense of solidarity. A tightly more integrated society means every member had a legitimate role and purpose within the social system and a 'collective conscience' that could suggest collective knowledge taking precedence over individualism and individual knowledge (Nisbet, 1976, p. 83). Although criticised for its simplicity in how societies are conceived, elements of this

¹⁴⁹ Veblen (1899) critiqued utilitarianism and hedonism relating to social institutions and corporate structures - and perceived a society characterised by destabilisation and excessive power asserted by large institutions and financial business systems and neo-classical economics, where the influence and value of businesses is mere profit and a risk of 'cultural lag' prevails. Such cultural lag can affect knowledge can be shaped by such socio-cultural forces and possible 'sluggishness of thought' (Berger, 1975, pp. 58-59).

theory still pertain to contemporary society and organisations, for example in socialisation processes.

Structuralism, structuration and human behaviour

Giddens (1984) when considering structuration, acknowledges the important relationship between culture and social life, and also suggests action structure models have limitations; this scholar posits a dualist model where human behaviour is largely shaped by socialisation, and socially constructed. Relating to organisations, there is no guarantee of a solid social structure as normative influences are at work and social members perform as social actors which more likely reflects contemporary reality.

Appendix 4 Organisational Knowledge Management - Background

Table A4.1. Summary of key terms relating to organisational knowledge

Category of knowledge	Definition, Remarks
Action Learning	Fits within the experiential knowledge paradigm where knowledge is most effectively acquired through learning and reflection (Revans, 1997 in Pedler, 1997). Action based learning is viewed as a useful approach for problem-solving (Garratt, 1997). Extending beyond traditional approaches to acquisition and codification of through of depth meaning and interpretation, such learning has links between' attitudes, knowledge, and skills through to action, using a process of reflection and reinterpretation for high quality questioning and responding in situations (Garratt, 1997, p. 25).
Breadth and Depth of Knowledge	Turner & Bettis (2002) differentiate between specialist breadth of knowledge and group or collective depth of knowledge with breadth and depth linked to decision making and problem-solving. Other authors focus on critical knowledge specialists with breadth and depth of knowledge (Leonard & Swap, 2004).
Chronological Knowledge	One of a number of different categories of organisational knowledge, ranging from management policies through to chronological knowledge (Beijevevit 2000 in Cole-Gomolski, 1998).

Common Knowledge	Interpereted as a higher form of knowledge given acces to a broade organisational population.
Commonground Knowledge	Represented as a medium level of knowledge and knowledge sharing.
Connensus knowledge	Contains tasks, rules and conditions likely for agreement including storage information and accessing of ideas and clear definitions to require less need for elaborate levels of knowledge sharing and management.
Cultural Knowledge	Shared beliefs that an organisation has about its purpose, capabilities and business focus (Choo, 1998).
Evasive Knowledge	A form of knowledge hoarding (DeTienne, Dyer, Hoopes & Harris, 2004; De Long & Fahey, 2000) or a more recently coined term-knowledge hiding (Hernaus,Cerne,Connelly, Vokic & Skerlavaj, 2018) where individuals more sybtly avoid proferring and sharing knowledge.
Earned Knowledge	Knowledge drawn from lessons of hands-on experience (Bennet & Bennet, 2008, p. 25). This form of knowledge is a sense of knowing by individuals based on experience and frames of reference used to influence decisions and actions.
Exogenous knowledge	Represents more 'non-traditional' knowledge (Lwoga, 2011, p. 408) that can be infused into local and community settings such as from external parties or organisations.

Existing Knowledge	Contextual factors influence how organisational knowledge is managed. In Japanese contexts, 'existing knowledge' imputes a baseline (Umemoto, 2002).
Explicit knowledge	In contrast to tacit knowledge, explicit knowledge is formally expressed for diffusion (Choo, 2008). Explicit knowledge can include tangible artefacts and is more easily codified than tacit knowledge
Factual Knowledge	Embodies review and discovery, but also has a tacit dimension and 'antecedent focal knowledge' or prerequisite knowledge to prevent focal ignorance (Clark, 2008, p. 920). Facts are depicted as truth or what is known that can be proven by evidence.
Firm Specific Knowledge	Concerns having a detailed and specific knowledge of the firm's processes, customer processes, systems and methods for organisational efficiencies. Additionally, this type of knowledge comprises two elements: general knowledge (GK) extracted from the external environment or market; and specialised knowledge of ways and particular functions within an organisation which may contribute towards competitive advantage such as knowledge about the customer (Skaggs & Youndt 2004).
Forms of Knowledge	An adapted version classifies knowledge in four ways: (1) Contextual knowledge

	<p>denoted as “knowing when, knowing why”¹⁵⁰(2) Declarative knowledge (3) Procedural knowledge denoted as knowing what and how and (4) Social knowledge is denoted as knowing about how to work with and relate other organisational members (Liebowitz, 2008).</p> <p>Forms of knowing. Three forms, or ways, of knowing are: (1) Knowing why, (2) Knowing how and (3) Knowing whom as a basis for organisational knowledge. Ryle (1971).</p>
Indigenous Knowledge	Also depicted as a form of traditional knowledge located within local communities and local knowledge similar to local knowledge (Lwoga, 2011, p. 408).
Internal and External Knowledge	Can also reflect which forms of knowledge are preferred (Menon & Pfeiffer, 2003).
Low versus High grade Knowledge	Zagzebski (1996) delineates between low-grade and high-grade knowledge. This author attributes low-grade knowledge to those persons who do not make provision for reflection and thinking in relation to beliefs. Higher grade knowledge includes levels of wisdom and understanding.
Mission Critical Knowledge	Reflects purposeful knowledge to optimise an organisation’s goals and use of strategic knowledge assets (Ihrig & Macmillan,

¹⁵⁰ Extending this discussion, Quinn, Anderson and Finkelstein (1996) suggest organisational knowledge levels ranging from “know what” through to know how, know why, and care why.

	2015).
Nous, Intuition And Wisdom	Nous seeks to glean or determine what is known and unknown (Keller & Ozment, 2009) as in contexts of logistics and operations environments. Intuition represents another possible form of wisdom where knowledge is applied to guide strategic thinking and managerial decision-making (Dane & Pratt, 2007; Kutschera & Ryan, 2009). Wisdom is considered the outcome of the process of data analysis (Rowley, 2006).
Organisational Knowledge	One view of organisational knowledge classifies it into three distinct areas (1) core knowledge, (2) advanced knowledge and (3) innovative knowledge (Tiwana 2002).
Partial Knowledge, Production Knowledge and Task Knowledge	Partial knowledge (Wilkinson, 1982) recognised as the need for revision. Production knowledge is reflected through artefacts (Wæhrens, Cheng & Madsen, 2012). Task knowledge interacts with other form of knowledge including inputs from networks (Wong, 2008).
Practical Knowledge	Applies to managerial roles and how managers can draw upon experiences (Gibson, 2008; Mele, 2010). Although, Practical knowledge with an explosion of <i>everyday knowledge</i> is deemed to be of lesser intellectual value (Gottschalk-Mazouz, 2007, p. 224; Setiya, 2008).
Perceptual Knowledge	Concerns about knowledge quality, where justification can be diluted due to false perceptions and weak justifications, raises

	questions of reliability of knowledge typified as <i>perceptual knowledge</i> (Brewer, 1997).
Practice Knowledge	Based on best practices through analysis of other model organisations however this does not necessarily acknowledge depth of knowledge, so much as ‘practice knowledge’ within an operational and procedural framework.
Procedural Knowledge	Is action based, focusing on the <i>knowhow</i> aspect and organisational practices (Kogut & Zander, 1993; Jensen & Szulanski, 2004, Ferdows, 2006, p. 2).
Product Knowledge	Directly related to features or capacities of a range of products, there is a risk of knowledge erosion or degradation if such product knowledge is not applied (McGuinness & Hutchinson, 2013).
Specialised Knowledge	Fits within specific contexts such as spacecraft operations (Dow & Pallaschke, 2010).
Unrepresentational Knowledge	Is knowledge less easily recognisable or realised such as tacit knowledge (Styre, 2004).
Self-Referent Knowledge	Concerns reliance on one’s own tacit knowledge rather than deferring to others such as experts.
Profound Knowledge	Operationalised using Deming’s quality management interpretation (Horine, Yvarra & Lindgren, 1994; Anjard, 1995; Pietenpol & Gitlow, 1996; Braughton, 1999; Stepanovich, 2004), that the concept of profound knowledge has semblance across

	both non-public and other institutions.
Tacit Knowledge	Nonaka and Takeuchi (1995) represent tacit knowledge as individual knowledge to guide day to day work and this type of knowledge accumulates from learning and practical experience over time. This form of knowledge resides in people's heads.
Thing Knowledge	Examples are smart systems and advancements and artefacts which behold knowledge outside of humans (Baird, 2003, 2004, p. 39).
Working Knowledge	Working knowledge also viewed as practical knowledge based on pragmatism where truth is founded on what works. This type of practical working knowledge, can be associated with 'common sense'.

Frameworks and Models

The first type of organisation arguably will be less pioneering or venturing and stable, in contrast to the third type. The second organisational type will seek a balance between risk and averseness, but also attempt to identify and capitalise on opportunities such as new products or service opportunities.

Table A4.3 Strategic Alignment

Business Strategy	Process	KM strategy	Org performance
Defend	Control customers by improving business processes	Be efficient with KM	Differentiate grow the market, decrease cost, satisfy customers
Prospect	Seek opportunities from innovation and investment in R & D	Be flexible with knowledge recourse	Integrate: Use new technology
Analyse	Reduce risk and increase growth	See KM resources as comprehensive	Combine strategies

Source: (Swain & Ekionea, 2008)

HRM and HRD Employee Socialisation and knowledge notes

Human Resource Development HRD practices can influence work-related attitudes through development of employees and processes which can be termed organisational socialisation. Organisational socialisation can be a strong predisposing mechanism for knowledge building and knowledge sharing.

There is considerable discussion about employees and socialisation as a control mechanism to align individuals (Alvesson & Willmott, 2002, p. 2), but that has implications for how organisations might foster and navigate pathways for creativity, knowledge building and innovation in work areas (Amabile, Conti, Coon, Lazenby & Herron, 1996).

New employee developmental practices as well as the role of temporary employees and their attitudes about work and organisational socialisation are also viewed as important areas within organisations (Slattery, Selvarajan & Anderson, 2006); however, there has been minimal investigation into these aspects of organisations. Although the role of HRM in knowledge management and supporting knowledge endeavours has knowledge erosion and degradation implications depending on the quality, contribution and alignment of HRM policies and practices.

Frameworks and Tools Notes

Some frameworks include global perspectives (Heisig, 2009; Wilson & Dunn, 2004; Cantu, Bustani, Molina & Moreira, 2009). Other frameworks are adapted from quality or excellence

models (EFQM), to build a knowledge management project (KMP) to support business results or organisational effectiveness (Calvo-Mora, Navarro-García & Periañez-Cristobal, 2015); whilst others are process oriented and depict pillars (Suganthi & Anand, 2012). Knowledge risk management models are also used in project structured organisations as observed in empirical research (Jafari, Rezaeenour, Mazdeh & Hooshmandi, 2011).

Knowledge management models have been used for a range of purposes, including: to measure KM success (Kulkarni, Ravindran & Freeze, 2007); assess inventory of organisational knowledge (Wei, Chen & Lee, 2009); sense-making in situations (Wiig, 2003); determining knowledge sharing (Wu & Zhu, 2012); and to conceptualise customer knowledge management (Zanjani, Rouzbehani & Dabbagh, 2008).

KM models can be influenced by constructs such as the autopoietic (Parboteeah & Jackson, 2011) and other holistic models of knowledge (Nathai-Balkissoon & Pun, 2011), or generic organisational behaviour models to depict relationships between variables (Quiros, 2009). Additionally, other disciplines such as marketing utilised for application of theoretical models such as in the pharmaceutical area (Sultana & Manivannan, 2009). Organisational metamorphic models portray contexts where organisations change and mature and indicate how such changing conditions can affect knowledge (Tushman & Romanelli, 1985).

Knowledge Spiral

Other models make sense of knowledge, knowledge management areas and processes (Schuppel, Muller, Stewens & Gomez in Von Krogh, Roos & Kleine, 1998, pp. 223-239) and the knowledge spiral (Schuppel et al., in Von Krogh et al., 1998).

Domain Knowledge Frameworks

These frameworks include IT services (Indira, Suganthi & Anan, 2012) and knowledge management enabler frameworks incorporate various business tools and methods (Kamhawi, 2012). Additional frameworks address the relationship between knowledge management and organisational culture (Rai, 2011; Jacks et al., 2012).

Other KM frameworks/models include actor network theory (Pollack, Costello & Sankaran, 2013), depicting the interrelationships and dependencies of social actors and how work functions are performed that connect with knowledge source flows (Putnik, 2009).

Ecological Frameworks

A contrasting category of knowledge management framework is the ecological model that incorporates themes from systems and ecology, also depicting dependencies within an organisation (Chen, Liang, Lin, 2010).

Complexity frameworks are also applied to organisational contexts depending on the scale, size and pluralist nature of an organisation; this includes a multi-business environment conceptualising the nature of an organisation and how it operates within changing industry dynamics.

Quantifiable frameworks (Ramirez & Steudel, 2008) and other analytical frameworks consider human capital value (Samudhram, Shanmugam, Lock & Low, 2008); the intellectual capital management area discussed earlier highlights the importance of knowledge incorporating knowledge risk governance elements and links to knowledge sharing constructs (Sarkheyli, Alias & Binti Ithnin, 2014).

Knowledge creation frameworks, aside from the SECI model, can also depict how to apply principles supporting reformed workplaces (Senoo, Magnier-Watanabe & Salmador, 2007) and the CLEVER framework (Siemieniuch & Sinclair, 2004) is a model of knowledge life-cycle management adapted to the marketing product life-cycle, where products progress through stages until end-of-life. Knowledge management frameworks are adapted to suit industry and market contexts such as hospitality and tourism (Zehrer, 2011; Tzortzaki & Mihiotis, 2012), But KM frameworks can also be applied to specialised areas, such as Information Systems.

Intellectual Capital Frameworks

Consider intellectual capital frameworks are noted for valuation of intangible areas (Andreou, Green & Stankosky, 2007). Other frameworks include: the KM strategies framework (Berawi, 2004); and KM and competitiveness through innovation, leveraging and accumulation of knowledge (Choi & Lee, 2003).

Knowledge Management Processes and Practices

Knowledge management practices use knowledge management frameworks as a lever to convert intellectual assets and achieve greater efficiency and productivity. Knowledge management processes enable capturing, selecting, organising, distributing and transferring significant information, knowledge and expertise to obtain business advantage.

The process-oriented KM approach connects the human and technology components of KM. There are five levels of intervention: the first relates to strategy; the second is KM

organisation processes; followed by the three pillars of knowledge management (Wiig, 1993). This approach has a conceptual basis in how it denotes knowledge and meta knowledge and methods for management and implementation to enhance organisational performance. The three pillars are (1) sourcing knowledge including surveying categorising analysing my and organising knowledge. (2) appraising and evaluating knowledge and (3) managing knowledge and activities and, leveraging, distributing and automating knowledge activities. The knowledge iterative supply network framework (Mohamed et al., 2009) outlines a series of steps required for implementation of knowledge initiatives. These steps include knowledge discovery, knowledge analysis, knowledge classification, knowledge assimilation, knowledge presentation, knowledge propagation and operation.

Knowledge Management and Organisational Learning

In previous extensive surveys and analyses of knowledge management (KM) and organisational learning (OL) literatures (Gordon & Grant, 2005; Pun & Nathai-Balkissoon, 2011) authors drew from 14 selected models and frameworks and a summary of themes in relation to these frameworks includes the following:

- (1) Knowledge Acquisition model (Simatupang & white, 1998)
- (2) Knowledge Sharing framework (Lee, 2000)
- (3) A Knowledge management framework forenhancing public sector performance (Al Ahbabi, Singh, Balasubramanian & Gaur, 2017)
- (4) Integrated Framework (Lam, 2000 in Pun& Nathai-Balkisson 2001)
- (5) Knowledge Supply model (Burton-Jones, 2001b)
- (6) Integrative KM framework (Argote et al., 2003)
- (7) Socio-Cognitive framework (Akgün, Lynn & Byrne, 2003)
- (8) Process Framework for knowledge life-cycle management (Siemieniuch & Sinclair, 2004)
- (9) Personal KM model (Zuber-Skerritt, 2005)

Human versus Structured Knowledge

Another classificatory approach elaborates human knowledge as differing from other forms (De Long, 2004). This author depicts knowledge from four different lenses: *cognitive* (abstract and conceptual); *'sentient'* knowledge; *social* where knowledge is bound within and through individuals and social groups. The latter category also viewed as *social capital* - accessed and enhanced predicates conditions of collaboration and trust; this knowledge encourages collective understanding. The fourth lens *structured knowledge*, is based on 'organisational systems practices processes, tools and routines' commonly aligned with best

practices, measurement, process improvement methods for building; it is asserted that this form of knowledge is separated from 'human knowers' (De Long, 2004, p. 23).

Intellectual Capital and Cultural Knowledge

There are three distinct components of intellectual capital: (1) human capital, (2) relational capital and (3) structural capital (Bontis, 1999). These are defined as follows: Human capital includes knowledge assets, contributions, experiences and learning of employees. Structural capital relates to organisational systems, roles, processes and procedures (Edvinsson & Sullivan, 1996). Relational capital includes a network of relationships amongst various stakeholders, including the intangible assets represented in the form of social capital, customer capital and external capital (Edvinsson & Sullivan, 1996). Value creation and competitive advantage can be outcomes of leveraging and converging intellectual capital resources. The justification for this form of knowledge is that it denotes what the organisation deems as valuable or useful knowledge and what type of knowledge has merit or worth for practical use.

Personal Knowledge Management

Personal Knowledge Management (PKM) stems from the premise that impetus for building organisational knowledge originates within individuals with cognitive and affective predispositions (Jain, 2011). Subsequently, individualisation and 'organisationalising' of personal knowledge (Zhang, 2009, p. 237) is a cornerstone in knowledge management.

Additionally, (PKM) is viewed as a form of decentralised knowledge a shift from centralised KM systems for co-creation and building knowledge communities as an ecosystem through a Personal knowledge management system (PKMS) including how tacit knowledge exchanges can engender teamwork (Andrews & Smits, 2019).

Knowledge management practice incorporates a robust knowledge management strategy to help organisations, such as corporates (Oluikpe, 2012) and knowledge intensive business services (KIBS) (Bettioli, Di Maria & Grandinetti, 2012). Having customer knowledge management strategies and applications can contribute towards competitive advantage (Aghamirian, Dorri & Aghamirian, 2015).

The question of knowledge risks with decentralised knowledge structures was introduced in Chapter 3 and how organisations gauge the effectiveness of such practices may be a consideration for knowledge audits.

Harnessing and Extracting Knowledge for Innovation

Several authors explore customer knowledge management (KM) and its contribution to innovation (Trejo, Gutiérrez & Guzman, 2016). In this instance, organisational innovation is deemed as adoption of an idea or behaviour that is new to the organisation (Damanpour, 1988, p. 599), requiring effort from employees and leaders to enhance performance.¹⁵¹ It is acknowledged that a combination of innovation types contribute to overall organisational performance (Damanpour, Walker & Avellaneda, 2009) and that successful innovation that is organisation wide, is strongly enmeshed within a culture of collaborative effort; this overcomes difficulties or issues associated with organisational silos (Briody & Erickson, 2014).

Recent trends show the emergence of open sources of innovation to enact knowledge, such as with educational institutions increasing collaboration with external partners (Buganza & Verganti, 2009). Although closed versus open source innovation also continues to reflect co-created knowledge (Marques, 2014) and often knowledge can emerge from unexpected sources (McCaffrey & Pearson, 2015).

¹⁵¹ In an examination of employee innovation behaviours and factors, Choi & Price (2005), identify six factors associated with innovation implementation: (1) innovation and implementation policies and practices (Klein & Ralls, 1995); (2) team or organisational climate (Holahan, Aronson, Jurkat & Schoorman, 2004; Klein, Conn & Sorra, 2001; Michaelis et al., 2008); (3) degree of managerial support (Michaelis et al., 2008; Sharma & Yetton, 2003); (4) resources; (5) organisational learning orientation (Edmondson, Bohmer & Pisano, 2001); and (6) managerial patience (Repenning & Serman, 2002).

Leadership also has links to innovation and change (Bommer, Rich & Rubin, 2005; Detert & Burrell, 2007). Innovation and creativity techniques stimulate emergence of new ideas (Gilley, Dixon & Gilley, 2008, p. 155); however, inadequate leadership such as lack of support by leaders in the work environment, can suppress creativity and innovation. Required Leadership skills include the ability to coach, reward communicate and motivate, as well as involving and supporting teamwork and strong collaboration.

The connection between leadership and organisational performance coupled with a focus on knowledge for innovation is also emphasised in several studies (García-Morales, Lloréns-Montes & Verdú-Jover, 2008; García-Morales, Matías-Reche & Hurtado-Torres, 2008; Gilley, Dixon & Gilley, 2008; Davidson, Weberg, Porter-O'Grady & Malloch, 2017).

Facilitating organisational innovation, including new knowledge, implies major organisational change (Hage, 1999) and knowledge management can influence social involvement and innovation performance (Huang & Li, 2009), as well as knowledge flows through networks (Sammorra & Biggiero, 2008).

Other views confirm the importance of collaborative effort and (Hurmelinna-Laukkanen, 2011) reflect on appropriate organisational climates to garner knowledge for innovation (Kontoghiorghes, Awbrey & Feurig, 2005; Liao, 2006; Jiménez-Jimenez, Sanz Valle & Hernandez-Espallardo, 2008; Michaelis, Stegmaier & Sonntag, 2008). Creating knowledge for innovation also means considering new organisational forms (Malhotra, 2000), given that conflicts can arise if new knowledge is juxtaposed against technology; it is also noted that operating within professional dominant cultures can also be challenging (Stiles & Yorke, 2007). Other authors focus on strategies for knowledge and innovation in service arrangements (Storey & Kahn, 2010; Sillanpää & Junnonen, 2012).

In contrast, research around managers' views of innovation processes (Salaman & Storey, 2002) and knowledge management and continuous innovation (Xu, Houssin, Caillaud & Gardoni, 2010) are other interest areas within the literature. Comparisons between types of technology companies and innovation performance (Prajogo & Ahmed, 2007; Sáenz, Aramburu & Rivera, 2009) as well as knowledge sharing for innovation (Sáenz, Aramburu, & Blanco, 2012) have also been made.

Longitudinal research exists on the nature of acquisitions for innovation performance (Ahuja & Katila, 2001) and various researchers consider innovation and knowledge management experiences of multinational subsidiaries (Amalia & Nugroho, 2011). Management of innovation contains many elements (Birkinshaw, Hamel & Mol, 2008), with the role of knowledge asset innovation notably demonstrated through empirical studies of manufacturing firms (Delgado-Verde, Martín-de Castro & Navas-López, 2011).

Knowledge Asset Management

Hospitals are cited as examples of organisations facing knowledge sustainability challenges (Gastaldi, Lettieri, Corso & Masella, 2012), with rising costs, poor data and other pressures

driving the need for reform and delivering more efficiency in maintaining quality based healthcare services. This situation highlights the need for knowledge capabilities that include leveraging of people resources and knowledge management systems, where medical record systems and robust forms of ICT, form part of a knowledge asset management. A case study of knowledge practices and electronic management records systems noted 'protected functional niches' (Gastaldi et al., 2012).

Tacit Knowledge Transfer and Ageing Workforce

An ageing workforce (Dumay & Rooney, 2011), as discussed earlier, can have a strong bearing on how knowledge is accessed. It also poses an increasing risk of employees leaving unexpectedly, resulting in loss of a depth of knowledge and experience. This has particular relevance for tacit knowledge transfer.

Social Network Analysis and Knowledge Transfer

A social network perspective enables identification of knowledge transfer across organisations (Retzer, Yoong & Hooper, 2012). Distinguishing between strong and weak ties can affect the depth of social networks and interactions can be situation specific. Stronger ties can enhance reciprocity in social relations, whereas weaker ties lead to asymmetrical contact (Friedkin, 1980). A study of three inter-organisational social networks in a New Zealand R&D sector indicated that intermediate ties could be defined using a scale of factors, including: contact frequency, closeness or amount of time spent communicating.

Other authors also emphasise the importance of reciprocity in relationships and the role of social actors to enhance the quality of knowledge transfers (Foster-Fishman, Chartkoff, Lounsbury & Jacobson, 2001).

Knowledge Acquisition, Building and Creation

This capacity overlaps with knowledge transfer across organisational networks (Tsai, 2001) and how organisations, despite contrasting approaches between strategic partners, acquire and absorb knowledge (Park, 2011) – allowing for westernised and easternised communication styles and cultural variations.

Absorptive capacity also relates to competitive advantage (Dyer & Singh, 1998; Szulanski, 1996; Lane & Lubatkin, 1998). How organisations learn and leverage absorbed knowledge is

considered ‘a critical success factor in the knowledge economy....’ (Lietaer, 2002 in Hashim & Othman, 2004, p. 273). It follows that absorptive capacity is important for its contribution to improved operational performance (Nagati & Rebolledo, 2012) and value creation (Campos-Climent & Sanchis-Palacio, 2017).

Other views of absorptive capacity, expressed within the literature, include: Cohen and Levinthal (1990) view this capacity from an organisational capability perspective of how organisations assimilate and apply knowledge; Mowery and Oxley (1995) see absorptive capacity encompassing the organisational skills and competencies used to manage tacit level knowledge and import of knowledge; absorptive capacity involves learning for problemsolving (Kim, 1997, 1998 in Zahra & George, 2002); the proposal that absorptive capacity incorporates three dimensions (1) acquisitions (Kim, 1998; Lane & Lubatkin, 1998), (2) assimilation (Dodgson, 1993), and (3) conversion (Nonaka, 1994).

Lane, Koka and Patkah, (2002) highlighted some gaps within absorptive capacity research. Critics of the concept claim that the field has had little expansion or modification with research focussing strongly on Research and Development (R&D) and new product development.

The Changing Nature of Work and Workforce

There is also debate about the changing nature of work with greater demands for higher levels of problem-solving and needs for knowledge production (Barley, 1996; Fleming et al., 2004 in Mitchell & Meachem, 2011); this means a shift from low skill, routine work to more complex analytical tasks with continued requirements for specialised forms of knowledge (Thompson & Warhurst, 2006).

The changing nature of work practices includes ‘stretch work’ (O’Mahony & Bechky, 2006) amidst changing external market conditions. These changes create challenges for knowledge sharing in such rapidly changing labour environments (Chalkiti, 2012) and work arrangements such as telework (Hunton & Norman, 2010).

Changing work practices also necessitate the need to better allocate ‘high end experts’ and their time to maximise leveraging their specialised or expert knowledge (Dewhurst, Hancock

& Ellsworth, 2013), whilst also acknowledging the possible erosion or degradation of expert knowledge, previously discussed in Chapter 3.

The nature of work being more dispersed (Lichtenthaler, 2009; Rittle-Johnson, Star & Durkin, 2009) has implications, given complex and knowledge intensive work roles with likely risks of knowledge erosion and degradation and the need for deeper knowledge.

An increasing trend of working internationally (McKenna & Richardson, 2007) is another factor that may affect risk of knowledge loss or diminish the opportunity to build and retain sustainable intellectual capital. More specifically, the new era of digitalisation (introduced in Chapter 3) highlights the major shifts in learning at work as organisation embrace a virtual world (Kijkuit & van den Ende, 2007; Welbourne, 2009).

Hubris, Harmatia and Dogmatism

Examples of harmatia cited by this author, demonstrate situations where employees in organisations become blinded by perceptions. One example was an airline crash in 1996, due to maintenance problems. Another example concerned the case of an airliner that crashed due to pilot error; however, this incident demonstrated a mix of hubris, harmatia and not deferring to a subordinate's knowledge due to a personality style.

Dogmatism is a potential barrier to learning and a knowledge suppressant. Other key barriers to learning and potential knowledge suppression are those suggested by Garratt (in Pedler, 1997, p. 24): (1) the idealisation of perceived past experiences; (2) the charismatic influences of other successful managers; (3) the importance of instant activity; and (4) the belittlement of subordinates.

The interpretation of tacit knowledge that emanates from hubris or harmatia point to mental frames as risks of more degraded forms of tacit knowledge. Another relevant example is the NASA Challenger space shuttle disaster, where bounded awareness risk permeated managerial thought processes. Managers were aware of risks and problems associated with the project, but ignored engineers or professionals and adopted a chosen knowledge path (Kumar & Chakrabarti, 2012, p. 941).

Knowledge can vary in importance or meaningfulness in the minds of different people. The knowledge erosion or degradation threats concern models of stagnation within learning, where beliefs create a form of meta-logic that embeds within organisational knowledge.

Knowledge Spillovers

Knowledge and its effective management can arguably have spillover effects thus putting a company at competitive risk in the marketplace (Perri & Peruffo, 2016). The concept of Knowledge Spillovers (KS) concerns accidental or unintentional inflows and outflows of knowledge between networks or other forms of knowledge that may affect decisions and actions and hamper an organisation's performance (Ferreira, Ratten & Dana, 2017).

Knowledge spillovers have a connection with absorptive capacity in that the intention of spillovers is where new knowledge combined with existing knowledge and where 'knowledge recipients' blend knowledge with originating firms or, (Yang & Steensma, 2014). The originating firm, depending on how risk averse it is, may seek specialist guidance.

Recipient firms can include alliance partners and knowledge accessed from originating firms can contribute to innovation. Local knowledge spillovers assist commercial opportunities across borders, by accessing local host country knowledge (Kesidou & Szirman, 2008) or through foreign subsidiaries operations (Feinberg & Gupta, 2004).

Although, problems of asymmetry or nonalignment are observed between some MNCs and host country firms (Singh, 2007) as one form of possible knowledge erosion and degradation risk. Such challenges also reinforce the idea of criticality of learning (Ko & Liu, 2015) to support practices, including how recipient organisations can also learn from failures (Amankwah-Amoah, 2011).

A concern for originating firms with risk erosion degradation threats is where knowledge spills out or seeps to other players such as competitors, who might capitalise on such knowledge. This highlights how such knowledge practices concern accessing and discovering what constitutes 'useful knowledge' (Yang & Steensma, 2014, p.1497); referring back to the ideas of practical knowledge and pragmatism introduced in Chapter 2.

Knowledge spillovers also relate subject to strategic considerations including locations (Audretsch & Feldman, 1996; Alcacer & Chung, 2007). The idea of knowledge exploration has implications for possible forms of erosion and degradation particularly for the originating firm and the possible loss of 'know-how'; although this is counteracted by the ability to gather new knowledge, depending the capabilities of recipient organisations.

The argument around cultural and organisational inertia as a possible example of degradation is demonstrated by organisations operating in mature industries, where more institutionalised systems can lead to rigidity that stems pursuit of new opportunities (Yang & Steensma, 2012, p. 1405) when dealing with or facing 'unfamiliar knowledge'.

Additional supplementary notes

Tacit knowledge

Tacit knowledge can take various forms, with some being 'embodied' versus 'non embodied' and 'self-transcending' (Jakubik, 2007, p. 6). Experiential knowledge represents know-how, knowing, or implicit knowledge.

Tacit knowledge can also assist in facilitating individual achievement within job roles (Haldin-Herrgard, 2000). Other forms of knowledge, such as explicit knowledge, whilst accessible to stakeholders can contribute towards a common and homogenised form of knowledge - rather than benefiting from tacit knowledge which is considered to be imbued through collective learning with higher levels of mastery (Lawson & Lorenzi, 1999).

Leveraging tacit knowledge has been noted as key to innovation practices (Leonard & Sensiper, 1998).

Another view explains that building tacit knowledge trust and knowledge flows for rapid acculturation can be a complex process (Chin, Lee & Nissen, 2010). Other authors recant the value of knowledge management when tacit and explicit knowledge are effectively aligned and integrated into work functions and routines (Prusak & Davenport, 1997b).

Tacit knowledge capture can occur through observation, collaboration or joint activities and acceptance to share experiences between individuals. One approach used to convert tacit to

explicit knowledge is the elicitation technique tool (Gavrilova & Andreeva, 2012). This technique is used to elicit end user needs and extract tacit knowledge from subject specialists or 'knowledge individuals' (Gavrilova & Andreeva, 2012, p. 523).

Methods for sharing knowledge include use of effective dialogue between individuals augmented by demonstrations of knowledge to gain inner understandings of the workings of an organisation. This process encourages a shift from being that of passive observer to an active participant (Gherardi, 2006).

Knowledge can accumulate over years and not consciously surface. Ways of navigating large amounts of information and knowledge stored in people's memories, can take time to convert into explicit knowledge. Innovative ideas and methods are required, such as oral narrative story-telling rather than conventional reporting.

Both KM and organisational learning contribute towards continual improvement, with collaboration and social learning, supported by knowledge management practices (Muras & Hovell, 2014).

KM can assist types of organisation categorised as chaordic where chaordic systems thinking assists in building capabilities to survive crisis situations (Van Eijnatten, Putnik & Sluga, 2007). Chaordic organisations contain properties such as high levels of consciousness and connectivity and recognition of emergent issues and knowledge, where people are pivotal for effective communication to manage turbulent environments.

Organisational knowledge and how knowledge is managed is seen as a critical competency to achieve competitive advantage in organisational effectiveness or success (Bartlett & Ghoshal, 1989; Nonaka & Takeuchi, 1995; Stewart, 1997 in Rulke, Zaheer & Anderson, 2000) and applicable in complex environments such as construction and not the sole province of Westernised environments (Chan & Mohamed, 2017; Alosaimi, Renukappa & Suresh, 2018).

Strategies for sustainability and maintaining a competitive edge can reflect learning capability (Sahay, Mohan & Maini, 2004). Other authors hold the view that managing and capitalising on use of intangible assets, such as tacit knowledge, can contribute to business and organisational sustainability (Lapointe & Cimon, 2009) or ultimate survival (Raeside & Walker, 2001).

Organisations responding to external change face challenges to create better value and identify sources of value creation through value extraction (Sullivan, 1998). Knowledge is arguably a major source for value creation. Value creation models, based on the resource-based view of the firm (Prahalad & Hamel, 1990; Grant, 1991; Collis & Montgomery, 1995; Barney, 1996), have been broadened to incorporate tangible and intangible resources in the form of intellectual capital. Knowledge as strategy (Boisot, 1998; Zack, 1999) has been an approach adopted by organisations to responding to global trends and competitive pressures, and seeking to improve competitive advantage (Barney, 1995).

Logically, if resources remain passive and not interconnected, creation cannot be realised (Grant, 1995; Bowman & Ambrosini, 2000). This highlights the importance of interrelationships between knowledge repositories, IC systems and people as demonstrated by companies such as GE and CCH (Keiser, 2013) that have bespoke approaches the former rely on champions and experts and the latter with its knowledge connect tool.

KM and organisational performance

Discussion also surrounds knowledge management and decision-making styles and how this might affect organisational performance as well as the need for conceptual frameworks (Abubakar, Elrehail, Alatailat & Elçi, 2017). These authors discuss knowledge management enabling factors for organisational performance including structure and cultural influences.

In addition, gaps are perceived with detection of rational and intuitive decision-making styles as moderators of the relationship between knowledge management and organisational performance.

Other authors emphasise human capital as a resource, expand on conceptualisation of resources (Ferreira & Fernandes, 2017) and capabilities¹⁵² as assets and how these contribute to organisational performance (Ferreira & Fernandes, 2017).

¹⁵² Examples of specialised capabilities include Competitive Manufacturing practices (Sansone, Hilletoft & Eriksson, 2017). Competencies as distinct from capabilities, warrant interpretation and enumeration (Delamare Le Deist & Winteron, 2005), including the idea of sustainable competence (Hagstrom, Backstrom & Goransson, 2009) and how, at both individual and organisational levels, maintaining competence for advantage extends beyond strategic perspectives so amplifying challenges around knowledge competencies.

Another perspective relates to teams and the suggested importance of building team effectiveness to ensure maximisation of team knowledge (Hirschfeld, Jordan, Field, Giles & Armenakis, 2006). With the emergence of virtual teams and mechanisms to enable teams to process and procure information (Curseu, Schalk & Wessel, 2008), this also has implications for knowledge erosion and degradation risk, in terms of how virtual teams communicate and engage with one another.

Organisational learning and knowledge

The shift in organisational learning focus, outlined by Wang and Ahmed (2001), suggests the need to transition from single loop and double loop learning to triple loop learning and unlearning. This organisational learning paradigm frames knowledge beyond accumulation, dissemination and retention to create an incremental sense of knowledge creation; however, this still ignores the perspectives of depth of knowledge and profound knowledge attainment.

Organisational learning assists in the process of knowledge acquisition, transfer and diffusion of explicit knowledge throughout the organisation. Culture and subculture can influence the learning process (Argyris, 1976; Argyris & Schon, 1978). There is a contrast in how learning occurs through socialisation within different organisational designs and structures such as with entrepreneurial versus bureaucratic style organisations (Allen & Thomas, 2006, p. 128).

There is also an apparent gap in literature concerning the relationship between implicit knowledge mental models and learning. There is an argument to devise more specific measures to assess learning effectiveness and its impact on organisational performance (Allen & Thomas, 2006, p. 136).

Arguably, there is a social and collaborative approach to learning and knowledge and knowledge is interwoven with specific community and social contexts (Collin & Valleala, 2005). This indicates a cleavage between organisational learning and knowledge management (Antonacopoulou, 1999). This author postulates that each functional area becomes like a separate enclave or occupational silo pursuing separate goals and interest. However, Swain (1990, p.3) proffers another view emphasising the important interconnection between learning, knowledge and change – saying that they ‘form an essential chain’.

Newer frontiers of organisational learning gravitate towards triple loop learning, involving review of processes and systems through broader mindsets and also receptive to organisational 'unlearning'. However, this need for organisations and employers to unlearn (Hedberg, 1981; Akgün, Byrne, Lynn & Keskin, 2007; Cegarra-Navarro, Sánchez-Vidal & Cegarra-Leiva, 2011), while also establishing mechanisms to ascertain whether organisations have learned from what individuals have learned (Boateng, 2011), also has knowledge management as well as knowledge erosion degradation implications.

Alternative approaches, rather than a planned and interventionist method, emphasise varied collaborations and knowledge to support organisational learning (Kumaraswamy & Chitale, 2012).

In contrast, other authors focus on discussion around measuring organisational learning and systems (Jyothibabu, Farooq & Pradhan, 2010). It is argued that the intersection of disciplines and functions, such as management learning and HR, can contribute to greater integration of knowledge at both organisational and individual level (Van Winkelen & McKenzie, 2007).

Cross cultural and knowledge transfer perspectives

Studies have been undertaken using the Globe analysis (an extension to Hofstede's studies). Some authors contend that more highly individualistic organisational cultures, derived from Hofstede's concept of culture, may encounter greater challenges relating to knowledge transfer than those organisations from more collectivist oriented cultures. Therefore, doing business across borders, or within host national countries, such as with a multi-national corporation (MNC) may elicit differing levels of co-operation and knowledge hoarding (Ford & Chan, 2002; Siakas & Georgiadou, 2006). In addition, motivation has a pivotal role in knowledge management and knowledge transfer (Cruz, Perez & Cantero, 2009), and international literature identifies variations in what motivates employees from differing cultures (Deresky & Christopher, 2012) as well as ways to adapt or encourage elicitation of knowledge for knowledge transfer.

It is suggested that within high-power distance environments, knowledge transfer is via 'direct instruction from a superior' (Wilkesmann, Fischer & Wilkesmann, 2009, p. 471). It is further argued that performance oriented cultures and profit making organisations may view extrinsic motivators or inducements as more pivotal for knowledge sharing behaviours (Lin, 2007), in contrast with not for profit organisations that value intrinsic motivators. It is also

purported that effective knowledge transfer enables employees to function more efficiently in their job roles.

Replication is also integral to business and operational strategies (Winter & Szulanski, 2001). Replication of production knowledge can occur via use of templates or other modes of codification (Waehrens, Cheng & Madsen, 2012). As operations expand, the challenge is to effectively replicate practices as production areas are established in new locations. Through empirical case studies, replication and knowledge transfer processes highlight the importance of extending beyond mere replication, as tangible knowledge, to value-added knowledge. This is a major step from extraction or ‘exploitation’ of ‘home based knowledge’ to ‘home-base knowledge augmentation’ (Kummerle, 1997 in Waehrens, Cheng & Madsen, 2012, p. 269), reconceptualised as a ‘knowledge expansion process’ (Waehrens, Cheng & Madsen, 2012, p. 269).

Knowledge expansion suggests higher quality forms of knowledge integrated and bundled into the knowledge transfer process. Studies of two case organisations from contrasting cultural contexts highlight factors such as importance of relational issues, infrastructure support, quality of relations and interactions between transferors and receivers (transferees). The complexity of sharing tacit knowledge and problems of templates as a ‘primary reference point’ (Waehrens, Cheng & Madsen, 2012, p. 280) as well as situations involving knowledge gaps can also arise.

Other authors highlight the significance of cross-cultural transfer with the need to accommodate varying skills and experiences of knowledge recipients in different locations (Chen & McQueen, 2010), given the extent to which areas such as IT technical support roles are located offshore. The importance of knowledge transfer practices before and after overseas projects is another aspect within knowledge transfer and the process of repatriated knowledge that may be subject to risk of erosion (Crowne, 2009).

Knowledge transfer drawn from newly acquired knowledge may lead to depreciated or discarded knowledge (Darr, Argote & Epple, 1995); this may also pose a risk of erosion and degradation – depending on how such depreciated or discarded knowledge is identified.

Communities of Practice

The nature of communities of practice need not be confined to groups with common professional interests, but is conjoined with social work structures and how knowledge work is typologised (Lindkvist, 2005).

Contrasting examples of communities of practice are observed, from an industry perspective, where the interest of industry sustainability and renewal means boundary crossing. In this situation co-operation can exist with 'cognitive communities' comprising industry competitors (Porac, Thomas & Baden-Fuller, 2011).

Moreover, the nature of communities of practice has evolved to virtual communities of practice that can also bring possible barriers and challenges, depending on the type of organisational culture (Ardichvili, 2008).

Behavioural factors are also noted in the theory of reasoned action to argue how this might apply to virtual knowledge sharing (Hassandoust, Logeswaran & Kazerouni, 2011). This theory suggests social actors as more rational in making determinations about the value of participating in such communities or forums.

Communities of practice are enmeshed across various industries and sectors such as electronics (Jubert, 1999) and automotive (Wolf, Späth & Haefliger, 2011). Similarly, communities of practice are also noted for contribution to organisational performance and innovation (Brown & Duguid, 1991; Hoopes & Postrel, 1999; Lesser & Storck, 2001; Schenkel & Teigland, 2008).

Appendix 5 Qualitative Research Strategies

Background Influences to Research Design-supplementary notes

Reference material here, includes discussion of methodological theory, and author comments about how the research design evolved and factors considered in implementation of the research study.

Research Philosophy and Paradigms

Positivism

The positivist paradigm as an epistemological position is largely objectivist and includes *a priori* methods to analyse results and explain the potential relationships and conclusions drawn (Adorno, Dahrendorf, Habermas, Pilot & Popper, 1969). This research paradigm follows logical reasoning to arrive at a 'rational explanation' (Saunders et al., 2016) and seeking truth and verification with assumptions of an objective and knowable reality. Positivism as an epistemological approach arguably has been centre stage or a dominant research design sometimes at the exclusion of others inferred as a form of possible *methodological prejudice* whereby studies when narrowly defined and categorised limits adoption of other approaches (Lee, Collier & Cullen, 2007).

Post positivism

This researcher noted contemporary approaches to positivism denoted as post positivism recognising as prefaced earlier that whilst absolute truths might not be fully attainable or reachable, data can still elicit implications as conclusions. Arguably, a post positivist influence aligns more with theory generation rather than theory verification (Creswell, 2009). Therefore, this research study positioned as *post positivist*, asserts that participant responses denote high value. Furthermore, this research legitimises an orientation towards a blended phenomenological approach founded on an interpretive research design.

Realism

This researcher also noted the realist paradigm as an epistemological position entwines with objective and clinical based studies such as *direct realism* concerned with what is expressly stated and observed for indicative evidence (Bhaskar, 1975). *Critical realism* pinpoints perceptual distortions or outlining more to the eye than that drawn from the direct realist through which mental or cognitive processing adds another layer to the observed events. This approach contrasts against the *interpretivist* view of the world that ascribes less complexity to

the social world in which social actors participate (Creswell, 2009; Saunders et al., 2016; Bryman, Bell & Harley, 2018) also permeating functional areas such as within operations environments normally shaped by quantitative and objectivist driven research (Walsham, 1995) with implications for the methodology discussed later. Subsequently given the complexity surrounding the study topic, this researcher gravitated towards an interpretivist research design enumerated next.

Qualitative Research Strategies

Qualitative Research approaches and considerations: a synopsis

Research Approach	Research considerations
Action research	Action research strategy is usually participatory (Ragstell, 1998) and often focused on solving problems or addressing practical issues (Styhre & Sundgren, 2005) centralising towards providing insights for managers (Coghlan 2001) gleaned from experience (Coghlan, 2011) operational and organisational improvements (Coghlan & Coughlan, 2003; Eden & Ackermann, 2018). Action Research also reflects a localised context (Lim & Chai, 2015 in Strang, 2015) and ‘the messiness of organisational life’ with manager contributions supporting knowledge production (Eden & Ackermann, 2018, p. 1154) and, where participants provide information and actively participate throughout the inquiry process (Argyis & Schon, 1991; Kemmis & McTaggart, 2005).
Case study	Case study research strategy can be of an individual, program or organisation. Given the contextual nature of a case analysis, findings might not be generalisable. Multiple case studies can apply for cross-functional and organisational comparisons aside from individual cases. Case study analysis is dynamic and comparative (Fox-Wolfgramm, 1977), and endorsed as a legitimate qualitative approach (Swanborn, 2010).
Ethnography	Ethnographic research strategy derives from anthropological of studies participants in their natural and cultural settings strongly focussing on context that can be time sensitive and where multiple views on reality and truth exist (Geertz, 1986). Data richness (Campbell, 1998) from ‘thick description’ depicted as interpretive description (Thorne, Reimer Kirkham & MacDonald-Emes, 1997; Thorne, 2008). This method has applications in healthcare research (Aamodt, 1989) for knowledge building purposes centred on participants through observation for sense making (Allan, 2006) through deep ‘immersion’ to garner in-depth cultural insights to support intervention work (Block, 2012, p. 379). Authors also discuss the merits and challenges of ethnography and ethnographic design (Hammersley, 1992; Lipson, 1994; Hammersley & Atkinson, 1995; Harper, 1998; Ellis & Bochner, 2000).
Grounded theory	A Grounded Theory research explores participant experiences using an inductive approach to build theory for possible generalisability. Grounded Theory influences design strategy by symbolic interactionism (Goffman, 1959) emphasises meanings derived from experience through social interaction. Grounded Theory applies to management research where participant experiences generate rich and useful data (Locke, 2001).

Phenomenology	Phenomenological research strategy examines individuals' lived experiences (van Manen, 1997; Dobscha, 1998; Buchanan & Badham, 1999; Gilgun, 2008) and perceptions in relation to a nominated phenomenon seeking meaning from essences and themes.
Oral History /Storytelling /Narrative Analysis	Other research strategies involve storytelling (Frank, 1997) and reflections of the past and perceptions and experiences. Focus inclines towards hindsight through a narrative style (Clandinin & Connelly, 2000; Ahmed, 2013). Storytelling includes 'consociate' roles (Schegluff et al 1977) for confirmation or co-teller stories. Organisational research studies accommodate storytelling to validate policy (Prior, Hughes & Peckham, 2012). Narrative analysis another form of qualitative inquiry explores experience (Beverley, 2000; Riessman, 2008; Butler-Kisber, 2010; Ahmed, 2013) also applies to management studies (Brown, 1998).

Appendix 5.1 -Information to Participants Involved in Research



You are invited to participate in a research project entitled:

This project is being conducted by Ms Judith Watson

Project explanation

The objective of this study is to explore perceptions of knowledge within your case organisation and identify barriers and enablers to knowledge building. This study will also investigate strategies to prevent knowledge erosion (a permanent loss overtime) and degradation (devaluing of the impact on organisational effectiveness).

What will I be asked to do?

You will be asked to participate in a semi structured interview, lasting approximately 1 hour. Questions will relate to

What will I gain from participating?

Results of this research will be also made available in a plain English document for the respondent organisation.

Results of the study may include some practical tools and frameworks that can be useful to support and value add knowledge facilitation within organisational environments.

How will the information I give be used?

Results of the research will be published in the thesis and in refereed literature

No participants or their employing organisations will be identified in these publications.

What are the potential risks of participating in this project?

No risks have been identified in relation to participation in this research. You will not be required to divulge any sensitive or competitive information.

How will this project be conducted?

The researchers will select a representative group of participants from contacts sourced from the case organisations whose names are provided by The Human Resources Department and also referral. Participants will be contacted and invited to participate in a semi-structured interview, which will be taped if this is agreed to by the participant. The transcript of the interview will be coded to ensure confidentiality.

Who is conducting the study?

The research is being conducted by Associate Professor Arthur Tatnall, Dr Beverley Lloyd-Walker of Victoria University, and Ms Judith Watson, doctoral student at Victoria University, phone 03 9919 Arthur's number.

Any queries about your participation in this project may be directed to the Principal Researcher listed above.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics and Biosafety Coordinator, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9919 4148.

Appendix 5.2- Consent Form for Participants Involved in Research



INFORMATION TO PARTICIPANTS:

We invite you to be a part of a study into perceptions of knowledge and whether there is an erosion or degradation of knowledge.

The aim of this research is to examine perceptions of knowledge, how knowledge is viewed within your organisation and to identify barriers and enablers to knowledge building.

CERTIFICATION BY SUBJECT

I,

of

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the research study:

being conducted by Judith Watson School of Management and Information Systems , with data collected by Ms Judith Watson, PhD candidate

I agree to this interview being audio recorded. YES / NO

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by:

M Judith Watson and that I freely consent to participation involving the below mentioned procedure:

a semi structured interview which will take approximately 1 hour to complete and which will either be taped or recorded through note taking.

A possible follow-up interview which will take an additional half hour in duration which will be for clarification purposes and confirmation of understanding as well as allowance for additional insights to be noted due to post interview reflection.

My confidentiality, and that of my organisation, will be maintained through coding of the transcripts of the interview.

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed:

Date:

Any queries about your participation in this project may be directed to the researcher Associate Professor Arthur Tatnall, phone 03 9919 1034; email: Arthur.Tatnall@vu.edu.au

If you have any queries or complaints about the way you have been treated, you may contact the Ethics & Biosafety Coordinator, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9991 4148.

Appendix 5.3 – Letter to Participants

Information Systems, College of Business
Victoria University
City Flinders Campus
PO Box 14428
Melbourne 8001
Victoria



Dear Mr.

Judith Watson is currently enrolled at Victoria University as a PhD student in the College of Business, under my Principal Supervision. Her associate supervisor is Dr Beverley Lloyd- Walker also from the College of Business at Victoria University.

Judith's thesis topic is: *Knowledge Erosion and Degradation: A study of barriers and enablers to knowledge building and strategies to prevent erosion and degradation of knowledge within service sector organisations.*

Thank you for allowing Judith to work with your organisation on this research which should be beneficial to all concerned. Judith's research will be mainly of a qualitative nature and involve interviews and discussions with those involved. In some cases those interviewed will be able to suggest others that may also be able to make a contribution and add to a snowballing effect to obtain the best information to enable this research.

The research will be conducted under Victoria University's ethics procedures.

Best wishes

Arthur Tatnall PhD, FACS
Associate Professor
Information Systems, College of Business
Victoria University

Appendix 5.4 Preparation Prior to Interview

These are some initial prompts to help you reflect before coming to the interview/discussion.

- When you think of knowledge and organisations what comes to mind?
- When you think of profound knowledge what comes to mind?
- When you think of erosion and degradation as words what comes to mind?
- Do you think knowledge is valuable to an organisation and if so in what ways?
- Can you think of some personal experiences or stories about knowledge and your workplace?
- Is it easy or difficult to prevent loss of knowledge in the workplace?

Could you also please sign the consent form prior to coming to the interview and hand it to me at the interview. I look forward to seeing you Wednesday or Thursday.

Kind Regards Judith Watson

My contact number is 0418324102 if you have any questions.

Appendix 5.5 – Key Questions

Key Questions

Do you believe that there is an erosion and degradation or decline of knowledge within your organisation?

As for all questions, the initial response of ‘yes’ or ‘no’ will direct the questioning that follows. For instance, a ‘no’ response to this question would lead to additional clarification questions such as:

What is your perception of an erosion or decline in knowledge?

How does your organisation ensure that there is no erosion and degradation or decline of knowledge within your organisation?

Can you provide me with examples of how this is done and how you know that erosion or degradation of knowledge is not occurring?

What do you believe is the level of awareness regarding the importance of preserving knowledge in your organisation?

What do you observe to be the overall perception of erosion or decline in knowledge in your organisation?

Are these perceptions shared within your work area?

What experiences do you want to share in regard to this?

If the initial response had been 'yes', this questioning may commence with:

What is your perception of an erosion or decline in knowledge?

What do you believe are the key contributing factors towards knowledge erosion and knowledge degradation in your organisation?

This may then be extended by further questions about when initiatives mentioned were introduced, etc. depending upon the response received. All following questions will be directed by the initial response and will, therefore, vary according to the response of each interviewee.

What do you believe are the major factors that may inhibit or restrain quality knowledge within your organisation?

To what extent do you believe that knowledge erosion and degradation is within the control of your organisation?

Appendix 5.6 – Organisation X, Supplementary information

The company currently employs in excess of 5500 employees. The majority of employees are blue or fluoro collar and warehouse facilities house the majority of the workforce (~ 75 %), as affirmed by an internal company source with access to workforce data. Additionally, the organisation has faced high attrition rates - that are endemic in its sectors. The industry standard is mooted at 18% and this organisation has faced rates peaking at 25% and tapering off. Changing market conditions are associated with spikes in attrition.

The company operates several warehouses throughout the Australian mainland and outsources its logistics areas, such as transportation. The company's customers are not bound by supplier exclusivity arrangements for sourcing of goods. Consumer trends are continually changing and customer needs require quality and timely information.

The company's original private label products have been diluted, as acquired businesses have been divested. Low cost private label products have been subject to regulatory scrutiny with the Anti-Dumping Commission into quality assurance standards and importation of canned tomatoes (Australia Government, 2013).

The largest area is food and grocery servicing several thousand retailers including convenience stores with branded stores aligned to specific target markets.

Organisation X is positioned within the, grocery and hardware industries. Largely, these industries are oligopolistic and the food and grocery industries are at a mature stage, with a slow pace of growth and cost pressures forcing operational efficiencies through technological advancements in inventory control, stock management and logistics (IBIS World, 2019).

Growth in convenience stores services represents increased demand by time poor consumers and shifts in geo-demographics. Wholesalers are drifting to the convenience market. Although a noted threat is the wholesale 'bypass' trends, with operators in grocery and retail exiting and changing consumer preferences; this drives new modes of access to food through boutique outlets. High levels of competition prevail.

Price is the dominant factor given numerous wholesalers exist. However, other considerations differentiate competitors such as effective operations and supply management; achieved through wholesalers meeting performance criteria such as on time delivery and a strong distribution base for supply from multiple locations, which is a competitive advantage for Organisation X. Additionally, having a large product range means that the organisation is a preferred source for supply and simplifies logistical issues for retailers. Moreover, providing logistics and marketing support are other perceived strengths to the business.

However, sustainable advantages are not guaranteed in such highly contestable environments. There is the degree of vertical integration that exposes Organisation X to some risk, where organisations like convenience stores are choosing to 'self-supply in a context of industry decline. Brand association is clearly different – an Organisation X in owning a retail brand positions brand to again differentiate its offerings to customers.

Industry participants continue to implement automated warehousing systems. As a result of this trend, it is predicted that demand for unskilled labour will be affected - a debatable area of knowledge erosion and degradation noted in Chapter 3. The case organisation is currently undergoing such rationalisation and downsizing.

Sectors in which organisation X operates are seeing rationalisation through mergers and acquisitions and market concentration. One of the key success factors, noted from industry research, pertains to organisations' capability in knowledge management - particularly areas such as technical and product knowledge as differentiating factors for value creation for customers (IBIS World, 2019).

The wholesale hardware industry has benefitted from demand by construction, and Organisation X has also increased its market presence in the sector through acquisition strategies. However, the sector has low concentration so key players combined have a sizeable impact, but are not a major portion of the market (IBIS World, 2019).

The liquor industry is also burgeoning, due to demand for quality beverages and consumers increased access either via outlets or online; major players include Organisation X (IBIS World, 2019). However, another key player continues its plan for store expansion nationally

and other key competitors aggressively pursue copycat grand retail 'big box' retail models (IBIS World, 2019).

It is clear that the organisation operates in a dynamic and highly competitive environment. It needs to respond quickly to the needs and demands of independent operators and other stakeholders through rapid and just-in-time information, to ensure key strategic partners use this information and knowledge for their competitive advantage. The company has recently experienced severe revenue declines, from sales in hardware supermarket outlets, due to weakening or sluggish economic conditions.

The severe downturn in share price value has also been compounded through fluctuation with the Australian dollar; that, and the loss of key contracts as a major supplier to the convenience store market impacts margins. Arguably contract negotiations resulted in disagreements around operations management and related matters that may have related to knowledge exchange and explicit or tacit knowledge held between respective parties.

The reliance on contract management paradigms to broken relationships between stakeholders not merely has operations management components, but the form of the relationship can extend to the nature of social relations between stakeholders. At one end of the spectrum, organisations may adopt strongly short-term focused or market-based and transactional views around contracts, whereas at the other end of the spectrum, a partnership or more collaborative approach that is long-term in focus is agreed upon by the respective parties (Slack et al 2016). It would appear that the former approach to contracts has resulted in a vulnerability, with Organisation X operating in a low margin highly contestable operating environment.

Additionally key customers are reverting to in sourcing logistical functions rather than relying on external companies, such as Organisation X, to fulfil such services (Financial Review, 2019). The company however, has strategically ceded forfeiture when one business relationship, which one commentator suggests is a choice to relinquish a revenue stream and accept reduced costs in doing business with the customer; but this is low margin or unprofitable and therefore unsustainable.

Presently, a small ratio of independent operators have solid resources and infrastructure capability to transition to more vertical integration whilst others, being more complex and disaggregated ownership structures, are less placed to be a strategic threat to the erosion of Organisation X's customer base. Organisation X partially owns entities in its branding from a US model.

The company's evolution has seen a departure of numerous CEOs, largely individuals who have grown through the ranks, given the previous succession management for internal home-grown knowledge. With the company facing difficult and changing retail conditions a new CEO, with international operations experience and an outsider, was appointed over internal candidates and rapidly transitioned into the business in 2018. The transfer of knowledge, such as tacit knowledge and how knowledge exchange takes place, with the exodus of the former CEO may bring challenges and questions as to what extent new knowledge, brought in from outside, can actually contribute towards transforming the organisation.

Additionally, there have been numerous changes to the company's organisational structure to reflect changing market forces and respond to tightening economic conditions, where financial viability means driving cost structures are derived through a more centralised model to drive operational efficiencies. Evolving business models also include a shift towards service hubs rather than geographic or national state office organisational design.

The company has been pursuing smarter ways of working, following lean principles and practices, as part of an aggressive cost-cutting regime. There are implications for rationalisation of labour and key knowledge loss where intellectual capital exits, when employees with deep knowledge leave the organisation. An example is the unexpected departure of a former general manager, who possessed in-depth knowledge of the intricacies associated with managing stakeholder relationships such as customers. This individual was a major contributor to relationships between wholesale operations and retail customers.

Additionally this individual had in-depth knowledge of negotiating with customers. The move towards centralisation and shift to single service contracts may have implications that knowledge is managed by humans and that the organisation does not have an agreed or coherent knowledge strategy that accommodates structural and business model changes.

Moreover, the company faces challenges to promote strong brands and provide value added strategies, to support the front end presence of independent operators through specialised marketing and value adding knowledge to support retailers amidst complex operations. One participant enumerates on strategic business relationships and different organisational configurations, explaining how these complex structures and business operating model are less conventional than that of typical retailer and wholesaler relationships

Appendix 6 - Details of Feedback and Analysis From Participants –

A few participants proffer perspectives on the background, challenges and pressure faced by Organisation X as noted in the extracts below:

Interview 18 - Male

... So Organisation X, as a retailer quickly moved into wholesale and distribution. The model existed like that up until the early 90s. At that point, the food and grocery industry became much tougher and we saw the business start to drop off. So at that point, the [overseas] company organisation N and organisation P came and bought the business over. It was called organisation Z which is what it was called up until the early 90s. Then, organisation N came over, bought the business out and completely restructured...so when they came in, they purposefully set the business up with the silos so there were a number of silos... Organisation Y distribution, with its own silo Organisation Y fresh with its own silo, the convenience organisation O' wholesale with its own silo.

A noticeable contrast with organisation X's business strategy is the association with independent owners, which differs from conventional franchise models This non-franchised retail operations design is not without challenges, as noted by interviewee 18, who posits that Organisation X has less power or control over retail operators.

Interview 18-:

So you can go and buy a supermarket (or an organisation Z or competitor 6) it goes up and down in that industry. It's quite interesting, so you can buy a store and then Organisation X will support you. It will assist you in setting up, store up. If it's an organisation Y or an organisation Z or whatever it is, we have processes and departments in place that will help you set the store up, and then there is all these support functions that will help you, but you don't have to take advantage of any of it. You could walk in by faith and say well I want to be an organisation Y but I don't want you to step foot in my store ever. We just back away.

The strategic and operational aspects denoted above highlight intricate structural and social relations surrounding a multi business where, in some instances, information and knowledge might be welcomed into one context and deflected in another.

.One participant suggests there are sustainability challenges.

Interview 18-Male-

So there is a push for a better deal, the issue with that though from a sustainability perspective, it's not sustainable. In my opinion the industry will get to that point where we've squeezed every possible dollar out of the suppliers, the suppliers then will start to reject what is going on and then the prices will have to be readjusted. I liken it a bit to the mobile phone industry having that background, the industry was almost crippled when the cap plans came in because all of a sudden you can get \$1000 worth of calls for \$10. It is not a sustainable model we start to see Telcos moving away from that model or pushing the Internet, that's a new push for the mobile phone companies it's all about the Internet because the cap Plan is not sustainable. We are doing exactly the same thing in the food and grocery industry we are creating unsustainable business after a while you can't buy that packet of flour for \$.95 because it doesn't give the business are enough profit they can't squeeze the supplier so that \$.95 packet of flour will then become \$1.10 over time we will see that happen.

. Complex strategic partnerships require elaborate knowledge transfer processes. He states:

Interview 5 – Male

You're talking about our brand if you like. Organisation X is not a publicly, publicised brand but we have a lot of branding recognition with our customers being Organisation Y for instance. A lot of people recognise us as being Organisation Y or Organisation Z so they think we're a retailer, and we're not a retailer. We're a wholesaler, we just support the retailer. So, you know, the first impressions when you say I'm working for Organisation X, I'm working for the opposition from competitor 2 and competitor 1, we don't own that retail outlet so a lot of our services and our processes are focused on support services.

Building knowledge from an organisation on its knees

Interview 4 - Male

This business, as these structures effectively started 15 years ago, the wholesale business before Organisation X was involved, and it goes back many, many years through a variety of companies, a combination of companies. 15 years ago it was basically on its knees with a share price of ... Organisation X, which was a spin off from a overseas company, came in and then basically, rebuilt the business...that it is now and it was always settled as wholesale... ...Because of the intense competition we've got against the major chains across competitor 1, there's now been a quantum change in management at a senior level. The CEO who was running the business retired last year after being around the business for 15 years, and did an excellent job of it. He rebuilt the business... ...very successful business. The direction of the business now has changed very much... ... along the stores, but to work together very, very closely and with our retailers to make the whole model successful. For that to happen, there has to be a huge injection of knowledge... ... external people, evaluaterunning our business saying that's what... ...the process where you change the tail end of now, that's been going on the last 6 months under this new CEO. He's come in the business with a retail background. So he is now looking at what our business can do to better support our retailers to make the overall model stronger. So for that to

happen there's an immense input of information coming into the business. As I say that's been highly expensive consultants have been brought in to be in that project...

Safeguarding and protecting strategic knowledge

One participant elaborates on the issue of departing knowledge in the event of staff movements. The first safeguards he notes include legal agreements and restraint of trade clauses, but he also qualifies how the dynamic external and internal environments cause knowledge erosion and how knowledge becomes superseded.

Interview 4 - Male

... if I was to leave the business, what would I take with me? I would take everything that's in my mind but I would also have every contact that I have. Is there an obligation of me to share every piece of information? Every piece of information which is in our computer systems is company property. It's unethical of me to take copies of all of that... that's unethical and that's basically their intellectual property...So if I was to be employed by someone else, they're going to employ me on the knowledge and experience that I've got in that industry... There are examples where people as high as CEOs of this business have departed, they've come to an agreement not to stay with the company...because the knowledge, the immediate knowledge that they had about this business at a very senior level, could be taken to a competitor and...Because they know all of the strategies, they know all the details...If they went to work at competitor 1, that's a huge knowledge, however if the company says okay we no longer work together, we will give you 12 months' pay, but in provision for that 12 month's pay, there will be a strict agreement that you can't work for anybody else...but in 12 months' time, at the least, the knowledge that you have, will be 12 months old. When our CEO, it's a very real case, when that previous CEO left, he was basically put on guard - 12 month's pay, these are legal conditions, you are not allowed to be employed, because in 12 months' time the business, all the strategies that he would be aware of, that CEO may change, all those strategies and in 12 months' time his knowledge is not relevant.

Organisational constraints, pressures, stakeholder and other considerations

Changing leadership and approach to knowledge and stakeholders

The participant also suggests that insufficient focus on knowledge, in part, is attributed to past experiences with leadership. Although more recent changes to senior leadership have altered the trajectory of how knowledge might be managed in the medium long-term.

Interview 5 - Male

... our retailers, our customers sort of focus rather than a wholesales sort of focus...our previous CEO he was focused on big internal business processes and how we can reduce our cost of doing

business....Having a behavioural shift, you need to give people the opportunity for them to change. I don't believe there is an opportunity currently.

External factors - "Financial impatience" and market forces impacting knowledge

The participant identifies external factors that can impede knowledge or contribute towards knowledge erosion and degradation. The idea of pressures such as dictating financial ones he defines as "financial impatience" and strong market forces, short term or urgent actions that may degrade or strip the organisation of its capability to build and retain knowledge.

Time pressures impeding reflective knowledge

These participants identify time and role demand pressures as impediments, to not merely sharing knowledge but also impacting the quality of knowledge.

Interview 5 - Male

...I think that we're too focused on our daily roles, daily tasks to be able to get some time out to reflect. I think that's across the entire company, the entire organisation.

Interview 11 - Male

Time pressure is a big one now. In our role at present we've got say 200 suppliers. We've got 4,000 lines in the warehouse so trying to go through all them...Time can be a factor, I wouldn't say it's a huge one but there is a bit of pressure, you might not pass something on quickly...

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Retailer and stakeholder pressures - Right information/knowledge at the right time

When asked about the importance of knowledge erosion and degradation, several participants highlight retailer and stakeholder pressures and influences, coupled with external factors.

Interview 9 - Female

....in our organisation it's being a little bit unique in that where it has outside pressure from retailers but at the same time they're our retailers so it's kind of an internal pressure....We need to give them the same information so the knowledge that we're passing on to them. They will

have pressure to make sure it's right every time and put the pressure to make sure where everybody is up to speed and everybody knows how to do it...that drives us to have good sharing of knowledge on things that are retailer based.

Interview 13 - Female

It was back then I was in New South Wales with the groceries and they were looking at a Property Improvement Program that they ran. They literally got rid of or let go a lot of knowledge and brought in a lot of new people that didn't necessarily do. I believe, we were very, very close to closing the doors until Organisation X came in...They seemed to value older people that had knowledge or had gone through certain changes within the company. Not saying those people stayed but at least they listened to them and took time to go around and talk to these people. Again, their knowledge of where they had come from, transferred in here. Between the two obviously we took off...I've sort of seen some restructuring within different departments and it's quite funny that in some areas,...I have seen them now go through their third rotation and it's quite interesting how once they make the changes, how they've gone back to some of the older... ways of doing things...I think our management team now has learnt a lot and maybe from decisions that they made where knowledge had been eroded or left...I think now they listen a lot more and collect a lot more information, maybe before going in a particular direction.

Misinformation or misinformed knowledge

This participant recalls an experience where stakeholders were dissatisfied, due to misinformation or misinformed knowledge reflecting forms of degraded knowledge. The participant recalls:

Interview 9 Female-

...So, we have a huge motivation for that portion of our business, to get that knowledge right every week because obviously we trade in an awful lot of detailed information every single week... ...So every time we get that wrong we get a feedback list saying you need to do a better job the next time...

Business and knowledge bolted on silo risks

Aside from changing consumer needs and impacts on knowledge, this participant provides additional examples of how strategic considerations or factors can shape the direction of knowledge. Acquisitions create "bolted on" businesses - and how well these acquired businesses are bolted on, can be associated with degrees of knowledge erosion and degradation.

Interview 2-Female

....we are in a company where the acquisition... we are always acquiring some other business So you're adding on you know like, just a grocery business, you have departments to go to, you're

going to buy the hardware and then you're adding on all that ...they're not directly related at all. However, you still have to quickly adapt to that addition.

These observations regarding strategic considerations, raises potential challenges and risks surrounding acquisition strategies used to expedite growth and expansion as well as how knowledge transfer and utilisation, can remain siloed.

IT and changing internal perceptions

Interview 14 - Male

I think It's where IT really needs to start changing and evolving the way that It's seen within the business and I think some of the things that. I've come from a previous background...where I worked for other IT companies so they really knew ... the benefits of IT and what IT is to the business and I think there's a mind-set that needs to change internally...

Inter-organisational cultures: Post impact effects of restructuring and downsizing

The participant was asked about experiences working in different areas. Functional contrasts are quite marked, signifying sub-cultures within the respective functional areas.

Interview 12 - Female

There's a huge comparison. Previously I was in the corporate office. It was very cold, morale was quite low there was almost an oppressive feeling...A lot of people in that area felt very uncertain about their future in the business. It was a very high pressure area, in merchandise and buying and stuff, very high pressure. A lot of expectation on these people, they were hit pretty hard with restructures a few years ago and I don't think really recovered from that. I think there was a bit of distrust towards the business in those areas, and not knowing what's going on...

Interview 16 – Female

... it's an evolution of a new business and the way they're looking at things and I think from there what we're going to see is maybe an attempt to retain our knowledge, and each business unit will have a common goal, objective and process. They're different businesses...and they do run, behind the scenes, different structures but I think there's a common goal and objective we're seeing.

The participant portrays loosely connected and semi-autonomous business areas recognising the need for more coalesced practices or processes to enable enhanced knowledge retention.

Changing business model-rejigged knowledge-don't live in the past

Here, the participant highlights the realities of changing industry and market dynamics, and how external forces of change require organisations such as Organisation X to continuously evolve. These external pressures are also observed by several other participants, reinforcing

that the new organisation needed a major shift in *modus operandi*, to adopt a different business model. These external influences and shifting business models can have knowledge erosion and degradation implications.

Interview 3 - Male

...You can't go making something for a hundred thousand dollars and it costs you a hundred and ten grand to make it, because you don't stay in business very long...if you can import that even cheaper and still sell it for a hundred thousand dollars, but it's not costing you anything to make because you imported it for fifty, you're now making fifty grand instead of losing ten. I can see where, why things have changed that sort of thing....

... it's the ones who have recognised this shift in business model and that if you come on and be able to adapt and make and gain new knowledge or use their old knowledge and re jig it, that make it a success.

Sustainability and cost pressures challenges

The demise of the automotive industry in Australia due to global and market forces mirrors the cost pressures for the industry and this organisation.

Interview 3 - Male

....we're in an industry that costs a fortune to pay in wages. You can't just keep throwing good money out.

It's happening within our own industry. The effects of fuel discounting and things like that. So that's where the big two use their market share to change the way people think...if they think they're getting a bargain they'll go why not? ...There's always conditions on these so called benefits as well. The double discount one's not too bad, it's thirty bucks....But when they start saying you need to spend 100 or 200 dollars to get 30 cents off fuel, people are actually trying to push themselves to get to that spend and not necessarily being able to do it....There's a lot of that; that pressures the independent, not just independent grocers, it also pushes independent service station owners as well.

Time, motivational and seasonal and stakeholder pressures

Various participants argue that time and seasonal pressure can affect efficacy of knowledge transfer and knowledge building.

Following earlier sentiments about factors influencing knowledge and whether these are controllable within the organisation, the participant returns to motivation, time pressures and work related demands.

Interview 9 - Female

In reality even if you know they never came back to us and you never had proper training and that because for other reasons because we do not know that kind of level...how to use the systems. But in reality, and it's like, they never left out staff but the reality is...we have to write them [procedures] because we need to put in that extra layer of information. But then when are you going to get the time to do that in your day to day, whose going to reward you for doing that? ... When am I going to get the time to sit down and pass that information onto everybody at once?

Time pressures impeding reflective knowledge

These participants identify time and role demand pressures as impediments, to not merely sharing knowledge but also impacting the quality of knowledge.

Interview 5 - Male

... I think that we're too focused on our daily roles, daily tasks to be able to get some time out to reflect. I think that's across the entire company, the entire organisation.

Interview 11 - Male

...Time pressure is a big one now. In our role at present we've got say 200 suppliers. We've got 4,000 lines in the warehouse so trying to go through all them. Time can be a factor, I wouldn't say it's a huge one but there is a bit of pressure, you might not pass something on quickly....

Time and seasonal considerations are factors that can shape or influence how knowledge and learning occurs, with resultant impacts on knowledge and learning effectiveness.

Resource constraints

Numerous participants raised the issue of fiscal or budgetary constraints that impeded knowledge management practices that could have a bearing on whether knowledge is at risk of erosion or degradation.

One participant raises resource constraints as a barrier and possible contributor to forms of knowledge erosion and degradation, making a causal link between level of investment in learning and development and knowledge management systems. Returns from such

investments could, in his view, enhance knowledge and information voracity to safeguard against the risk of insufficient, outdated or missing information and other forms of erosion and degradation. The theory postulated is that the higher capital outlay the better the knowledge management outcomes.

Interview 18 - Male

...we don't have the resources or the funding to hire people who can document this. If everybody is already that busy. Everybody is very time poor, they have trouble doing their daily role never mind documenting everything they do.

Well it's definitely a point of difference if you think about say competitor 1. For example. I recently found out they spent about \$68 million a year just on learning and development alone. Now if we get \$400,000 for our entire workforce that is quite a healthy budget for us. So for me it's a budgeting issue. I just don't think we have the resources or the finance to hire the resources to gather the information correctly, document it correctly, store it correctly, we just don't have the resources to do that. And everyone has their job and unfortunately no one's job really is to note down what they do how they do it and to keep it updated.

They can get people up and running a lot quickerif you've got the documentation with a new employee they can pick it up, they can read it, they can run with it really quickly it takes ours [organisation] quite a long time to get somebody up to speed because it's about having a conversation with somebody about how to do something or going spending time with another department rather than just have the documentation of what the procedure is....

Lean thinking practices a knowledge erosion and degradation risk and process knowledge gaps

Another participant along similar lines flags constraints, but aligned with an operational philosophy. This participant argues there is a possible link between adopting leading thinking and practices, such as tight resource constraints, which can then lead to gaps, codified processes and knowledge.

Interview 5 - Male

...This organisation is very lean as far as from an operational perspective, so people are quite focused on their role that I guess that's the most productive and efficient sort of outcome...of resources...that's when those people need to train people coming into a job and there's not a lot of documentation processes and information for on boarding new staff to pick up ...

Details of feedback and analysis from participants – Supplementary information

Introduction

This appendix includes detailed key verbatim quotes extracted from the original transcripts-. Note that whilst twenty participants were interviewed there was one participant who selected not to be recorded and one participant was unwell cutting short the interview. One other taped interview was unclear in parts and handwritten notes augmented the process. No major statements were highlighted. Some quotes or less significant statements have been deleted either due to participant comments not being directly related to the thesis topic or due to technical issues such as unclear words from original recordings. These verbatim quotes were used to build key themes discussed in Chapter 6.

Participant perceptions, views and conceptualisation of knowledge, knowledge work the value of knowledge and knowledge preservation

The following details key textual descriptions of participants’ conceptions of knowledge and knowledge work perceived as significant statements following phenomenological interpretation and broadly grouped according to respective themes. The first section shows key statements in a table format with accompanying discussion and the second section provides more extensive description.

Conceptions of Knowledge

Knowledge Construct	Knowledge Construct	Knowledge Construct	Knowledge Construct
<p>Empiricist perspective and the “school of hard knocks” and beyond bookish knowledge</p> <p>Interview 1-F... Something large, larger scale... Knowledge I don’t always necessarily think is something that is educational based... It could be knowledge that games from experience on the job...</p> <p>Interview 2-F</p>	<p>Formal or theoretical education and knowledge and bringing knowledge into the workplace</p> <p>Interview 17-F I’m a person that likes to learn...and I’m doing a Commercial Law Degree... I’m trying to bring all that knowledge into this workplace</p> <p>Interview 2-F what knowledge I</p>	<p>Contextualist perspective</p> <p>Interview 2-F Because Organisation X is about individual entities in the market place then everything works differently. Someone may be in the education, some may be in the finance...depending on that knowledge...</p>	<p>Cognitive perspective- Misconstrued knowledge</p> <p>Interview 8-M ...people get upset because they’re worried about how things are interpreted, they’re not getting the responses they want and instead of resolving something quickly it takes quite a lot of time.</p>

<p>...organisation comes first and then the knowledge I guess... gained from experience... rather than a piece of paper... The more diverse the organisation the more diverse the knowledge... many examples out there of guys who started off in companies... they've risen to the top and haven't got the qualifications</p> <p>Interview 4-M</p> <p>I think knowledge is really just a collection of experiences that you've gained over a period of years... obviously multifaceted...</p> <p>Interview 5-M</p> <p>there are many people who didn't have tertiary qualifications but had 20 years' experience, could be as valuable to a business</p> <p>Interview 6-F</p> <p>because of working in stores before I came here, I had 15 years' experience working in stores. That experience taught me a lot.</p> <p>Interview 8-M</p> <p>... you can get a book on it but the best knowledge, the best way you're going to learn is hands on...</p> <p>Interview 10-F</p> <p>I'm getting the knowledge I'm supposed to know. I suppose what I need to know I get taught what I don't need to know you don't get shown or taught.</p> <p>Interview 3-M</p> <p>School of Hard Knocks is probably the best school for people obtaining experiences and knowledge.</p>	<p>have... whether being the education or being the experience in another organisation I applied... starting from a career where I was going to teach then went to a nurse's aid... into the office environment I have been very fortunate to acquire my own knowledge through other people... tertiary education is a wonderful thing... where knowledge to me is not necessarily gained in a classroom.</p> <p>Technology and knowledge</p> <p>Interview 3-M</p> <p>these kids that have got iPods in their ears and, they talk to each other on the mobile phone... have been given that much knowledge and open information through the internet... have that much knowledge at their fingertips and they're not necessarily taught how to use that knowledge</p> <p>Organisational knowledge perspective, Golden rules and Know-how perspective</p> <p>Interview- 5-M</p> <p>Knowledge to me is around business knowledge; it is around not just the technical knowledge... but to me knowledge is about how your business operates... through a lot of listening to a lot of people... multi skills and knowledge across different areas, knowledge across IT, knowledge across different processes, knowledge across business models, and</p>	<p>Coherentism perspective- Background knowledge</p> <p>Interview 1-F</p> <p>... prior to HR, working in the payroll position, so I have a lot of knowledge with the guys, the blue collar workers out on the floor. Even in relation to, not just the business side of it, over a period of time, you do get to know them... because you do have an understanding or background knowledge of the people...</p> <p>Objectivist perspective</p> <p>Interview 4-M</p> <p>Knowledge is probably more objective or of fact and then your personality is how you interpret that knowledge... There are certain facts, facts that aren't presented that become knowledge. That's the retention of facts and observations that you make...</p> <p>Innatist perspective</p> <p>Interview 9-F</p> <p>I think knowledge is just what you know</p> <p>Interview 10-M</p> <p>- Knowledge is knowing things... it can mean a lot of things, knowing general day to day things, knowing</p>	<p>Vastness of knowledge-internalist and externalist perspectives</p> <p>Interview 14-M</p> <p>I think knowledge within organisations encompasses such a vast range... obviously knowledge as such can pertain to, internal knowledge and the company itself... the way that the company forms and operates and the processes... the other side of it is, the knowledge component that is specific to individuals I think knowledge in itself, is such a broad term when it contains to an organisation. I think that you can take it to a very detailed level where it can be that vast big bubble that just encompasses everything. I think it's multifaceted, it's multi layered and the purpose of knowledge to one person and of what they do, is the knowledge that they hold and maintain and how that contributes to the wider knowledge and I guess intellectual properties... its' vey vast</p> <p>A post-structuralist perspective</p> <p>Interview 6-F</p> <p>Someone told me once, and I still get a lot of this that knowledge is power and that a lot of the people will hold that knowledge, they won't pass it on...</p> <p>Interview 15-F</p> <p>- For me power, knowledge is power.</p>
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<p>Knowledge for growth and innovation</p> <p>Interview 16-F</p> <p>...I think there's two sides to knowledge as well. There is the knowledge of the business and there is... that knowledge to grow with the business. Then there's knowledge of the business that is knowledge that has been with the business for 50 years and can't grow and it's not growing it just sits there Knowledge is not that anymore. Knowledge is what my business does, what opportunities do I also have to offer the business? It's not just how the business operates... it's the core...</p> <p>Knowledge cogs - The bread and butter people</p> <p>Interview 12-F</p> <p>Nearly everybody has to do some kind of development plan or training and some people just don't want to do that, and I don't see anything wrong with that. For me, you need those people too. They're the bread and butter people who keep the place running, turn the cogs. Whilst all the other high achievers are running around coming up with strategies and making plans...</p> <p>Individual perspective and knowledge</p> <p>Interview 18-M</p> <p>... It is the people that have the knowledge so it is the individual in the organisation that has the IP. The people who have been here the longest are the people that hold the</p>	<p>knowledge across customers and the service.</p> <p>Interview 16-F</p> <p>Knowledge to me would be the golden rules of an organisation... Knowledge is what you know really... someone you're having a deep and meaningful with, someone says what's your knowledge on life? I would say it would be the golden rules that run this company...the backbone</p> <p>Interview 17- F</p> <p>...I've built my knowledge and...my wisdom, from Organisation X. Basically, it taught me a lot more than I have come with...</p> <p>Interview 18- M</p> <p>...I guess to me knowledge is having the understanding to be able to do something...</p> <p>Outsourced expert knowledge- "Putting things in black and white"</p> <p>Interview 16-F</p> <p>Well I just had a very quick conversation with a manager before I came here to talk about knowledge and one of the things we have is we've outsourced an organisation to look at one of our businesses...He said it's really lovely to see how this outsource company is actually putting things</p>	<p>business, how to run your business. Knowledge, teaching the kids how to behave properly. It's a hard word to say knowledge is It's basically knowing... just knowing...</p> <p>Short term knowledge needs - Picking out the brains</p> <p>Interview 9-F</p> <p>Short term knowledge issues. My particular role is very much relationship driven so picking out the brains to give a certain customer something...</p> <p>Logic and rationalist perspective</p> <p>Interview 3-M</p> <p>I'm in a fairly high profile role in accounts payable... if you want to find out a question you can follow it through the path. Well you say, who, go back to the, I tell all my people go back to the base. Where's our issue? Where's that start from? Is that a receiving issue...Is it a pricing issue? We always find the path... So we have all our processes mapped out, so if there was anyone that came in new, could pick up a piece of paper and see what they have to do and follow those instructions.</p> <p>Gen Y agnosticism</p> <p>Interview 14-M</p> <p>Gen Ys and the people</p>	<p>Well in the time that I've been in the role for me personally, applying that knowledge has given me the power I guess you could say because it's given me the ability to help expand the strength of my role and assist customers in more ways than just marketing</p> <p>... that's been through the acquisition of knowledge.</p> <p>Knowledge classifications and forms</p> <p>Interview 13-F</p> <p>I think there's different types of knowledge when it comes to organisations. You've got historical knowledge, actual business knowledge, and structural knowledge. I like to put things into categories. I like categories...</p> <p>Interview 6-F..., profound knowledge being someone that's been in the business a very long time, that's not just in this company but say... ..brought knowledge to the business and then there's knowledge that the person has gained over time.</p> <p>Interview 11-M</p> <p>Knowledge I guess is, for me, I was basically starting from scratch again coming from competitor... learning the new systems...</p> <p>Interview 4-M</p> <p>For about 30 something years, in various retail organisations, the knowledge that I have has been gained in a basic property</p>
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<p>most knowledge</p> <p>Knowledge and diversity Interview 8-M</p> <p>...In the warehouse you're going to deal with hundreds of people weekly and they're from all walks of life, all different religions, cultures, attitudes, and you need to be quite resilient, you need to be a person that is understanding of what their issue is, so that when you are dealing with the problem you're armed with that knowledge to not look like a fool...</p> <p>Absorptive Capacity and knowledge shortcuts Interview 17-F</p> <p>I The company puts it on us whether we want to absorb any more knowledge or not. I'm the type of person who, I like to get from A to Z very quickly. I don't like going A, B, C, D...do it the easy way. I don't like doing things the hard way.</p>	<p>in black and white for us...</p> <p>Knowledge, complexity and beyond rudimentary knowledge and knowledge intensive roles Interview 2-F</p> <p>...in the main frame days where it was very transactional... we were able to write, pen and paper ... knowledge and carry on ... PC world, so we couldn't manage that because the complexity increased and how we were asked to assist to change...</p> <p>Interview 6-F</p> <p>Yes and it's all very well to say this is how this guy does estimates and in putting your estimates for stock control, and that's fine and that shows you do estimates. But why would you need to do that? What is your deadline? What impact is it going to have if you don't meet that deadline, and if you've done estimates now what do you do? It's all of those extra questions that the team that trained them can't answer. So technically, there's more knowledge to know on how to run systems than the people that trained us in the first place after twelve months</p> <p>Interview 16-F</p> <p>... We do finance administration... national projects like office</p>	<p>that are coming out, the technology that their working with and dealing with and their education and that, they're a lot more agnostic¹⁵³ ...the younger generation they're not fussed, they're more agile... I think the way they have been taught is to be a lot more flexible in their approach.</p> <p>Lifestyle, family influences and values shaping knowledge and learning Interview 17-F</p> <p>I think it's the lifestyle. I think it's the person's lifestyle. One particular person... .. if she needs to stay for 5 minutes behind after 4PM, there's no way I'm going to do that... ..just for lunch, they'll ring up mother, what's for lunch... ..fantastic - those two, they'll be gone. It's the individual. It's their lifestyle...</p> <p>Interview 17-F</p> <p>With my dad, I'm a lot like my dad, he likes to learn, and he's gone now. He was a learner and I learnt a lot of things as well. I guess my dad was well educated and the more knowledge you absorb the better you are and the further you'll get in your career and that... I've got two, one mechanical, one</p>	<p>development... the knowledge I have gained in the ten years here, has been an embellishment... also an overlay of what we'd call supermarket specific knowledge which you then have to overlay or interweave with the property knowledge...</p> <p>Interview 6-F</p> <p>...When you work for an independent supermarket you have to take in a lot of, you have to gain a lot of experiences and do lots of roles... I think you have a lot of knowledge in the running of a supermarket and that experience and so when I came here that was what I brought with me...</p> <p>Interview 9-F</p> <p>...If you're starting off with a different supervisor or at the checkouts or whatever, you're doing the rostering, they're going to be there to tell who rosters what, which rosters on, how many people for each day of the week. Do you know the kind of thing? You end up overstaffed one day and understaffed another.</p> <p>Pragmatic and utilitarian perspectives of knowledge-the right knowledge Interview 6-F</p> <p>I value knowledge because I need it every</p>
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¹⁵³ Agnostic derived from agnosticism philosophically represents not subscribed to a fixed view or backup that proves either God exists or does not exist. This context the participant is stereotyping generally less oriented to an existing system and flexible to accommodate other systems.

	<p>equipment, which I've just rolled out in a new Program for the corporate sites, 800 users We do things from, simple things like stationery to more complex projects like travel. So we work a lot with non-trade recruitment and obviously I work with finance. We do a lot of renovations, relocations, we do a lot of people management because obviously all of our areas are personally driven ...it's a very personal aspect, so we do a lot of people management</p>	<p>engineering degree and the masters of that and still learning other things as well... my dad's older brother who was an interpreter. He read and wrote and spoke 8 languages.</p>	<p>day; it's a part of my life to use it.</p> <p>Interview 9-F</p> <p>The immediate thought really is just about what information do you need to do your job, that's really what constitutes the right knowledge for the right job.</p> <p>Interview 16-F</p> <p>...the knowledge that runs an organisation or a business... it's really the core basis of what operates the business and it can be anything from a simple format of a letter, project planning and it can get into the most complex process like our rebates and a lot more figure orientated.</p>
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Maintain, trade-offs -new blood versus preserving the old, preserve for organisational growth

Interview 2- Female

Definitely knowledge is something that should be really acknowledged and maintained ... as an organisation, because a lot of times, someone's said and someone knows and have been doing for a long time but to preserve that is a very important...

Interview 1- Female-

Yes I suppose your management are aware that, it is important to preserve, but ...it's whether they're looking at wanting to preserve the knowledge or whether they are looking at bringing in fresh blood... I think that the company's aware that they do need to preserve the history of the organisation ...

Interview 8-Male-

I think we could be better at it...my opinion is that we have had skilful people in the past that unfortunately let slip I don't think everyone is on the same page.

Interview 14-Male-

I think we are aware of the importance of knowledge preservationand what we're trying to achieve now and how we manage that content and that knowledge and that information that everybody ... accesses and sees on a day to day basis, yes. It's only going to become more relevantin the future as to how we understand what we do, the ways that we can improve that, what our customers do.

Interview 15-Female

The preservation of knowledge more so than anything because the company grows potentially, if someone leaves that knowledge goes with them.... we don't keep a record of processes in place and therefore that person who may have acquired ... knowledge within their role that hasn't been recorded in any way, the processes haven't been in place you don't realise the depletion or erosion of that knowledge has gone with that person.

Interview 10-Female-

I think we're pretty good at preserving knowledge. I think that the upskilling of people and feeding people through and putting them in positions where they can learn from others, who are already in those roles.

One participant perceives that knowledge preservation and minimising risk of loss of key knowledge is not consistent across the business. She responds:

Interview 12 - Female

I think there are some areas where they do see the value. But I think there's a lot of areas, where it is, again, that attitude. She'll be right, we'll pick it up, and someone out there will know what we're doing. Or they'll get somebody from outsidehoping that person can come in and just pick it up and run with it...

Management style, specific knowledge loss

Interview 1-Female-

...depending on who's managing at the time... it just depends how the organisation actually sees the importance of erosion...

Legacies and knowledge retention

The participant highlights how knowledge can transform; however he recognises that knowledge can legitimately be superseded and that past systems or knowledge also can assist in resolving current issues.

Interview 14 - Male

Legacies, they still needthat knowledge or understandingto be able to retrieve that andinterpret it.

Knowledge degradation - Discounted knowledge - “the past is rubbish” and knowledge pushed aside

The participant typifies one form of knowledge degradation as past knowledge that is either discontinued or discarded.

Interview 18-Male-

... whenever we get a new employee,it is the most important thing that they don't ever discount or speak negatively about what was done in the past, because people are very loyal and hold those processes very highly.....we have a really great example of somebody..... who started and the first thing they did they said everything you have done as a team in the past is rubbish and you will do it my way moving forward and that person got no buy-in and nearly 2 years later they still have no relationships with anybody and people talk very negatively about thisvery senior person ...

The above reflects an intellectual capital perspective, where a bank of knowledge is stored in an individual's head and accumulates over time. The risk is that the knowledge stored and invested in this individual is summarily withdrawn and deposited elsewhere if they move to another employer.

Heritage Jobs things people just do and fresh eyes

Another participant considers knowledge preservation from a contrasting angle and job degradation versus upgradation. The concept of *heritage jobs* emerges and links are made to the concept of erosion.

Interview 10 - Female

There's a lot of heritage things that people just do because we do them. When someone new comes in it can be a good thing.... they just do what needs to be done, and they don't do the other jobs that probably weren't required anyway...

Organisational forgetting - I think a lot about it then it's all forgotten

In contrast to earlier comments she believes that the short-term effect of knowledge erosion or degradation can be extinguished after a subsequent period and lead to organisational

forgetting. There are also implications for individual's absorptive capacity and adult attention, demonstrating the need for knowledge management.

Interview 15 - Female

... it might have been discussed or presented and then it's been all forgotten after that, it hasn't been followed up...I honestly think that if it was encouraged more and put into staff's minds just to think about how to prevent knowledge erosion...it's gotten to the point where knowledge is either lost or discarded or eroded

Value of Knowledge

The following additional standout statements identify examples of how knowledge is valuable.

Interview 1-Female-

I do think knowledge is valuable, especially if you have had people that have been in the company or the organisation for quite a while. It's always useful to get a bit of history on the company, that sort of thing, where someone who may only have been with the company for two to three years may not have as much knowledge, surrounding that company that someone who has been with the company 20 years, I mean they would be able to give a different insight to what someone who has only been with the company three to five years may bring.

Useful Just in Time information versus Giveaway knowledge

Quality control issues around information or knowledge, from her experience, have likely repercussions or impacts leading the interviewer to ask the participant if she believes valuable knowledge is at risk. In a rather contradictory fashion, she responds:

Interview 9-Female-

I wouldn't think that there's anything within my area that would be critical, if it was information that people could use. Even if you were talking about financially sensitive information, most of the time by the time the information gets somewhere it's useless anyway, it's got a moment in time where it might have been important.

An additional insight gleaned during the conversation, and extending from previous sentiments, surrounds knowledge exchange from giver to receiver. The participant individualises knowledge and how value can be perceived differently, depending on the vantage point of the knowledge giver or receiver.

It depends on the knowledge and it depends on how important it is to you, I mean knowledge there is certain knowledge that you can give away free of charge kind of thing...

Another participant highlights the importance of stock control knowledge. Interview 8-Male- The most common issue will be shorts and damages on deliveries of order. That's the most common. Well we on site deliver all the groceries; we deliver perishable items and slow moving general merchandise. So everything in the supermarket, we send out.

Strategic and market based knowledge for competitive advantage

Some participants viewed strategic and market knowledge as valuable forms of knowledge. One participant strongly affirms the strategic significance of knowledge also noted in Chapter 4.

Interview 4 Male-

If you talk about knowledge, for example knowledge of the way our competitors work, in terms of our competitors in the market without knowledge, the more knowledge we have about our competitors, the better place we are to improve our business model to be competitive against our competition. Knowledge really has so many aspects of the business. Every aspect of this business is built up by acquiring knowledge internally and externally. Internally from our own staff, external organisations and other companies as to how we use all these elements of knowledge in the best practice; warehouse, distribution, of product purchasing and merchandise, advertising and property training. So knowledge is absolutely essential and then, the sharing of knowledge throughout the various departments and facets of the business that produces a cohesive business...

Organisational transition, complexity and diversification

Asked whether she believed there was a level of awareness about the importance of knowledge, she replies:

Interview 16 - Female

I think there is a lot of awareness but I think we're such a complex organisation at the moment. I don't know where you would start. I think that, I don't just think it's Organisation X, I think it can be any organisation that's going through the transitions that we are going through who would be asking themselves where do we start? Where are the resources?

Leveraging Inventory and Stock Knowledge for economic gain

The participant shared observations/experiences in relation to the value of specialised knowledge and how lack of knowledge directly impacts business and its financial performance.

Interview 11-Male

...obviously inventory and stock profit so it's a big part of how we make our money, stock profit, and that's one thing I want to learn, because we've got CPI. CPI's a massive profit earning for Organisation X. You know each February basically the government puts up their tax or the suppliers put it up so obviously we need to buy before the price rises to make our stock profit. So learning all those ropes, if you didn't learn that and you just went day to day keeping at a normal stock and the price goes up then we haven't made any money.

Critical and taken-for-granted business knowledge and knowledge needs of customers

One participant shares experience of situations where information or knowledge known by the participant organisation is critical, either for solving issues with customers or assisting personnel with running more efficient operations. However, sometimes this knowledge can be "taken for granted knowledge" which is a natural part of day-to-day working knowledge and might seem obvious to the job incumbent in warehousing, but is underestimated in its importance when communicating to customers.

Interview 8-Male

They're the majority, I guess the old 80/20 rule, 80% of it will be shorts, damages, overs, and then the rest would be made up of missing paperwork, when's my delivery coming? Can I change my delivery? I have an issue with the driver, I'm not happy with this, and then some of them are becoming proactive, now, I'm personally getting calls from people actually thinking about their business a little bit more, and asking for alternatives to what they have been doing for a number of years. I'll give you an example; a customer gets three deliveries a week, so they might get five pallets, five pallets, five pallets. Now the transport costs...pretty expensive.

So they might come back and say, look I might get seven and eight pallets twice a week, can you tell me how much it will save me? etc., etc. You give them that information, boosts their savings and we've done it where and how we've solved it is by saying, well look you can...how many? Two? How many hours? I give a minimum of 4 hours. I said, so you're giving them four, four and four. If you got two deliveries, you're going to save on freight and instead of 12 hours you're only going to give your casual 8 hours and they're going to save again. Oh, I didn't think of that. So it's a win for Organisation X because were travelling twice to pick these orders instead of three times, and time is money and money is travel. And it's a win for me.

This reflection highlights the importance of social relations between the participant organisation and its stakeholder customers. The idea of social exchange, between the knowledge holders and knowledge, imbues new knowledge between the respective parties and a recognition of value creation to the customer through knowledge exchange.

Knowledge for good customer service - Knowledge wrong way round

The participant approaches knowledge from a customer facing context and customer service experience, which calls for investigation and resolution of a myriad of key customer issues that require key knowledge and is essential to maintaining customer goodwill. The experience described below illustrates how knowledge extends beyond information and problem-solving; intuitive skills are needed to resolve some issues, such as missing or incorrect stock.

Interview 8 – Male

In my current role as customer service manager, we get calls all day, every day and it's usually issues. So if you can act on and resolve them quickly you get a far better appreciation from our customers and if you cannot waste time trying to resolve it and actually get to the root of the cause, get it fixed, get it resolved and move on and you know the key message is to try and get a win/win, a win for the retailer and a win for the business. So absolutely, that's critical to get that sort of result. I'll give you an example where recently we had a certain customer call us and said that, I got all the stock delivered but I'm missing heaps and I've also got some other stuff- that's not mine. Okay, so a few hours later, we started investigation on what had occurred, contacted the warehouse, then we get another call from another customer with a similar issue, and I happened to hear both conversations and I said hang on I've got a feeling, how many colours did you get? Two. How many did you get? Two. They've gone, wrong way round. Checked the labels, labels were fine, because every colour has a destination label.

Knowledge for value creation and bottom line performance improvement

The same participant expands, highlighting how knowledge has perceived value for the customer and is an enabler for customer retention and engendering more effective stakeholder working relationships. The participant reemphasises how knowledge is valuable for bottom line performance for both the participant and customer organisations, qualifying how trust and the quality of the relationship can affect the likelihood of a customer or stakeholder seeking additional knowledge or information.

Interview 8-Male-

...The warehouse has to travel around the clock, so that's affecting the bottom line because how do they judge how many cartons per hour they pick. So three deliveries a week doing 70 cartons an hour. Twice a week they might be doing 75 cartons an hour, so that's changed their bottom line instantly. So, it's alright having that knowledge but ...if you didn't have the relationship in the first place in which you've got to ...work on building, they might not have called and asked that question and then, you need the knowledge to answer them. Otherwise if you don't, they might not ask you or you've got to find out. By the time you find out and get back, they have another question then you've got one more learning, but you might be impacting that person, and they might not come back to you and ask you for something else.

Getting on the front foot - Going over the hill

Encouraged to continue, this participant explains how applied knowledge is needed both for reactive and proactive situations.

Interview 8 – Male

I like being reactive and proactive. In my area now were very, very proactive because people call us with problems. So if they call us with a problem and we react to it and deal with it, now let's get on the front foot and let's be proactive so it doesn't happen again and time committed. That's our direction and I actually had a meeting with my team yesterday...and I said to them, we're in a position now where we're very good at reacting to the problem issues, so now let's get on the front foot, get out of the warehouse floor, follow the orders around so that they're 100% accurate and we won't be reacting to that order because were being proactive and checked it before it left here....

The participant instils quality management practices to support better knowledge outcomes and prevent obfuscation.

One participant shares his perception about valuable knowledge and how, when knowledge is transitioned or shared effectively, it can have positive impacts or effects on the business.

Interview 11-Male-

Valuable knowledge is information that you're happy to share, pass on, the more people that know things the better the business will run.

Knowledge of service and IT:

Providing an internal corporate service function requires knowledge use for effective service delivery.

Interview 2-Female

Where...the whole of organisation has got any enquires about information technology, so they all come to us, we are the first point of contact. So we have, not only to provide, that's what I think, customer service in itself which is difficult and when you've got the technology systems attached to it, it is a more difficult situation. So you want to be giving consistently right answers as far as possible. So knowledge is very, very important to us and how it is managed is equally important.

Knowledge work and complexity

This reflection shows how IT related functions have been transformed, from transactional and less valued added functions, to providing greater access for end users, which is reflected in the following statement.

Interview 2-Female

In the area I work it's quite complex because of the systems ... at the first point of call you can't always deliver with responses so 60% of the questions we face we can answer, but the other questions have to be dealt by other group of people so even in understanding okay. If I can answer, knowledge is differentif I can't, I have to hand over to someone else. ... to be able to know all that is only possible by understanding what the organisation's needs are and having the proper knowledge that's there to do it.

Deep smarts, breadth and depth and across the board of knowledge

Several participants comment on the value of deep knowledge and knowledge stored within individuals and accumulated knowledge.

Interviewer 3- Male- 45years plus-

But then, you'll have..., someone like myself, who knows a bit about this part and a bit about that part and knows how to bring it all together and that sort of thing. Especially applicable to our organisation and knowledge, as I said, is just gained by experience.

Interview 4 -Male-

When you first start in the business, you notice specifically about your role and over a course of time, I've been here nearly ten years. You start to gain an understanding of all the other aspects of the business and how they're impacting on your own role. It's all about gaining and sharing knowledge.

Interview 5-Male-

...someone may raise a problem that they have, and that problem that they have might not be their problem but could be a problem further upstream that may cause the problem for them. Trying to address the symptoms and the cause and trying to analyse that information that you get around ...the organisation. I've obviously been here ...many years; you learn a lot of things about the organisation. I'm the first to put my hand up and say I'm not an expert in anything, but I certainly know a lot.

Interview 1-Female

...someone who has been with the company 20 years, I mean they would be able to give a different insight to what someone who has only been with the company three to five years may bring.

One participant reflects on how considerable knowledge is deeply embedded within her role and reifies the significance of what she conceives as broad versus narrow knowledge, to gain deeper insights into various business entities and intricate operations.

Interview 16- Female

...this is where I'm very passionate, I need across the board knowledge of every business pillar. So that when a business pillar asks me to action something on their behalf, I can fully understand what their goals and objectives are... So from there I gain the knowledge of how the business runs...I may not know the bottom P&L, I might not know, but I do need to know what the basic knowledge of what the CFO or the CEO of that business requires. So then I can go off and action it and indicate what they need.

This view of knowledge accentuates the need for breadth and depth of knowledge given her senior management role and delegations. Here, the idea of a traditional expert as a holder of knowledge, is not an axiomatic condition for possessing breadth or depth of knowledge, a concept introduced in Chapter 4.

The following provides full transcript details excluding participants who either refused to be recorded or had to leave interview earlier. Reasons were explained in Chapter 5.

Strategies for prevention of Knowledge erosion and degradation

Business process and task knowledge

Several participants note how documenting business processes can support task knowledge across the whole of the organisation. The importance of process knowledge being current and

continually upgraded is also noted. One participant strongly asserts how it is not merely about improving processes but also ensuring that everyone has knowledge of who to communicate with or approach as well as having a systematic review or evaluation process identify process knowledge gaps (Interview 15 – Female).

Data capture tools and other platforms for knowledge sharing

Whilst other participants coming from a less granular and task and process conception of knowledge, believe more channels need to be provided for greater knowledge sharing be it in the form of a database or other tools that could also be enabled with platforms to enhance collaboration and communications.

Additionally the purpose of data capture tools can also mean that as another participant suggests “you don’t need to go to a meeting just so you can learn what’s going on’ (Interview 9-Female).Others suggest backup systems including hard copies to preserve knowledge (Interview 4).

Real time and useful information

This perspective is supported by a participant who despairs that information is not readily accessible in a form that is what he defines as “useful knowing” that is ‘readily accessible definable, and updatable by multiple people at the same time’ for effective content management (Interview 14-Male). Capturing information can contribute to knowledge building, but the participant qualifies that by saying that information does not automatically translate into knowledge and considerable interpretation of voluminous information is needed for it to become valuable and useable knowledge.

Other views hark to the role of IT and providing more value to the business areas including supporting quality knowledge and how to provide useful information but the benefits of IT for such knowledge management also needs a clearly enunciated business case and benefits realisation argument for investments in systems upgrades, maintenance and upkeep.

Knowledge management considerations

Aligned with KM systems perspectives other strategies fall under KM not as discussed below.

Documenting and codification of knowledge-tacit knowledge conversion

Acknowledging perceived degrees of erosion and degradation within the organisation, the numerous participants highlight the need for documentation of codification of knowledge such as reference guides and supporting documentation (Interview -5 Male, Interview 9, Interview 12-Female and Interview 14-Male). Such documentation extends beyond processes and can include core knowledge or information such as in relation to what functions people perform for greater insight into understanding facts of the business. One participant suggests the key gap is not having a central repository or 'library' as a penultimate information source (Interview 16-Female).

Allied with procedural knowledge risks, several participants raised concerns about the lack of codification of information or documentation, not just relating to procedures but conversion of tacit knowledge to explicit knowledge prior to exiting employees leaving the organisation. This would prevent risk exposure of the magnitude cited in the example of the unexpected departure of a key executive.

Appendix 6 details information about Organisation X and the unexpected departure of a person who had deep knowledge that was lost normal as information only came to light post the senior executive's departure. Whilst explicit knowledge about the job role was known, substantial the knowledge about customers and other aspects of business operations that left key knowledge gaps impacting the organisation's effectiveness.

Knowledge for innovation review of knowledge shortfalls and new ideas

Numerous participants, when asked if the extent of knowledge erosion and degradation was largely within the control of the organisation, raise concerns about the low level of fostering of ideas for continuous improvement and innovation. One participant also suggests the organisation needs a process to identify and appraise knowledge shortfalls as signals to assist management and staff but corrective actions which could support techniques applied in knowledge audits mentioned in Chapter 4.

An additional idea posited was for each person to take block time rather than waiting to participate a formal competition very two years to advance new ideas and knowledge (Interview 15-Female).

Formalised ideas for knowledge generation demonstrates how organisational ideas and knowledge can quickly date or need renewal in order to avoid maintaining degraded forms of knowledge and minimise knowledge remaining dormant. The sentiments also raise issues around the organisations' capability for more agile knowledge management practices.

Knowledge retention and manager role in KM practice

One participant notes how managers need to enact knowledge retention management strategies by sitting with staff to better understand understanding and insight into what people do and knowledge he/she possesses including systems and database used and whether staff have access issues to extract knowledge to also enable a review of and streamline systems (Interview 16).

KM systems, knowledge capture and codification and transparency

Asked for examples of strategies to prevent or reduce knowledge erosion or degradation, various participants flag KM systems and the need for effective knowledge capture and codification related solutions. Having such systems in place it is posited will enhance organisational effectiveness through having greater transparency and enable people to knowledge more for day to day running of the business .Knowledge erosion and degradation is not just about the 'high level stuff' and having a repository for documentation (Interview 12-Female) as sated- "I had a question come up today from someone asking, well what happens at Organisation X when we are.... I don't know....So where would you go to find it out? You don't know... Who do we ask? I don't know."

Another participant using his experience notes the importance of evaluative tools to gauge knowledge capture effectiveness which is not just quantitative but also qualitative driven through dialogue and questioning techniques (Interview 5-Male). This view supports earlier pronouncements in Chapter 4 about the importance of knowledge audits and KM evaluative tools.

KM frameworks, education and reward considerations

Another participant identifies a serious gap in knowledge management in the organisation notably with the absence of KM frameworks. In Chapter 4 various frameworks were

introduced to provide depictions of different approaches towards a knowledge management. The value of such frameworks can be to contribute to a roadmap or pathway given Organisation X might be viewed as a novice in relation to KM initiatives such as knowledge preservation. (Interview 18 – Male).

The participant of suggests a framework and KM initiatives as a possible roadmap or blueprint to initiate and implement knowledge management practices throughout Organisation X. Additionally, having a framework provides consistency and is a catalyst to facilitate education about the importance or value knowledge and managing knowledge such as with investing more time to document procedural knowledge rather than being viewed as an additional job burden.

This view contrasts with that of Interview 9 who recommends reward systems to motivate organisational members to record, document and share knowledge which also requires levels of empowerment.

Knowledge systems to safeguard knowledge - Centralised platform and digitalisation

One participant suggests the need for safeguarding knowledge through a centralised system to share and access information. The importance of an enterprise wide content management system mainly centralised all featured in the discussions. The benefit of such a platform would enable organisational member contribution and facility for greater access to information sharing.

The rationale for such a platform is founded on lean thinking principles as one participant signifies whereby there would be simplified processes to access, transfer and use knowledge or information. Such a platform is also viewed as an enabler for shifting cultural attitudes towards knowledge (Interview 14-Male).

In a similar vein, another participant goes further than infrastructure and a repository to expand the discussion around uptake of digital solutions to encourage old company focus including social platforms to enable knowledge sharing and building assistance to support knowledge across interested stakeholders within and outside the organisation(interview 15-Female).

Communication and passing on knowledge and information and networked knowledge

Other participants highlight communication, relationships and improving processes (Interview 15-Female) that means managers need to build capabilities around these key dimensions to facilitate and enhance knowledge. The participant observes based on her lived experience, that identify key constituents such as departments one has interfaces with requires building solid working relationships to elicit trust and effective knowledge sharing.

She further asserts the need for timely passing on of information (including email communication mediums) to ensure teams have ready access to new and updated information including procedural knowledge they can easily comprehend and readily act upon.

The participant emphasises the importance of communication systems and processes augmented through strong working relationships.

Other suggestions include more frequent meetings and presentations to keep more up to date with the dynamic nature of the business and acknowledges how the business is moving from a state and regional to National communication and knowledge quorum to activate enhanced networked approach to include retailers and suppliers and build closer ties for stronger collaboration rather than working separately and in a siloed fashion.

Cross functional and stakeholder networking and collaboration are noteworthy examples. The participant also notes the shift from conventional or formalised and geographically siloed knowledge and information sharing forums. These changes she believes are key levers to harness and cross pollinate knowledge.

HRM and Learning and Development initiatives

Several participants discussed knowledge erosion and degradation strategies that have links to human resource management, learning and development and job design. The importance of human resource management practices, aligns with knowledge management practices, raised in Chapter 4.

Another risk management strategy this participant identifies, to prevent knowledge being eroded or lost, is regular job rotation. This spreads knowledge across the business and enables employees to gain deeper knowledge of the inner workings of the organisation.

Knowledge utilisation - a form of degradation - right people - right place - right jobs and knowledge retention

One participant sharing impressions about knowledge calls for a review given reported instances of underutilisation of people and their knowledge (Interview 12 – Female). Examples from her experience are where people have considerable knowledge in a “particular area” and intricacies about how the organisation operates that is not being utilised for the “benefit of the business”. These individuals might be perceived as the Deep Smarts (Leonard 2004) or discussed in Chapter 4.

These sentiments are in line with another view that optimal HRM is about sourcing quality candidates with solid knowledge and matching the right people with the right job role including skills attitudes (including willingness to share knowledge) and knowledge. This may raise issues around reviewing HRM practices to integrate KM considerations.

Utilisation however is not just HRM issue but also a managerial consideration and what types of systems or tools are used to assess and report the skills and knowledge capabilities across the workforce which is another knowledge management initiative.

If one reflects on the Stewart model in Chapter 4, explicit knowledge might contain certain information about managers and employees and their respective capabilities but then maybe gaps in information that create risks that the organisation is not optimising on leveraging its resources deemed as human capital by the Intellectual capital perspective which may have direct or indirect effects on Organisation X’s capacity to remain competitive.

Training and mentoring for knowledge building

One participant strongly endorse supervisory and middle management development. She identifies perceives skill gaps within layers of management to effectively impart knowledge to employees. The participant suggests that whilst considerable knowledge might reside within the senior or other echelons, disparities exist at the middle supervisor manager level and the trickle down idea of knowledge management is not being enacted further down reporting lines.

Aside from issues of inconsistency perhaps lack of accountability around knowledge management responsibilities, the argument is that additional resources tools provided to guide

and empower these managers or supervisors (Interview 13-Female).The participant also suggest more training and mentoring initiatives to encourage all employees and acknowledge their knowledge.

Culture building and behaviour change and rewards systems better knowledge practices

One participant, believes organisational development and culture building initiatives are the mainstay for delivering effective knowledge practice behaviours. Although, in a contradictory statement, he leans to a Theory X rather than theory Y approach¹⁵⁴ to enforce cultural and knowledge imperatives.

Multiskilling and upskilling to spread know-how

Following along similar lines but rather than a risk management perspective, other participants see the value of how knowledge can flourish, diffuse and regenerate if the organisation endorse development initiatives such as multiskilling that also echoes the mosaic principle noted in Chapter 4.skill building to enable knowledge building and reduce knowledge risk.

One participant in contrast with many participants more transactional views about knowledge and job roles, sees the backup people in her section as multi-tasking and ambidextrous to a degree fitting with a more agile approach who are not merely temporary replacements or placeholders in the event of a person's absence per se but have well-honed skills and capabilities that bring value to roles (Interview 10-Female).

Succession management and knowledge management

Other participants suggest that succession planning practices could be reviewed incorporate knowledge transfer policies including upskilling (Interview 12-Female)

¹⁵⁴ Theory X and Theory Y are management approaches first posited by Douglas Mc Gregor. Theory X depicts employees as less proactive and need a more traditional parental control and discipline style in which to extract desired actions for performance. The underlying assumptions here at that people need to be prodded and need external pressure to motivate and drive performance. This contrasts with Theory Y style management which supports the view that people can be self-motivated and through use of positive rather than negative reinforcement, such as with learning and development, are more likely to meet organisational performance and behavioural expectations.

Learning repetition for knowledge and use it so you don't lose it

Other participants focus more specifically on learning in relation to preserving knowledge such as through reinforcement or refresher learning in order for people not to lose knowledge or for it to degrade due to erosion over time.

One participant, following a behaviourist approach to learning, suggests repetition and reinforcement for knowledge retention which suggests that knowledge retention is a form of erosion and degradation risk. Succession planning as a conventional HRM practice also reinforces knowledge retention and transfer for internal employees and yet the organisation has a contingent area within the workforce that may not have similar coverage.

The recognition that individual memory is at risk of forgetting aside from loss of organisational memory means the need of continual knowledge upgradation and refresher learning(Interview 12-Female)

Knowledge in deep pockets - When the world “would stand still”-Job rotation for knowledge sharing and breadth of knowledge

One participant acknowledges how in a regional area of commercial operations business continuity was severely interrupted if one person was unavailable whether being on leave or outside of the office and the “world would stand still” (Interview 17-Female). This participant recommends strong backup systems and personnel to mitigate or prevent exposure to such knowledge and business risks.

This view is supported by an empirical study noted in Chapter 4 and university's policies around reducing reliance on individual's and job knowledge when job knowledge is interwoven into critical organisational knowledge.

Another risk management strategy participants identify to prevent knowledge being eroded or lost, is through regular job rotation to spread knowledge across the business and enable employees to gain broad and deeper knowledge of the inner workings of the organisation. Examples include transferring people across varying jobs to share new learnings from other job roles that also means personnel can be used as backup (Interview 12-Female and Interview 9).

Cross knowledge opportunities and inclusiveness

Another participant provides an example of how cross fertilising knowledge is an enabler to stem possible knowledge erosion and degradation. This form of knowledge building unlike job rotation usually involves a less formal reassignment into another area's job role and could be executive experience of simply moving "around within the business" to gain additional insights about what other areas do which could be less full day and for "picking up knowledge"

(Interview 8-Male).

The participant validates this recommendation given previous success where an employees have gained greater awareness.

Other participants share similar views about the value of cross knowledge that may also assist with breaking down siloed thinking that can also where inputs from specialist areas can cross-fertilise ideas for a more composite picture (Interview 3-Male).

Whilst other participants suggest managers need to encourage more inclusion at meetings, one participant suggests methods such as facilitating higher employee involvement at meetings. Meetings are the main locus for knowledge and communication. Although they are not necessarily formalised or structured processes for disseminating knowledge, the emergent or spontaneous nature in which knowledge occurs can act as a useful catalyst. Meetings might also be open to involve people across functions and pillars for knowledge building (Interview 10-Female).

Interview 18-Male

...that silo mind set is a big one; that potential fear or protection...We need to be opening up opportunities for people to have conversations, we need to support people who want to share their experience and whether that be through a formal program...

Safeguarding Knowledge Leakage

One participant, when asked about strategies to prevent knowledge erosion and ways to safeguard knowledge suggests that the scenario of key organisational knowledge being potentially leaked to competitors should be safeguarded with the premise of sound governance practices such as adherence to organisational procedures and following strict protocols and instructions as 'common sense' in relation to disclosure practices.

His assumption is that the protection of leaked knowledge is founded on individuals rather than a cultural issue and that monetary rewards and the employee contract should in line with agency theory safeguard knowledge (Interview14-Male). Chapter 4 discussed the potential limitations around knowledge and governance and agency theory and principal agent relationship was raised as a risk factor in the context of knowledge.

Role sharing to mitigate tacit knowledge risk

Numerous participants, reinforce that knowledge sharing for handover plays a pivotal role in minimising risk of knowledge erosion and degradation or loss that can impact business continuity, organisational effectiveness and performance.

Additionally, it is unclear as to the efficacy of tacit knowledge conversion. The message here that suggests tacit knowledge is a dominant form of knowledge. Being deep and intricate, the view is this type of knowledge should not be bound to reliance on job holders or individual's knowledge and strategies need to ensure tacit knowledge is codified.

Standardised Work Methods

The above reflections demonstrate more traditional work methods, not unlike the traditional Taylorist view of scientific management, where individuals work in specific job roles with minimal social interaction or involvement with other employees and following very structured lines of reporting. However, this participant has reservations about the organisation's capacity to standardise practices for greater efficiency and effectiveness. When asked about how standardised practices might help or hinder organisational knowledge, she acknowledged it could help because certain tasks would become automated and that having structured and standardised policies and practices would both streamline operations.

Background knowledge

Interview 1 - Probably just from personal experience, probably just for me, I've been with the company for eight years, plus I've got a lot of personal experience because prior to HR, working in the payroll position, so I have a lot of knowledge with the guys, the blue collar workers out on the floor. Even in relation to, not just the business side of it, over a period of time, you do get to know them on a personal level and have that interaction with them about their families and that sort of thing. I think then, bringing that into the role that I moved into, to me I feel like that is an asset to bring into the role, into the HR role, because you do have an understanding or background knowledge of the people that are employed and working for you....They're not just a number.

Barriers to knowledge-knowledge hiding

Interview 1 - ...I probably find again that people that have been here longer, as in, they've been here eight years but people that have been within the company 10, 15 years, tend to share knowledge within the company, I suppose then you'll have a lot of new people coming in, and they may only stay two, three or five years with the company and they tend to move on...

Interview 1 - No, I don't think people do, they're very, I don't know, some people are very secretive about their work environment and the actual work that they do and don't tend to share...No, from my experience I probably find more the newer ones coming through, the older, I shouldn't say the older generation, the ones who have been around longer tend to share their knowledge and their expertise, where I just find probably a lot of the newer ones coming through, come through for two to three years, do what they have to do and then they move on to further themselves...I don't know just guessing maybe the 25 to 35 years age group, possibly... I just find they don't share a lot of knowledge, not external knowledge that they might be bringing into the organisation or sometimes they don't. Well obviously the young ones coming through have different ideas and different values...and that sort of thing and sometimes I find that they don't share ideas because they just do their job and within a couple of years move on.

Awareness of the importance of knowledge preservation

Interview 1 - ...I suppose there are different levels, people of different levels. Yes I suppose your management are aware that, it is important to preserve but then I suppose

it's whether they're looking at, whether they're looking at wanting to preserve the knowledge or whether they are looking at bringing in fresh blood so to speak... I mean I think that the company's aware that they do need to preserve the history of the organisation and that over the period of time and I suppose again it's whether bringing new blood in, this obviously, they are looking at, there is a perception there of how can we deal with customers in a better way. It may not be they may feel welcome the old ways is not as good anymore, maybe not be up to date with it.

Interview 1 - ...Again depending on who's managing at the time, I suppose it just depends how the organisation actually sees the importance of the erosion...

Barriers to knowledge and knowledge building Fly in Fly out

Interview 1 - At times, like I said with the other stuff... sometimes again you've got people that come in and do the job for two to three years and move on and they're just interested in coming in and doing it their way and furthering themselves and then just moving on. I mean, look, at times, it can work, they do bring in some knowledge that you can take on board, but yes, I know a few of the people, probably more so at my level, tend to think that....

Interview 1 - ... I mean, I think our company is great, they do give you the opportunity to gain that further knowledge, further experiences and you know it may be that you've got a younger person buddying up with somebody that's been here for quite a while and I do find that the older people are, or the people who have been with the organisation for a while, are happy to extend, try and offer that knowledge....

Changing business and knowledge erosion

Interview 2 - F Things are changing all the time. So basically, someone who's open to learn is the one who will be progressing. As I said, erosion happens if the knowledge that you've learnt, the business has completely changed, the organisation has moved on or changed direction, then that knowledge if it is not changed over time, it is eroded too early. It's not useful. Some people would be applying knowledge and hoping that it is, but it isn't.

Knowledge of service and IT: A more difficult situation

Interview 2 - Where...the whole of organisation has got any enquires about information technology, so they all come to us, we are the first point of contact. So we have, not only to provide, that's what I think, customer service in itself which is difficult and when you've got the technology systems attached to it, it is a more difficult situation. So you want to be giving consistently right answers as far as possible. So knowledge is very, very important to us and how it is managed is equally important.

Reflections on past knowledge and job role

Interview 2 - So in terms of where I am in the initial stage we work in the main frame days where it was very transactional... in those days we were able to write, pen and paper ... knowledge and carry on ... PC world, so we couldn't manage that because the complexity increased and how we were asked to assist to change and as a result of that we started putting the knowledge ... then we find that one person had ... that person would put it on the database ... so that people started going to the same thing so they were consistently getting the same answers which was relevant like that. So then even then accessing that becomes quite difficult when it is on network ... then we started saying, okay let's put it on the intranet, the internal intranet, we started putting it and we started sharing.

Knowledge work and complexity

Interview 2 - In the area I work it's quite complex because of the systems ... at the first point of call you can't always deliver with responses so 60% of the questions we face we can answer, but the other questions have to be dealt by other group of people so even in understanding okay. If I can answer, knowledge is different ...if I can't, I have to hand over to someone else. ... to be able to know all that is only possible by understanding what the organisations needs are and having the proper knowledge that's there to do it.

Knowledge systems

Interview 2 - Yes. So some of things, we have a tool that we used to record ... in the tool itself we've got the knowledge base so that as soon as a call is coming, it doesn't matter if I get a new person in. I have no problems because it's there, at hand so we manage pretty good.

Knowledge erosion and degradation and tech-knowledge

Interview 2 - I mean in my experience, yes there is, I talk of the mainframe ... we have a mainframe and then that mainframe is going away, so they are moving into another platform. The technology impact is there so as a resource, you can't say that mainframe knowledge is not required at all, so people kept bringing in people from newer technology. However, the business is still continuing so those lines are still there and now suddenly people are not training and they are finding it hard to get those people. You steal them so instead probably we should have had those same people trained in the newer technologies so we would have had both.

Knowledge erosion - Ageing workforce impacts-and knowledge transfer

Interview 2 - Erosion does occur if you don't keep it in mind, that [knowledge] is completely is gone.

Interview 2 -...there is a language called PL1, which is distinctive...However, that PL1 involves a very powerful language, especially for transactional based, like banking industry or our kind of industry so basically that PL1, people should of thought about, how do we convert all of this into the newer technology, and that sometimes wasn't done properly is how I would say. Because people have left and new people have come haven't fully understood that.... When they're bringing in the new ones, it wasn't thought about. Do I make sense? And you also haven't got people because all the people are getting older ... so they're not there.

Knowledge preservation -overlooked knowledge - organisational memory loss

Interview 2 - I would say there is but sometimes maybe it's overlooked as well because like any other organisation I guess, people change when the top changes...Yes restructures they do that or the talk changes ... move along their own people, it seems that way. When that happens, probably it's forgotten, that other people are looked at. So sometimes that does see someone missed out and when that happens, people also they can like, okay well they are sidelined... so they don't need my knowledge...I won't share it, then they will see me that I can do it, that kind of thing you observe happening.

Initial got following and learn by mistakes

Interview 2 - ...I started at finance and then I moved onto my area that I'm in now. In that first time when I had to do something like that, I was very nervous as to, how do I

do this? And then when you're collecting information and then you will be interviewed and now you got shortlisted and you have to hire so I have to go to my manager and ask him what I do now. I want to do that right thing. The best thing I got as advice was at the end of it, you go with your gut and you do that.

Interview 2 - ...I've been very successful since because if I didn't back that kind of insight, I would probably still be struggling in that sense, so I thought, if this person was sharing what they were doing in a way, so that kind of sharing knowledge is quite important. I think experiences and all that and also in a way it was conveyed to me, we all make mistakes. That's very important. Yes and I share the same thing now to my managers under me, to say this is how I was doing it and then you know. That doesn't mean you go with the gut feeling and say ... you've done all that work with processes, but you still at the end of it, you still need to make that decision.

Contributors to knowledge erosion and degradation

Interview 2 - It's mostly the external influences, the demands are different now, and the consumer behaviour is different now you know? ...Yes in the consumer [market], like in our industry, people haven't got jobs that are flourishing now, so they've got less money to work ... so they're looking for whether I can save while I do it. So if you're selling this product very nicely last year doesn't mean you can do it this year because consumer has changed ... product. So then we have to think as an organisation to say, am I going to sell more of those no name kind of brands than the printed ones? So things are changing, were being forced to change you know. So in a way, the erosion has happened where by, if you are sole concentrating on the brand of products and your expertise was on that.

Better to be a takeoverer than a takeoveree

Interview 3 - ... we've been involved in a lot of takeovers and I've also experienced being taken over, so it's much more. It's a much better feeling being a takeoverer than a takeoveree.

Just pick up a piece of paper and see what you have to do

Interview 3 - It's accounts payable. So it's a very important area. It's very basic department. You've got to make sure your invoices are correct, you're not being overcharged and all this and that. So we build up within our area, from experiences, and we've had a lot of system changes and a lot of experience taking over other companies

that work in different ways and all that sort of thing. So we've had to formulate an approach to take over these businesses and that sort of thing along the way. So we have all our processes mapped out, so if there was anyone that came in new, could pick up a piece of paper and see what they have to do and follow those instructions. But we also within a lot of my team got a lot of experience as well. Within my area we've probably got the most deserving employees within the management side of things... than any other area that I've got. It's all because of that, we focus on people. We don't treat them as numbers which can happen within organisations and that type of thing. It's just as I said it's building up a good team.

Fighting tooth and nail to safeguard systems - Beware the import knowledge

Interview 3 - He was an import. Anyway, within a matter of not that great a length of time, within a few years, he was gone. His project wasn't as great as he thought it would have been and all that sort of thing. It actually impacted. It was very lucky that, I fought tooth and nail They were going to switch off the legacy system and to this day, we still use part of that legacy system... I just put the facts on the table... with these effects in mind, you can't switch this off, this is going to be the reality. I hit them with that.

Lack of knowledge sharing - Complex and diverse business

Interview 3 - I actually think that there's probably not as much sharing of the knowledge that could go on mainly because of how big and how diverse we are. There's probably room for, [sharing], if the people know who to ask, or they try and find out who to ask. I have a few people even within other areas, other divisions will ring me up from time to time because they know I've been around.

Knowledge sources - Follow the path to knowledge

Interview 3 - Some of them know I'm in a fairly high profile role in accounts payable. Some of them will know me, that have met me, that I have met others. There's a networking, it's like anything, if you want to find out a question you can follow it through the path. Well you say, who, go back to the, I tell all my people go back to the base. Where's our issue? Where's that start from? Is that a receiving issue or is it the one in charge of the receiving, you go and talk to that person. Is it a pricing issue? Who put the pricing in the system? Tracking. You go to the track. If there's a payment issue or a non-payment issue, maybe they'll come to me.

Pathway to knowledge

Interview 3 - We always find the path. You just, I have a bit of a saying-, there is no such thing as a stupid question. The stupid question is the one you haven't asked in my area, so were not afraid to ask stupid questions to find out where it is we need to go.

Preventing erosion- learning approaches

Interview 3 - Look, money always helps with everything. But it's, the company is getting better at this and it's defined career paths and defined succession planning and people have a, everyone has a different skill set, a different way of learning. Part of our, within my team, we have actually gone through a few courses that we put ourselves through to learn how other people learn. Because some people like to be shown some people like to be spoken to, some people like you standing over them and showing them while they're doing it, otherwise want you to do it for them or some people want to read about it. All these people learn in different ways. So we learned from experience someone that wasn't picking up a particular thing because we were showing everyone the same way. Then we realised, no we can't be doing it right, so we found yes we need to identify the way people like to learn... this one particular case this person didn't like one way but as soon as we gave them something to read and then they started doing it themselves they picked it up like that and that's the knowledge transfer. To transfer knowledge you've got to learn how someone builds that knowledge.

Changing business model-rejigged knowledge-don't live in the past

Interview 3 - Yes. You can't go making something for a hundred thousand dollars and it costs you a hundred and ten grand to make it, because you don't stay in business very long and if you can import that even cheaper and still sell it for a hundred thousand dollars, but it's not costing you anything to make because you imported it for fifty, you're now making fifty grand instead of losing ten. I can see where, why things have changed that sort of thing. Then, you've got to say, well what's my next step? How do I think? I can still service those machines that are coming and probably because they're cheaper, they're going to break down more often so I could probably move on with our next business...Business models and it's the ones who have recognised this shift in

business model and that if you come on and be able to adapt and make and gain new knowledge or use their old knowledge and re jig it, that make it success. The ones that live in the past and can't adapt, they don't stay.

New CEOs and challenging mindsets - Same do Same old

Interview 3 - It's funny because the new CEO actually had taken up a board position last year- twelve months before when everyone was supposing who the new successor would be and that sort of thing, I actually discussed it with my boss and he was saying, who do you think it's going to be and I said well I quite praise this other chap that's come on board, down there, he still counts because he is on our board, and he still counts as an internal applicant. I said, look at his experience, he's got experience in this, in wholesale but also retailing. Retail experience at the top level and that's what we need - I pick him. Everyone else would pick this other particular chap that was heading up, was much in the same mould as our previous one. Sort of like a heat, when you're in a position you sort of surround yourself with like-minded people. I don't care who you think are, everyone surrounds themselves with like-minded people because that's in your comfort zone, thinks similarly. So we needed a new approach and I said our board will realise we need a new approach. You go with him, you're going same old, same old. You go with him you've got a new approach.

Factors affecting knowledge - Experience and knowing how to use knowledge - a message to the younger generation

Interview 3 - I honestly believe that the School of Hard Knocks is probably the best school for people obtaining experiences and knowledge and all that sort of thing. And diverse knowledge and that's getting out and seeing things. Getting out and seeing things doesn't mean you have to travel overseas every year and all that sort of thing. It's experience life and experience the way things and experience other people as well. And I think the things that inhibit this are... I honestly think that these kids that have got iPods in their ears and, they talk to each other on the mobile phone. These are guys that have been given that much knowledge and open information through the internet and all that sort of thing. These guys have that much knowledge at their fingertips and they're not necessarily taught how to use that knowledge.

Younger generation and attitude to knowledge - Know-it-all and knowledge “feed”

Interview 3 - I think ... what has happened that I see within our own organisation is that the younger people are flippant. They're more confident. The respect for others is not there.

Interview 3 - They think they know everything so they don't need to share knowledge because what could this old bugger teach me that I don't already know. And they don't realise that till after they've been here a little while and they realise that they don't know everything. It's a learning experience. When you find, you see a shift change for those who stay. You'll get the ones who think their undervalued, underpaid and they shift from job to job and company and company. You see those guys 15 – 20 years down the track and I've seen those types of ones and they're basically still at the same level that they were. Whereas if they had stayed with an organisation, gained some knowledge, gained some experience and worked the way through. And we've had guys like that as well, that are in very senior positions, doing quite well thank you very much because they were part of their psyche, is that they learnt the value of knowledge and the value of specialising in that knowledge but still being brought up and stayed within the same area... so that's experience they gain. Experience becomes valuable, becomes an asset and, people realise that the value of experience and knowledge is an asset and once that asset is recognised and paid for, basically, people put in and they achieve better. That's happened within this company, they encourage a lot of promoting within. A lot of succession planning is very good but you still need some different ones from, you still need that little feed coming in from down again.

Other restraints on knowledge - We could have bit the ball earlier

Interview 3 - Oh look within our own area we spend a lot of money on a new system that's taken years and years and years to put in. You've sort of gone down that track where you could of bit the ball earlier on and said oh we can go back to what we had and work on that or whatever. But they persevered with that thing it's going to work but it's probably not working as great as it could have done but you put that much money into it that you need to make it work and it's not a total loss... but you need to tweak it and that sort of thing. I've seen that. That's probably happened to more than one company.

Safeguarding mentoring for knowledge

Interview 3 - My job now is the management of people and that's through knowledge and experience and a build-up of a good team. I don't do very much hands on type of stuff. It's more like networking, it's more like being someone that people come to, a mentor. It's more a mentoring role. You can't build a mentoring role if you haven't got the knowledge.

Interview 3 - Well the biggest safeguard is to have succession planning and recognising what people, self-realisation. That's basically what makes you function, what turns you on and we have a mix within our team. We have ones that want to go on and work and want to have a career in mind and they're happy to go along and have that career and chase what they want and have those experiences. They know what to think. One of my people that actually worked for me in a certain area, now works in HR and another area. We helped make that experience to identify where she wanted to go. But all the basic training and basic knowledge, when you learn how to do basic things, it's the knowledge that you can expand on it. It's naturally your thing it's how to do something. You know how to do something and understand logic and how logic works and how to reason. Then, you learn stuff and you apply all this other stuff. You can learn by watching others and learning from others. But you can also learn what not to do as much as what to do and then what not to do. But if someone is very good at knowledge but is an absolute pig to people, it has an impact on whoever you're going to contact and people will say oh yes I know that that one knows what he's talking about. However, I'm not going to it that style and people develop their own style or someone might say oh yes he's getting away with that...that type of thing.

Short burst of knowledge and knowledge nurturing - Not for every one

Interview 3 - We encourage, apart from doing external courses, we have, degree type courses. We do as much of these train the trainer type of courses and all that sort the thing. There are little short bursts that we can expose how people do it. As I said, we have some people that are happy sitting in their jobs 9 to 5, go home, don't want to do anything. You need those types of people. If you don't have those type of people not everyone, they're happy earning there 40 or 50 grand and they don't care if it's not 100 grand, but you can't have someone that thinks they should be on 100 grand doing that type of job. But you need those jobs...But then you've got the ones that you need to nurture and bring along. Within my area, everyone that's in a senior position within my area has worked their way up. They all know that, they all know that probably those key positions aren't going move on until someone leaves, but then there's people in

different age areas, so that happening... I'll move on and then my people who have been groomed with should be able to step into my shoes and that's how it should be and that's my legacy... ... to say that ... to be a successful manager you don't need to be there...yes. You work yourself out of the job.

At risk knowledge - It depends on the regime

Interview 3 - I believe it's probably certain specific areas. If you were an expert in let's say tax and very knowledgeable with the way our systems work and all that sort of thing and there was no one else there that was unable to know as much. If that person goes, you're vulnerable, then you've got to recognise areas of vulnerability. Oh we're much more confident. Knowledge is firmly in our company. Knowledge was sort of taken on board by people at a higher level and they... knowledge wasn't necessarily shared downwards. Under the new regime I was much better looked after it than I was under the previous regime because they recognised that. It's when you get that recognition for your abilities and for your knowledge and how you use that knowledge, that people actually thrive and become better.

Doing the hard yards and focusing on the past - You'll get lost

Interview 3 - I knew, I could see where I could ultimately do alright but I knew I had do the hard yards first. And people don't recognise that if you've got to put in. Oh look, the biggest impact is with our system knowledge...Did it destroy us? No, it didn't... we probably spent more than we should of, but that's in the past. So if you keep focusing on the past then you'll get lost.

Work environment - Conducive to knowledge

Interview 3 - Our work environment? Within my role, my work and our work environment because it's such a great and diverse team, we encourage a lot of team functions. We have team theme days and things like that and encourage a lot of people to be happy and have a bit of a laugh. You don't have to socialise outside but you've still got to recognise the great people as individuals. So I don't mind if they have their radio on as long as there all on the same stations. So they have an agreement of what station they use. They don't want to listen to that station, they put their headset on. As long as the work is not impacted. Overall the place is not too bad.

Interview 3 - I think, some areas, I think it depends on the manager. Some areas would have the higher turnover of people, others don't.... Most of all I think it's fairly good. When the new regime came in, they took away, no one wore a tie. I thought that was brilliant, formal or informal. So on the whole, there is an informal process and people sort of missed the formality but I don't think it's required because there's an understood formality. You know who your boss is and who their boss is.

Jekyll and Hyde approaches to knowledge

Interview 3 - Well they're all, I could go down characters but, they're ego driven. There's two people in particular, both are in similar roles right? Both, what you would say, have strong personalities. One is a very company focused, dot the i's cross the t's, follow procedures, is very set in that way, this is how you should do it...The other one still probably more confident in their own area, very, very intelligent person, picks up the ideas but then handballs the ideas to a team to work on. Takes the glory for the idea and then goes on to think of the next idea, doesn't follow through the previous one to make sure that it's working unless there's a benefit for them. Now what has happened, these two people have changed roles...reasonably experience. They've both got their different styles and there now trying to impart them on where the other one was. They were just ... it's good, in the one that's moved over here has started to document system procedures in place where they were lacking before. But then, new ideas and that sort of thing are coming out of this area, the other one needs to be influenced because they're a bit, no I don't really want to do it that way but yes, you should. So they've got to adapt because they need to get rid of that. You need to take some risks at some stage in order to make it work well...

Learning and reflection

Interview 3 - As in, we're always, I'm always reflecting within the people that work with me and we're always talking about what happened or what we're doing. Even just generally talking about some of the good experiences that we've had over the years, so that's reflecting ...we always, whenever we do something, we will have a look and see what we did right and what we did wrong. People let that affect them. I've learnt over the years you can only do what you can only do. The more you worry about what you're going to do the less time you have to spend doing it.

Embellished view of knowledge

Interview 4 Male - For about 30 something years, in various retail organisations, the knowledge that I have has been gained in a basic property development aspect of my role. My knowledge and experience has been gained over 30 years in different companies, different structures, corporate structures, franchise, private owned businesses. And then the knowledge I have gained in the ten years here, has been an embellishment of that and then also an overlay of what we'd call supermarket specific knowledge which you then have to overlay or interweave with the property knowledge to maximise the property performance within the supermarket model.

Strategic knowledge risk and knowledge dissemination

Interview 4 Male - Well for whatever reason might be, more people who know about things, the more options there is for information to slip out of the business which could be critical to the strategic direction of the company. So there's good reason why the board of directors don't disclose all information. Were fairly transparent being a public company, all our results, all the salaries, the directors... For people to be a cohesive unit within the business it is important that as much knowledge as a reasonable expected is shared around the business. That way people know they're not isolated, they feel part of a clique of being part of the team. It's a very overused cliché term but, the concept of this is very bold. If you've heard things this morning, which I should have known, that somebody has not shared information. So what happens is that there is a group of senior executives who are supposed to share information with their own staff, that information hasn't been passed on, it hasn't been properly communicated at a senior level... that has been one of the factors of our operation at this stage for us. The last couple of years we've specifically changed the senior management. Prior to that, the dissemination of knowledge through other middle level managers was almost non-existent ... The general manager that we have now, style is to share information more widely.

Knowledge memory and knowing and experience crossover

Interview 4 Male - I have fantastic potential of useless information. Long term. Memory is an interesting beast in that you will completely forget things that have happened or you'll follow a pattern from 20 – 25 years ago. The things you remember are significant things from 20 – 25 years ago or it's just an inexplicable reason why that particular piece of information stays in your memory. I think knowledge is, I think that you retain a certain amount of knowledge just in your mind, and when it comes down to the finer detail. If I've been through 100 lease negotiations in the last ten years, do I

remember everyone in fine detail? Do I remember the sales?... no, that's why you have to have the backup of hard copies or soft copies. Some people have a photographic memory that they remember every negotiation that they ever did. What tends to happen in my role is you'll conclude one project and you'll move onto the next one and the knowledge that you retained to improve your performance on the next one are things that you will think to yourself. I could have done that better. I guess that's the cross over between knowledge and experience. Knowledge is one thing which the more experience you have the more knowledge you acquire over the years.

**Intentional verses accidental organisational forgetting: who told you? Someone told me
“oh I'm not sure”**

Interview 4 Male - Oh no, if there are ten things brought up at an executive meeting there may be. There are two things we can't share with our staff at the moment for whatever reasons, but there are things your people need know about. Do I need to know all the details of the...negotiated with the warehouse guys? No you don't, but it's always beneficial to know there is negotiation going on with regards to the wage and salary package, what impact that would have... on our business and customers, and then, because of your focus you have on your specific role, I think sub consciously, you may have that information before, whatever the process is in your brain, you push it aside and you don't need to... and how often do you say to yourself, oh I remember someone told me about that, but if someone asks you specifically, oh I'm not sure.

Building knowledge from an organisation on its knees

Interview 4 Male - This business, as these structures effectively started 15 years ago, the wholesale business before Organisation X was involved, and it goes back many, many years through a variety of companies, a combination of companies. 15 years ago it was basically on its knees with a share price of ...Organisation X, which was a spin off from a overseas company, came in and then basically, rebuilt the business...that it is now and it was always settled as wholesale...Because of the intense competition we've got against the major chains across competitor 1, there's now been a quantum change in management at a senior level. The CEO who was running the business retired last year after being around the business for 15 years, and did an excellent job of it. He rebuilt the business...very successful business. The direction of the business now has changed very much...along the stores, but to work together very, very closely and with our retailers to make the whole model successful. For that to happen, there has to be a huge

injection of knowledge...external people, evaluate...running our business saying that's what...the process where you change the tail end of now, that's been going on the last 6 months under this new CEO. He's come in the business with a retail background. So he is now looking at what our business can do to better support our retailers to make the overall model stronger. So for that to happen there's an immense input of information coming into the business. As I say that's been highly expensive consultants have been brought in to be in that project...

Pulling all the threads together-more than just getting reports

Interview 4 Male - It's a twofold thing. In order for that whole process to work, there has to be a huge injection of knowledge, a gathering of knowledge, and as I say... that's been done by basically a number of stakeholder groups along various parts of the business, and then they'll pull all of those threads together to effectively say this is the new direction of the business and it's not one person, It's not one new CEO saying this is how it's going to be from now on. He has strong ideas, but he wouldn't of been able to spend hundreds of thousands of dollars on these consultants to just get reports.

Stakeholder collaboration and knowledge gap

Interview 4 - There will be people at the moment who our retailers will probably say - what are you doing? What's going on? I don't like the direction of the company. At this point in time, they haven't necessarily been included in that process. So that erosion or degradation of knowledge know what that is, is... have you ever been left out or been involved and included? You can't be bothering everybody...retailers, there'll be experienced staff, I've been in the business 20 years. I should be included in this. I should have input. Well ultimately...who will participate, rightly or wrongly? So it's not an erosion or degradation of confidence, probably yes there is, but it's been done in a very short space of time. So at the end of the 6 or 7 months, you've got to plan out the whole series of recommendations and then basically it goes through everybody saying, yes that's a fantastic direction, we'll work together.

Safeguarding and protecting strategic knowledge and dated knowledge

Interview 4 Male - ... if I was to leave the business, what would I take with me? I would take everything that's in my mind but I would also have every contact that I have. Is there an obligation of me to share every piece of information? Every piece of information which is in our computer systems is company property. It's unethical of me

to take copies of all of that...that's unethical and that's basically their intellectual property. There's nothing at all which, what's up there doesn't go with you. It happens. So if I was to be employed by someone else, they're going to employ me on the knowledge and experience that I've got in that industry and of maybe...There are examples where people as high as CEOs of this business have departed, they've come to an agreement not to stay with the company. At a very senior level, they've basically been paid through you...because the knowledge, the immediate knowledge that they had about this business at a very senior level, could be taken to a competitor an...Because they know all of the strategies, they know all the details. Everything's going on in every level of the business. If they went to work at competitor 1, that's a huge knowledge, however if the company says okay we no longer work together, we will give you 12 months' pay, but in provision for that 12 month's pay, there will be a strict agreement that you can't work for anybody else, you do not go to that Senior Executive of a company...but in 12 months' time, at the least, the knowledge that you have, will be 12 months old. When our CEO, it's a very real case, when that previous CEO left, he was basically put on guard - 12 month's pay, these are legal conditions, you are not allowed to be employed, because in 12 months' time the business, all the strategies that he would be aware of, that CEO may change, all those strategies and in 12 months' time his knowledge is not relevant.

Sharing and implementing quality knowledge

Interview 4 Male - We just spent 6 or 7 months working with these consultant groups and we don't share that information out, and that is quality knowledge, because that's the strategic direction of not just our business, but of the whole independent supermarket industry in the next 10 years going forward. If the sharing of that quality knowledge, if that quality knowledge isn't shared with all the stake holders being our staff, our employers, our suppliers, our customers, our retailers, the retailers being our customers, then the whole process is wasted, and you don't get buy in from those stakeholders. The only way you can get buy in from those stakeholders is to completely share that quality knowledge.

Interview 4 Male - ... It's not just the sharing of a 5000 page report... it's not only the preparation or recommendation, it's then very clearly the implementation of it and what the expectations are of the various people here. Merchandise, property, operations,

warehouse or whatever it may be. So it comes down to the sharing, ownership, building, all that to make it work.

Knowledge dissemination and knowledge benchmarking

Interview 4 Male - We've got the ability to share the knowledge and disseminate knowledge throughout all aspects of the business. It's always been a case of how well, let's say the controllers of the technology, the IT people. The IT people have to understand what are the requirements? What are the knowledge of information requirements of the various functions of the business? How do they service? How do they service that type of technology to do it? The technology is there. I think the sharing of information through technology is reasonably well done in this business. That's difficult... having worked within the business for the last 10 years and then go outside and see how much technology changed in 10 years. I don't have a benchmark to see technology in other businesses. Whether that exceeds ours, you get... ..You'll see a report or a system that's put in place or is available that's better than ours, but is ours not working? Could it be better?

The go to person is gone - Put your hands in a bucket of water

Interview 4 Male - ... somebody, he passed away 5 or 6 years ago ... his knowledge was immense. I wasn't directly involved with his customer service role and our retailers knew he was the go to person for all those things. I recall, when he passed away, there was so much that he had up there. Some of it would never be reclaimed but the longer you're with an organisation and the more knowledge you have, most of that information is up there might not necessarily be in a computer somewhere. It might take a little bit longer to restore the momentum of what that person could do...Like putting your hands in a bucket of water... It's really a case of how long it takes to come back to speed with what that person was responsible for... The more knowledge that is shared with the young people coming through the business the better...

Interview 4 Male - I think that there probably could be a strengthening of the sharing of knowledge and going back to that earlier comment that he worked for the top from

board of directors down. There will be some things discussed at the board meetings...that's confidential.

Intact versus usurped knowledge-generational differences and knowledge erosion and degradation

Interview 4 Male - There is control of knowledge leaving the business in terms of what the company polices will say. This is the knowledge we share, that can't be shared. So in terms of the degradation of that, there is a loss of knowledge to our business. The longer people are abiding to those rules, the company policies, and the knowledge remains intact. If they choose to part that knowledge out of our business, well yes, the knowledge is gone or has been shared and there's risk somebody is going to lose their job because they have intentionally done that very thing. The matter of people leaving the business to go to something better, anybody would say anyone between 25 and 45, they will progress by gaining knowledge about the role, about the business, about the industry...or the next one, or the next. You will not see these people in their 30s...the normal...and that's fine- that's ambition. When I was in my probably 20s to late 30s, that sort of changed in a normal. But then you can. Generations...staying in organisations for a long time. I've been here for 10, my boss has been here for 22 years. So there's nothing you can do about people having ambitions and wanting to move on. The loss of knowledge to the business or degradation of knowledge is a result of that, that's just a fact of life.

Gen Y knowledge - Knowledge dilution

Interview 4 Male - From a technology point of view, the information that they will gain let's say over a 3 year period, nobody will stay in an organisation for 3 years if they've sucked in all this knowledge and didn't share it. They're not part of a team, they very quickly don't...the pattern of Gen Y is to make that change every 3 years. The knowledge will always remain within the business, because the way we record knowledge and the way we record information, that will always be here. So in some respects, you don't have degradation of knowledge because a large majority of that knowledge and information will remain within the business. But there's a duplication

that that knowledge will go with that person who's been gone for 3 years. So it's actually a dilution of knowledge. Because the knowledge has been built and I'm going off whole heaps of market information about properties, about breaks... That will remain in the business because they're documented here. When I leave the business it's still here because somebody else has that information as well. If I was to leave... I would have all of the information, of all the knowledge I have gained over 30 years as well. So, there's a dilution of other people's knowledge... property... nothing which will stop. When you go into the final exit, when you're leaving business, they don't sit there...

Lean mindedness and erosion risk process knowledge gaps and new comers

Interview 5 Male - I think that's really related to probably the turnover, the staff turnover, the erosion related to the turnover. This organisation is very lean as far as from an operational perspective, so people are quite focused on their role that I guess that's the most productive and efficient sort of outcome of resources ... that's when those people need to train people coming into a job and there's not a lot of documentation processes and information for on boarding new staff to pick up ...

Life timer and knowledge

Interview 5 Male - For me that's probably a bit hard to answer because I've only been in the one role my whole life, this organisation so I can only talk about staff turnovers ...

Knowledge to service business requirements

Interview 5 Male - It's really around trying to service a business requirement so that... we get requests from other parts of the business about our improvement, how they think we can improve things and then because we're sort of integrated with a lot of those sort of requests coming into IT, because it's an IT source of entry.

Interview 5 Male - I get the opportunity I guess to be able to pass on those previous experiences or previous knowledge in that particular area so then it's basically shared through discussions or work groups or workshops. Not a lot is shared through documentation.

Barriers to knowledge sharing

Interview 5 Male - I think that people don't get the opportunity to share knowledge. When I say opportunity, I think we're too focused on meeting our commitments on a daily basis that we don't, we don't put value on recording or collaborating to get a, to share that knowledge and to try and build that practise for the community groups etc. Yes, you know it's all sort of broken down into tasks, so we need to make sure were put one in each task.

No one is indispensable

Interview 5 Male - No, I don't believe anyone is irreplaceable. We have had people leave the organisation that had some key roles, particularly in IT, but we have managed to solve the issues whatever they may be, whether it's taken a significant amount of time or resources to be able to come up with either a work around it or alternative solution. In other words, there are other ways I guess to achieve things. Obviously, if you have some sort of technical reference or guidance, guidelines that you could refer back to, can assist in a lot of areas.

Collaborative knowledge - Getting up to speed a lot quicker

Interview 5 Male - Yes that's right. I mean face to face collaboration that knowledge is transferred at that time. It's tactile knowledge. If another person came to join your department, you know two weeks later they wouldn't get an understanding of what conversations took place the day before, if you had some tools or platforms that captured the outcomes of those conversations then you could bring yourself up to speed a lot quicker. I think we don't, in our behaviour, sort of approach, we don't value the sharing of knowledge or discussions around how we can improve things.

Interview 5 Male - ... I think that we're too focused on our daily roles, daily tasks to be able to get some time out to reflect. I think that's across the entire company, the entire organisation.

Changing leadership and approach to knowledge

Interview 5 Male - ... our retailers, our customers sort of focus rather than a wholesales sort of focus...our previous CEO he was focused on big internal business processes and how we can reduce our cost of doing business. I think that's been sort of coloured...

which the new CEO seems to be focused on, which is good...I think that there needs to be a behavioural shift is where it needs to start. Having a behavioural shift, you need to give people the opportunity for them to change. I don't believe there is an opportunity currently.

Knowledge erosion and degradation and staff retention

Interview 5 Male - Well, I guess, I'd say it's probably a bit of both. Obviously the market is driving people's careers and no opportunities, and we don't have an environment that enables people to grow as a person over their career and obviously you only get a higher turnover of staff. A higher turnover of staff means higher erosion is a lack of that knowledge of what they've captured... you need to provide the right environment and you need to try and retain those people, you need to give them the opportunity to share that knowledge that they've gained, but you've also got external forces obviously trying to pick up good candidates for their own organisations...

Mentoring for knowledge fulfilment

Interview 5 Male - Yes I mean in my current role, I've had probably 5 different roles in IT maybe 6, I don't know. So a lot of them are, you need to have technical knowledge for a while. My current role actually is more focused on my business knowledge now not a technical recline. So based on the knowledge that I have around our systems, a lot of them I built or had a hand in building but also an understanding of how the business works. Being at a senior manager level you have to understand why these decisions are made and you have to influence people on certain directions that they should be focused on. So yes, my sort of skill set, if you like, is using my knowledge that I have and trying to guide people in the right direction.

Role dependent forms of knowledge and work environment

Interview 5 Male - I mean there's, depending on your role you need to understand about what, what skill sets you need for a particular role. Every role is different so therefore your skill sets are different. Some of the knowledge is a technical knowledge, some of it is a sort of process knowledge, some of it's an understanding of your customers and the behaviours they have. It's a make-up of all sorts of things.

Interview 5 Male - Work environment. I think it's become specialised. Each role has its function and I don't think enough people see the bigger picture outside their role... The culture is probably to me it's not as social as I'd like it to be... I think it's difficult since

I've been focused on IT this whole time, but talking about other areas of business, I think everyone is focused on their own area they're almost working in silos, so it's difficult to try and get an understanding or appreciation of the culture. I'd say people are quite open. If you asked someone about it, particular... they will have interest and they're certainly willing to share or point you in the direction of trying to achieve that.

Room for reflection

Interview 5 Male - That's interesting because my role is about reflecting on how we can do things better. That's almost part of my life is how to improve things and make things more efficient...What I'm doing with some of these participates is giving them the opportunity to share a couple of things and then I'll do a follow up perhaps, discussion, because if your like, you go away and reflect. Is that okay?

I'm not an expert but I know a lot

Interview 5 Male - It's about, okay, someone may raise a problem that they have, and that problem that they have might not be their problem but could be a problem further upstream that may cause the problem for them. Trying to address the symptoms and the cause and trying to analysis that information that you get around that, and the organisation. I've obviously been here a long time, many years, you learn a lot of things about the organisation. I'm the first to put my hand up and say I'm not an expert in anything, but I certainly know a lot.

Specialised supermarket knowledge supports other knowledge

Interview 6 Female - Yes specialised, that's right and you knew what your role was and that's what you did. When you work for an independent supermarket you have to take in a lot of, you have to gain a lot of experiences and do lots of roles. You have to work in all different areas...have experience in all of those things...

Interview 6 Female - I think you have a lot of knowledge in the running of a supermarket and that experience and so when I came here that was what I brought with me...thinking that because the experience that I had had was...you had to know all different software...It's a challenge when...after 13 years in retail technology...how you assisted the store through everything...and they had to have that knowledge...It would be a huge, a huge advantage to have that experience because you know about the running of the stores, you know about their promotions and how they deal with the

promotions and the pricing and all that so it's a huge advantage to have store experience...

Knowledge exodus - A warehousing perspective

Interview 8 Male - So what comes to my mind being someone that's been with the business for quite a number of years, is that especially recent times, we had a lot of knowledge within people and those people are gone. So a lot of knowledge left in certain areas of the warehouse. Prior, I guess half a dozen years, when we had all that knowledge, a lot of it was kept within people, they were insecure about their jobs, so when I go on holidays, they won't get it done which isn't really good. Prior to that, it was only a few who knew what was going on but we've transformed and evolved over all those years and yes we're in a better position now but it probably took a lot of heartache to get to it. Having said that we're still, in some areas, lacking some quality experience.

Knowledge for good customer service - Knowledge wrong way round

Interview 8 Male - In my current role as customer service manager, we get calls all day, every day and it's usually issues. So if you can act on and resolve them quickly you get a far better appreciation from our customers and if you cannot waste time trying to resolve it and actually get to the root of the cause, get it fixed, get it resolved and move on and you know the key message is to try and get a win/win, a win for the retailer and a win for the business. So absolutely, that's critical to get that sort of result. I'll give you an example where recently we had a certain customer call us and said that, I got all the stock delivered but I'm missing heaps and I've also got some other stuff- that's not mine. Okay, so a few hours later, we started investigation on what had occurred, contacted the warehouse, then we get another call from another customer with a similar issue, and I happened to hear both conversations and I said hang on I've got a feeling, how many colours did you get? Two. How many did you get? Two. They've gone, wrong way round. Checked the labels, labels were fine, because every colour has a destination label.

Knowledge erosion and loss - Return on investments of knowledge foregone

Interview 8 Male - It's a difficult one, and the reason it's a difficult one is, we had a gentleman that was showing a lot of ability to take the next step and actually progress within the business, and we had spent a fair bit of time in giving him the knowledge and the skills and the tools to lose him to another company. The disappointing thing

was that we didn't get an opportunity... it's see you later have a great life. But then there's other people that you think, well they haven't done anything wrong they're actually a very good person, do a great job we should try and retain them - but we won't give them the opportunity to actually sit him down and say look, is it money or why are you leaving us? And sometimes if you've got a family, mortgage, single income, sometimes an extra \$5,000 would keep that person from going and to retain that I think it's worth pursuing. We didn't get that opportunity, I think had we, we probably would have stopped him from going. They were young, they were keen and we invested a couple years in getting them to that position and then they were snapped up. So that was disappointing. But absolutely if we can prevent loss of knowledge we should do, you're never going to stop everyone.

Knowledge and wisdom - Being armed with knowledge

Interview 8 Male - ...In the warehouse you're going to deal with hundreds of people weekly and they're from all walks of life, all different religions, cultures, attitudes, and you need to be quite resilient, you need to be a person that is understanding of what their issue is, so that when you are dealing with the problem you're armed with that knowledge to not look like a fool yourself but also in that respect so that when you're dealing with that person you're saying and acting correctly; that comes with age and experience I'm afraid.

Knowledge bases and reset challenges

Interview 8 Male - ... Once a upon a time we had a lot of people here that could operate in any crisis, they could deal with people and they had all that back training that I mentioned earlier, that kicked off 6 to 8 years ago, they had all that. But now we've got to reset and do all that again. It's sort of hard for me to talk about my new role, because the people I'm with, the newest person that's been there 6 years, the oldest person has been there 20 something years, so there's a huge knowledge...

Pulling up stumps - Sourcing internal knowledge

Interview 8 Male - I think the main one that I reckon I've seen is when people are gone they've [managers] looked to other areas of our organisation. It could be interstate to get that knowledge and that experience from that person to take over. We've actually done that recently. So, there was nobody suitable internally. Instead of going external

they've actually head hunted people that they know pretty well in other areas to give them an opportunity. Do they do enough of that? Maybe not, but then it's a big change for somebody to just pull up stumps and leave the state...

Cross fertilise knowledge

Interview 8 Male - So for example, there's a role going in retail for a supervisor's role. Look within for people that are already here. So we do, advertise within and look internally first but not necessarily are they skilled to do that task. However, they already have a good background of our business and they could bring a lot of experience. The warehouse has a girl that comes from another department within the business and she's brought over a whole heap of new skills that we didn't have before. Having said that she now also appreciates what we do because she didn't actually understand what we did and what we put up with and how we get results. So it's a bit of a learning curve for her and we were able to tap into certain areas that would help us.

Like sand through a sieve - Knowledge slipping through clutches

Interview 8 Male - I think we could be better at it, that's my opinion. My opinion is that we have had skilful people in the past that unfortunately let slip and after that happened, and this is honestly speaking, I just don't have the confidence that in that ball park of people, not all people, some people can see it, but not everybody. I don't think everyone is on the same page. So if there is a room for improvement, I would say absolutely there is.

Email dependent knowledge

Interview 8 Male - We have recently seen some younger managers that everything was done by email. They wouldn't answer the phone, they didn't want to be told, they didn't want to be taught because they knew everything and unfortunately I'm the sort of person I prefer resolving things face to face or over the phone because I believe emails can be misconstrued and they have been and I've actually written emails and got a weird response and I have other people reading it saying am I writing in a different language here, It's your interpretation of how I'm putting it in the email. So that knowledge isn't there.

Misconstrued knowledge

Interview 8 Male - And then people get upset because they're worried about how things are interpreted, they're not getting the responses they want and instead of resolving something quickly it takes quite a lot of time.

Technology shortcuts to aid knowledge

Interview 8 Male - Technology is great in a lot of areas, an organisation like us were very in the forefront with some technology and were actually behind in other areas. So I guess consistency is the key and then there's probably technology out there that is given to certain people that perhaps hasn't made it any better or easier, somebody's been sold on the idea and it's rolled out instead of involving the people that are using it and getting their ideas and then seeing if it's going to actually benefit anything. So that happens, absolutely that happens. But technology, we've got to use technology but we've also got to realise and understand that the way it's used is the correct way and that using the shortcuts that will impact somebody else. Because that's what these people were doing, they were using emails, it's quick and easy because they didn't want to talk to anyone and it actually wasn't resolved quickly and promptly.

Knowledge repositories - Designed by IT for IT - "It's not going to work"

Interview 8 Male - It's on power enterprises but ... for example I had to look up something today and it was refrigeration fees. I wanted a report, so even though it's there and I typed in every word that I thought sounded like the same meaning for what I wanted and I know it's in there, but I couldn't find it. So again, the fact it's designed by IT people for IT people, it's not going to work in what I call the real world, because people have been using it daily. It's all good having that, but you've got to turn it something that you can use...

Knowledge Acquisition: Hands on observation

Interview 8 Male - If it's hands on - one on one basically. Come up with the issue and instead of him investigating and resolving it, he takes someone with him and they do it together so they get a picture of how it gets done so that the next time that comes in their doing it, with him watching, third one that comes in they do that on their own, knowing that he's there if they need to ask him anything...By the fourth or fifth time, they're up and running on their own.

Mistaken knowledge

Interview 8 Male - I've always lived by the rule learn from your mistakes. Now, it's very easy for someone in my position to blast someone, give them the counselling or warning, whatever it is, for errors. But by doing that, are they just going to learn from that? The thing they're going to remember is a warning. I would rather say so what went wrong here? I did this wrong. Oh so you know what you did wrong here, oh yes absolutely, I know what I did, I pressed this button instead of that one. Alright, have you fixed it? Yes. Okay so you've learned, let's move one, just don't do it again. And as long as you can acknowledge that there was an error and admit to where and how it occurred, you've learnt from it and moved forward, there's no point going backwards. You can't fix it once it's done. Okay, but as long as you learn and I've found that by talking to people, one on one, you get a respect and those people actually say - he's not a bad bloke, I can talk to him about almost anything he treats me as a man or a woman, It's not us and them, It's not a hierarchy and I think you just get a better outcome. If you ever need to ask him for something...

Getting on the front foot - Going over the hill

Interview 8 Male - I like being reactive and proactive. In my area now were very, very proactive because people call us with problems. So if they call us with a problem and we react to it and deal with it, now let's get on the front foot and let's be proactive so it doesn't happen again and time committed. That's our direction and I actually had a meeting with my team yesterday because I'm going on holidays soon and I said to them, we're in a position now where... were very good at reacting to the problem issues, so now let's get on the front foot, get out of the warehouse floor, follow the orders around so that they're 100% accurate and we won't be reacting to that order because were being proactive and checked it before it left here. You've got to get to that point before you can actually do that, but the minute you can go over that hill, you're in another area and you're going to get results before that becomes an issue.

Impediments to knowledge building - Systems, relationships

Interview 8 Male - There can be systems, processes that will stop you from doing that, absolutely. There can be you're initial manager, could be, everyone's different and I've had managers in the past who will not change, will not bend, were not be very flexible. So growth can be prohibited. So absolutely, it's not just you, it's that person above you, you need to have that working relationship, you need to have an understanding and you

need to have a direction in the same way and if you do that, well then you've got to just make it happen and we've had a significant change in senior management here in the last few years and as a result of that, there are a lot of positives there and we focus now on values; we rebuild relationships that were broken.

Interview 8 Male - So now we're at a point where we've got to keep going and follow that through cause we've done the harder work... and then, if we get some of that over the line, then we should look at the ones we didn't get on board and how we can get them. But because you've got the majority over the line, you then have a little bit more time to work on the individuals and, earn their respect and let them come on board and understand where we are going - try and break down the barriers...

Knowledge erosion and degradation risk and stock control

Interview 8 Male - The most common issue will be shorts and damages on deliveries of order. That's the most common. Well we on site deliver all the groceries; we deliver perishable items and slow moving general merchandise. So everything in the supermarket, we send out.

Business critical and taken for granted knowledge and knowledge needs of customers

Interview 8 Male - They're the majority, I guess the old 80/20 rule, 80% of it will be shorts, damages, overs, and then the rest would be made up of missing paperwork, when's my delivery coming? Can I change my delivery? I have an issue with the driver, I'm not happy with this, and then some of them are becoming proactive, now, I'm personally getting calls from people actually thinking about their business a little bit more, and asking for alternatives to what they have been doing for a number of years. I'll give you an example; a customer gets three deliveries a week, so they might get five pallets, five pallets, five pallets. Now the transport costs...pretty expensive.

Interview 8 Male - So they might come back and say, look I might get seven and eight pallets twice a week, can you tell me how much it will save me? etc., etc. You give them that information, boosts their savings and we've done it where and how we've solved it is by saying, well look you can...how many? Two? How many hours? I give a

minimum of 4 hours. I said, so you're giving them four, four and four. If you got two deliveries, you're going to save on freight and instead of 12 hours you're only going to give your casual 8 hours and they're going to save again. Oh, I didn't think of that. So it's a win for organisation X because we were travelling twice to pick these orders instead of three times, and time is money and money is travel. And it's a win for me.

Knowledge erosion and degradation - The Generation Y factor and competitiveness

Interview 8 Male - Yep. Look there's a couple of issues there and a couple of topics. One is yes people are valuable and Gen Y, and that's not to just say that all Gen Y is bad but there's some really good people within Gen Y. So that is one aspect. However, there's also the issue of understanding what is out there, getting the best out of them, and then when we do get them, give them the right tools and skills and then retaining them so your influence is outside already. Once you get to a certain level people do headhunt other people, so you need to be aware of what the market is doing, what businesses are doing around you, and remaining competitive. So not just competitive on what we do but competitive in terms of our people and our knowledge base and ensuring that we've got the right people doing the job. So, I don't think it's one answer, I think it's several, I really do.

Picking up and growing knowledge

Interview 8 Male - I would like to see people move around within the business to understand what other people do and experience that, and it could be half a day, it could be a couple of hours, could be a day, but part of that you are actually picking up knowledge. As much as people say oh I don't want to do that job, but just have a go and you get an appreciation for what they do. So the next time you put a call through to that person, and they say I don't want to talk to that person, you'll actually understand why they're grumpy, why you can't help with their issue. So again, it all comes back to knowledge. If you can grow your understanding on what we do as a business, because we are so big and there are so many people here, and we're retaining that knowledge and those good people. It's just critical to success.

HR Planning, career progression and Knowledge

Interview 8 Male – Yes, look I think that topic needs to be given some resources to manage. The thing that first comes to my mind in speaking, within the warehouse, a storeman would have a training matrix set up and if you would know every task that he's done within that business and what he can and can't do. So, after a year or two you want to get him up-skilled, you could move him to other areas and he would progress. And that's just the basic excel spreadsheet for training management. I'm not so sure we've got that for our internal white collar people if you like, and that's just something basic that we could, that somebody could be in control. I'm not sure, it might come under the HR umbrella if you're taking it in a specialised field, and with that you can actually then look at progressing within the business. You can set yourself up for progression in the business; you can earmark people for future roles and areas of the business that they could assist with. I know that there are some people here that are happy doing the same thing forever until they retire, but then there are also other people that want to move around, and we have had people with knowledge being given a new opportunity.

Interview 9 Female - I'm just trying to give you an idea. I started work when I was 16 working on the shop floor, filling shelves and I did that while I was in school and then after I went to college I started on a bit of management transition and I did shop floor management in a retailer in Dublin [UK] and then I moved into the office... for a couple of years and then I moved into Bonds. So that's where I was when I left UK. Yes, so I suppose probably about 16 years now that I've been working in retail all in all.

Specialised Rostering knowledge

Interview 9 Female - ... If you're starting off with a different supervisor or at the checkouts or whatever, you're doing the rostering, they're going to be there to tell who rosters what, which rosters on, how many people for each day of the week. Do you know the kind of thing? You end up overstaffed one day and understaffed another.

Key information and knowledge for suppliers

Interview 9 Female - Currently my role involves planning promotions with suppliers and ensuring that information is successfully transmitted to the retailers so they know what promotions are on what week and organising deal upgrades to make sure the retailers are competitive and, ensuring there is enough stock in the warehouse to supply it around and submitting future promotions...

Short term knowledge needs - Picking out the brains

Interview 9 Female - Short term knowledge issues. My particular role is very much relationship driven so picking out the brains to give a certain customer something... ..by doing something, and not necessarily documenting it, and then a lot of you don't turn up to work the next day and that information is gone. They find it's very short term issues around that relationship they have with either the supplier or the retailer...

Interview 9 Female - Trying to make sure you have a backup or documented it in some way shape or form, even though you might only need to act on that information in the next 24 hours.

An outsider looking in perspective - Holding onto knowledge

Interview 9 Female - Yes, very noticeable. I've never really noticed this anywhere else before. But then again as I said, I've only worked in one other company prior to this, so I haven't got a huge amount of experience across companies but I've worked in many, many different roles and so I don't know. I've never really come across it in the same way where the knowledge would be tied up with one individual and the reluctance to share, or the attempts to retrieve that knowledge and document it in some way has gone and I've gone by without any success.

Temporary workers - Give them the minimum and knowledge scarcity

Interview 9 Female X - Well, not even me but even within my department there might be one particular staff member doing a specific job. It only requires one person to do it but of course they have to follow it. So then you have somebody in for training to try and make sure they understand the role and can cover the holidays, you know, give them the bare minimum of information to be able to cope with the job...and no more because I don't necessarily know them, but you kind of feel that there's that sense of fear but if the

person that's covering them does too good a job, well, they might be wanted back. I don't know.

Interview 9 Female - The feedback would be, I tried to understand it, I don't really understand it, and I'm told from here on, from now on you're never going to understand it because they didn't try and explain it another way. There wasn't their willingness to teach, you know, or I suggested we do it this way because I think that this would be quicker and they didn't have excel skills...So I said if we do it this way, it would be saving so much time and they just ignored my advice and just carried on doing it the old way.

Interview 9 Female - It does seem to have been something that was inherent within the organisation because it wasn't just occurring in one role it was occurring in a couple of different roles.

Little feet stuck in the middle

Interview 9 Female - Yes, there's still quite a lot of turnover of staff because this organisation is so big. So even though you're happy, people were extremely unhappy you still had an awful lot of turnover of people as well. So it's, I don't know, there just seemed to be a resistance to change, it was more difficult. You know, even though somebody might now be allowed to work for a different department than they were previously, they still carried on with exactly the same job that they always did. They were never integrated in it or they never learnt anything new and nobody else ever learnt what they were doing. Little feet stuck in the middle of the department.

Procedural knowledge gaps - Knowledge quest - A call of duty

Interview 9 Female - I'd have to say that I don't think the procedures seem to be very strong at the minute. Yes, given that it's such a large organisation it's hard to know what goes on in other parts but whether that's just an issue... ..but you know there's no drive to document things or you know it doesn't form part of your KPI, you must have everything documented.

Interview 9 Female - ... it's just something that you would have to do over and above your normal duties... and you would have to take extra time to do that, so you're going to really want to be motivated to do it in order to record that information and that knowledge somewhere.

Motivational issues in knowledge sharing

Interview 9 Female - It's going back to the other problems that people have with sharing knowledge. There's quite a bit of that going on and then you have no motivation or people to share the knowledge, so it's never going to happen.

Interview 9 Female - Yes, I mean some people are more aware than others. I think sometimes it's a bit of, yes we all know there should be some kind of documentation or processes etc. but again if you're not driven to do it in some way and if it's not part of your core job then where's the real dedication to actually doing that, do you know? It's a bit like sustainability or one of these other things that we all go yep we're going to be green thumbs... Where's the motivation to actually...

Interview 9 Female - I mean, within that though, obviously we've got people middle management or like myself or you know at some other level that will have come from a more process driven place and so are already very aware of the need for processes they might be able to drive these best practices in terms of recording information but that could be helpful in their small department whereas I don't feel as being a larger organisation to retain knowledge personally.

Key people as knowledge pillars and knowledge complacency

Interview 9 Female - I think one key factor is when someone has been doing the same job for an awfully long time. Because they become then a pillar of that department and because you're doing it so well for such a long time, everybody forgets that you're really there doing that job and well we don't need to worry about that because they're looking after us.

Interview 9 Female - Yes, it might not necessarily be that they personally hold onto the knowledge in the way we were talking about before, it might just be everybody has become complacent of that in their department that this person we go to and we've all gone fine, we'll turn up every day and we'll never have an issue.

Interview 9 Female - Yes, and so why do we need to rock the boat but then if they don't turn up one day or whatever happens...

Working knowledge in a cocoon

Interview 9 Female - Yes, you've got to be into it in terms of the job because you've got computers, computer programs. There are emails and I can just do my job here in this space and I don't necessarily need to interact with anybody else...

Knowledge and information sharing: I don't know what that person does

Interview 9 Female - Yes well that and the sharing of information and there'll be people, you often hear people say I don't know what that person does. It's not that we all believe that I'm sure they're doing good things but we don't know what they do... and everybody believes that nobody else is working as hard as they because we don't understand that person's job and so there's a bit of that. What are they doing? Well, I don't know because we don't have to know, and that's fine. You don't need to know what everybody else in the company is doing...in the other departments...

Work Methods

Interview 9 Female - It can help because in one way certain tasks become specific and automated and that you have to do it this way.

Intermittent or half-baked systems knowledge - A form of knowledge erosion and degradation

Interview 9 Female - Yes exactly, so when someone else has stepped into the role it would make no difference because there's only one way to do it. However, this can be an issue in another way in that this new technology needs to be implemented and integrated and everybody needs to be trained and then the trainers will go away and then you're left with it. You get that half of what you were told because you've been helped for the first three months, and then all of a sudden 6 months later it's like well, there's a new person there and now we have to train the new person but there's no action, there's no documents. So obviously, we've just had a new computer system implemented in the last twelve months. So it's just when you come to a certain time near Christmas it kind of highlights some of these issues. Certain things only need to be done once or twice and then you don't need to do them again for another twelve months.

Beyond Rudimentary and systems knowledge

Interview 9 Female - Yes and it's all very well to say this is how this guy does estimates and in putting your estimates for stock control, and that's fine and that shows you do estimates. But why would you need to do that? What is your deadline? What impact is it going to have if you don't meet that deadline, and if you've done estimates now what do you do? It's all of those extra questions that the team that trained them can't answer. So technically, there's more knowledge to know on how to run systems than the people that trained us in the first place after twelve months. Do you know what I'm saying? Because they wouldn't be able to come in and do my job even though they probably know more on how to use computer systems.

Factors shaping knowledge: Time and motivational pressures to enhance knowledge

Interview 9 Female - In reality even if you know they never came back to us and you never had proper training and that because for other reasons because we do not know that kind of level...how to use the systems. But in reality, and it's like, they never left out staff but the reality is...we have to write them [procedures] because we need to put in that extra layer of information. But then when are you going to get the time to do that in your day to day, whose going to reward you for doing that? ... When am I going to get the time to sit down and pass that information onto everybody at once?...

Overheard knowledge

Interview 9 Female - And that's fine, because everybody needs to have some level of individuality to their job...it's interesting still because I'm sure there are some efficiencies that some people have and some others overhear that other people have and if you were to put them together to do the job.

Not everybody can teach

Interview 9 Female 3 - My first thought with inhibitors is definitely just people's ability to pass it on. Not everybody is a good teacher, right? So if somebody might be the best in the world at doing a specific task...how can you share that knowledge? It might not be because they don't want to, it's because they haven't got the ability to. That's certainly an issue there.

Retailer and stakeholder pressures - Right information/knowledge at the right time

Interview 9 Female - There probably, in our organisation it's been a little bit unique in that where it has outside pressure from retailers but at the same time they're our retailers so it's kind of an internal pressure, you know. We need to give them the same

information so the knowledge that we're passing on to them. They will have pressure to make sure it's right every time and put the pressure to make sure where everybody is up to speed and everybody knows how to do it. So that's what certainly, that drives us to have good sharing of knowledge on things that are retailer based.

Specific and crucial information or knowledge - communication breakdown

Interview 9 Female - Yes it's just in terms of, let me think, you request specific knowledge and I suppose they're more, somebody might, with all good intentions send out communication to retailers informing them they're going to get stock on a certain day and then not having really realised that they couldn't actually commit to that because they didn't think about the customer service point of view or the warehouse point of view. Also say a buyer in thinking they were doing the right thing – your Christmas stock is going to arrive on the 25th of October but then in reality they're new to the company, they didn't really think it through, they didn't realise that every retailer gets a delivery on a different day...So now you get 110 phone calls saying my delivery is here I don't have any Christmas stock out in the morning, you know, and they're like oh actually, it's actually going to arrive on the next delivery any day after the 25th of October. So just that kind of...Obviously every piece of information you send out is crucial, how somebody is going to roster their staff, etc.

Useful information and knowledge - only moment in time

Interview 9 Female - I wouldn't think that there's anything within my area that would be critical, if it was information that people could use. Even if you were talking about financially sensitive information, most of the time by the time the information gets somewhere it's useless anyway, it's got a moment in time where it might have been important.

Access for useful information

Interview 9 Female - By the time that information is public from here, then it's almost too late for anybody to do anything with it anyway when it goes external so sometimes there is a little bit of hype around the whole thing you know we work with very sensitive information. We do, but at the same time, knowing how many cartons of coke two litre we have on hand is irrelevant in a matter of time. It's going to be a different number.

We'll change daily so it's kind of like stuck on the level the access to the information anybody has probably safe guarded them ...nobody has access to that level. I think there are a lot of barriers to getting sensitive information... so I think at my level, given that I have very significant access and I don't know a hell of a lot of sensitive information so I can't imagine anybody else would know a lot of sensitive information...

Interview 9 Female - Yes and there would be some information that would be useful to do my job and I can't access it. Yes, it would be knowledge that I would have had access to in the previous role ...Yes. You know which supplier is better to work with because they are going to be beneficial to the business in terms of that kind of information.

Trust and access issues - Proximity matters

Interview 9 Female - Yes so because I don't work with you personally I don't trust you, I don't know if I can trust you, so why would I give you that information? I don't mean me personally obviously but I just I don't know, maybe I'm just thinking about you know what I think is the relevant level of knowledge for my position because obviously you have to have this it's very difficult to kind of understand what they want you to do with that knowledge. I think it would allow me to do a better job but maybe only marginally so there's that trade off. How important is it to you verses the risk of giving it to somebody?

Giveaway or free versus tradeable knowledge

Interview 9 Female - It depends on the knowledge and it depends on how important it is to you, I mean knowledge there is certain knowledge that you can give away free of charge kind of thing...

Interview 9 Female - Yes. I think the vast majority of information that I have in my day to day world be of that nature...how you feel about payroll...and then you would value that knowledge a little bit more...

Organisational changes, figuring out the good jobs - Jobs upgradation

Interview 10 Female - There are some within I think, there is the odd job that hasn't been passed through and eventually along the way we pick up that it hasn't been done and we've figured that out...But I think with the changes, yes, there were a lot of jobs that

were being done that probably don't need to be done anyway or they just needed to be upgraded...

Heritage Jobs things people just do and fresh eyes

Interview 10 Female - I think, along the way I think it's a lot more heritage jobs really... and new people coming in. There's a lot of heritage things that people just do because we do them. They're probably not required anyway. When someone new comes in it can be a good thing, not always a bad thing. But they just do what needs to be done, and they don't do the other jobs that probably weren't required anyway, or they come in with new eyes and they see why we do that. I don't know why we did that. I don't. That's why it's probably, and I've moved people around to different jobs in our sections, and you find it a lot when people go on holidays too where someone else has got to do their role and so they fill in and say why do they do that? We don't really think about things like that because people do the same old thing over and over again. Erosion can be a good thing not a bad thing.

Interview 10 Female - Yes so, I've had jobs that I've actually, part of my role to be able to look into obviously ways of improving things that we do, and I go in and look at the way that we do things. There's times when we used to file everything and have thirteen filing cabinets full of everything because we keep it. Now we have a scanning system, so we don't need to... Let's find a way to do that. So we don't have to keep it in files. We've always kept them but we can keep them somewhere else, and it will be a better way to do things and an improvement.

Knowledge preservation: Learning from others

Interview 10 Female - I think we're pretty good at preserving knowledge. I think that the upskilling of people and feeding people through and putting them in positions where they can learn from others, who are already in those roles. I think we do that pretty well across the business I think.

Outsiders: watch imparted knowledge and takeover threat

Interview 10 Female - I think maybe the turnover of staff, especially right now there's a lot of new people. Although there's still quite a lot of the older people that understand

the business. You just hope that they learn from the people who actually know the business and don't come in and just take over.

Go to and non go to people for knowledge - When knowledge prejudice risks

Interview 10 Female - Yes, and you know because a lot of people come to you and just ask you go and see this person but I'll know if I don't know I'll know who to send them to because I know they used to work there, they might know.

Interview 10 Female - You know where to point people in the right direction and that's throughout the whole business in different areas. I suppose the new people, you don't know them so you don't know what they know...They may be very knowledgeable in their field but they still don't know organisation X. You just hope that they learn it. Never take anyone for granted. So there's a lot of company knowledge.

Impacts on organisational effectiveness

Interview 10 Female - ... there was timing, very short timing issues because we obviously we had to make payment to people and when jobs hadn't been done and you're expecting something to be done so you can do your job. Yes, definitely...Especially when people want to be paid. If they get the incorrect amount in their pay or there's an adjustment.

Crucial things usually known by others

Interview 10 Female ...it's probably more, just an internal sharing of information. I don't really think it's a huge issue. I think most jobs...eventually you find out what's missing anyway, probably need the improvement anyway. I don't think it's a bad thing all the time, sometimes it may be if it's crucial. Usually the crucial things are known by others.

Learn what you want to learn - Individual volition and knowledge

Interview 10 Female - You know everyone's got an opportunity it just depends on how much knowledge you want to learn yourself. Like you can come in and sit here and do your job and do a fantastic job or you can stand up and go and do some courses and get involved and ask people and learn what you want to learn.

Fishing out knowledge - The knowledge Wheel-Being socially connected

Interview 10 Female - ...For me it's easy because I already know them. For new people, I think as long as they ask the right questions, there are a few of the right people in most areas that would lead them to the right person. So a lot of people will come to

me and just ask random questions about anything and I'll just know that...it might be this person, so try that and let me know if it's not the right one and I'll fish it out somewhere else. But I've got a pretty good knowledge wheel around me as well...my circle of friends.

Interview 10 Female - ...I know there's different departments that will call on me because of my other skills I have in organising functions or arts and crafts or ideas and things like that, or even cooking the eggs on the BBQ to raise money. So, yes they'll definitely within this department will come to me and just say X what do you think?

Knowledge complex roles and unconscious knowing

Interview 10 Female - I definitely think It's [the role] pretty complex. I think you know a lot of stuff without even knowing that you know it...There's heaps of things that I'm surprised that I even know myself.

Everyday known knowledge gaps - The norm

Interview 10 Female - Yes just from being involved and talking and learning different jobs along the way. But there is so much I don't know as well, and I know that I don't know. Because every day there's something else going on and I'm like I didn't know that. But you learn from it, being involved in meetings, conversations, it helps you.

Meeting knowledge challenges - Bring knowledge all under the same roof

Interview 10 Female - No not really, not off the top. I think they just need to do more of what they're doing. I think over the years it's just been general communication, you know when you're talking to people. But I think now because were getting so much bigger, and that probably one of the things that pops into my head is that it could be a lot better if we were all in the same site.

Back in the nest

Interview 11 Male - Previously I was in organisation X pretty much straight after school working in the warehouse. So when I was about 18 - 19 and stayed there for ten years and then I worked for their competitor because competitor 5 that started their own operations, I went over to that, was there for ten years, they closed the doors in October last year and now I've come back. I've sort of disappeared from the organisation X business for ten years, and I've come back... So it's just been over a year. It's a bit different from when I was there working in inventory management...

Knowledge in bits and knowledge transfer- Picking the brains

Interview 11 Male - There's a little bit but not as much as I want it to be because he is obviously moving into his role too, so I obviously want to pick his brains and learn as much as I can so when it's, when he's gone, I haven't got all these questions, oh what do I do here? So I think learning from your peer or who you're replacing, it can be eroded.

Interview 11 Male - I think in parts, like I just explained there. In other parts, when I first started, the guy I was learning with showed me everything...so in that part there wasn't but I'm finding it more certainly in this new role. Like I said, obviously the person I'm replacing he's got his role to try and learn too, so it's a bit of erosion.

Transitioning knowledge - Learning in a day

Interview 11 Male - ... So, in that way it's a bit hard. I think how I learnt when I first got here, the guys doing that role, he's doing that job day to day so he had the time to sit down and show me things, wasn't that I had to learn it in a day, and it was like bit by bit...

Interview 11 Male - Exactly, if something came up that I didn't know he was there to ask, so in that position there was no sort of erosion. Like I said, I'm finding it more ...It's not really complex it's just learning new things like things I haven't been taught before.

Learning new things - Get all the information

Interview 11 Male - An example is setting our trading terms with new suppliers. Like I deal with suppliers but I've never had to go in and set up trading terms. So just from the word go, like a new supplier wants to come in and give you his ABN and passing that information on to someone in the business to do business checks on them and then how much were charging them, rebates...So just learning all that and learning the different departments who to talk to now. Like I've got more departments I have to deal with. So I can go about setting new products up, costings about getting stuff activated. It's not really complicated it's just once I know it I'll be fine it's just trying to get all the information.

Self perception and knowledge transfer efficiency

Interview 11 Male - ... Well I suppose with my last job I was the Operations Manager so I spent a lot of time implementing the systems so I spent a lot of time learning it and passing that on. So I would have like to think there wasn't too much erosion on my part.

Knowledge erosion and degradation risks - Learning from your peer

Interview 11 Male - Yes so he's been away learning his other role, so I'm getting his people that would normally contact him are trying to contact me and I can't really answer a lot of the questions at the moment and he's feeling like he's going while I'm trying to learn. When he is here he helps but then he is going away and learning his part too.

Learning the ropes

Interview 11 Male - I haven't got enough, I've only been here fourteen months and just sort of the years had gone quick and I'm just learning the ropes basically and now I've moved up into another role...

Interview 11 Male - I think it's very important [knowledge]. Like I said, if my boss, if they sent me to Israel tomorrow it would be, oh look there is other people I can ask there is other people in other states that do the same role, so I have got other people to work with. But I do think the awareness should be better, I think it's an important thing that people know. Knowledge is power as they say, it makes your job easier. I think it's an important part of business to pass knowledge on to your peers. Here they always say that success... if you're not showing the people underneath you, how they are going to move up? So I think the knowledge should be high upon passing down.

Two week knowledge dose - Technology enabled

Interview 11 Male - ...In the role I'm going to, they have a phone link up every two weeks, so every two weeks all the state inventory warehouse managers have a phone link ...Yes there is networking like support knowledge, but obviously there's phone and email...

Knowledge barriers - He didn't teach me much

Interview 11 Male - The person I'm learning from actually was teaching, my national person. She rang me the other day and I said I'm struggling to get information from the person I'm replacing and this person that I'm trying to learn from actually taught the

national manager. She goes, I know exactly where you're coming from, I learnt nothing either, I was sort of, he didn't teach me much. So I think a lot of it may be personality of the person maybe they don't want to pass on information.

Interview 11 Male - Oh I've got no idea. If it's up to me, I'm happy to help or show anyone what they need to know. Maybe they feel threatened, I don't know? Maybe they don't want everyone to know what they know. This is just one person I'm talking about. But like I said other people, like when I first started I had people helping me out, to fit in and get settled and so I mean I suppose that's one example. Like I said, just coming back from that week management course I had met people networking from different, and their happy to sit down and discuss what they do. I think the company, I'm dealing with one person at the moment, and I think generally knowledge is getting passed on is quite good.

The ways of knowledge acquisition - Pop over for a day

Interview 11 Male - I mean suppliers we have pretty much day to day contact with. More so the larger one there's a lot of little wineries that you might not hear from, you place your order and they stock but the bigger ones that you do, a lot of your stock buys with products, they're always saying they'll...it's good though...there's another bit of I suppose knowledge, they'll, if we don't see something, they might let us oh there's a promotion coming on, they might let us know oh this is coming on so that's knowledge I suppose outside the sharing a benefit for both of us. Knowledge within the group, coming from me, like I've met guys over in the fresh and up in the grocery. Like anything different from groceries or fresh or the deli. I got onto a guy with the deli, he does a lot of the buying so I said pop over for a day, he can pop over for an arvo. That's another way of knowledge getting, new knowledge passed on. Basically doing the same role but they might be doing something different from what we do but it's good to see what they do.

Knowledge seekers

Interview 11 Male - ... For internal I reckon, I'm getting the knowledge I'm supposed to know. I suppose what I need to know I get taught what I don't need to know you don't get shown or taught. Externally, dealing with suppliers, I suppose you get the information on knowledge as we need to run a business. I don't think there's anything really externally.

Passing on knowledge - Use your contacts

Interview 11 Male - I suppose, I don't think it would be the role. Like I said I'm lucky I've got the same role in each state. I might not learn it off the person I'm replacing but I have got a lot other contacts I can go to. If I haven't been taught something I'm hoping someone else in another state or the national office will pass on that knowledge, information. I might not learn it straight away like I said, but hopefully, I'm pretty sure that if something occurred, someone would know to help me out.

Technology and knowledge - all the information needed

Interview 11 Male - Well yes the technology is basically all on computers, gathering information out of systems like stock on hand, stock on hand, what's on order, where we are in the budget to meet stock levels. All that information gets gathered from the systems. So a lot of that information, because we run two systems like I said the warehouse operating system...which runs the day to day and then our information, our enterpriser day to day, placing orders, seeing stock like I said. So I mean the technology is pretty much...what should I say? Useful, like it's up to date, the technology side, you can get pretty much all the information needed to do our role.

Role splitting and knowledge degradation

Interview 11 Male - Just in my experience for the last 14 months I would say generally overall the whole business has been good. Anything I've needed to learn, I can pretty much ask someone and I know who to ask. The only thing struggling I've been getting at the moment is now. Time constraints this time of year it's busy. They haven't replaced my role as of yet either so that's another issue. So I'm still basically doing my role at present... I haven't the time which I've brought up because as soon as they can get someone into replace me I can put the whole 100 percent concentration into my new role.

Going outside the knowledge comfort zone

Interview 12 Female - It has been very interesting. It's been a very big challenge because it puts me really outside my comfort zone. For the last twenty years before that I was working in finance so in our accounts payable area. Then I was pulled down onto a project as subject matter expert for AP and when I came back to AP then it was like

well what am I going to do now? I suppose that was the first big step I've taken for a long time, to do something different. My interests started to pick up and I thought oh maybe I might be bored if I go back to my old job, maybe there's something else I should do. So when this other project came up ... they said we will put you on that. You're the best person for that one, for sure. So they put me on that and it has been very interesting and very challenging...it's up and running now, it was very successful, we finished on time. It's good. So now my job now is to manage that portal and manage the information that goes into it and the use of it and the enhancements to it. It's quite, amongst other things, it's quite a diverse job that I do.

Interview 12 Female -...I'd say there is, particularly from the aspect from the financial knowledge that I have, so using that to be able to make the system work the way we need it to work for our terms and payment and that kind of thing. I'm lucky that I had that knowledge and that's obviously why I was told to be on that project. I've also learnt a lot since I've been on that project about things I normally wouldn't have had the opportunity to learn about within the business, and also having been here for such a long time, it actually really helps because I have a lot of networking. So I know a lot of people in the business that needed something or needed to learn about something as part of their role that I knew I could go to these people and say hey, can you point me in the right direction?

Knowledge transfer: It'll all come out in the wash

Interview 12 Female -...Well so and so normally did all these things, we think she did these things, we don't know what else she did, there were no procedures left behind, how are we going to know that were doing everything we need to do? And then generally like, it doesn't matter, we will figure it out, it'll all come out in the wash.

No one's indispensable - Anyone could get hit by a bus tomorrow - Final costs

Interview 12 Female - It's supposed to make them feel like, no pressure, no stress, it's okay, we will all be good. It's the old philosophy of anyone could get hit by a bus tomorrow. You've just got to pick up and carry on and it's not always that easy. In some of the roles, I know it wasn't that easy, six months down the track there's still ongoing implications.

Interview 12 Female - Well financially, there was one situation where we claimed a particular rebate from suppliers, that wasn't happening for six months because people didn't know or they'd been too busy to reconcile because the person that went used to do that stuff. No one was given that job to do.

Redundant people but not redundant knowledge - Doing a knowledge clean up

Interview 12 Female - I suppose to knowledge transfer, clean up, whatever, which in my mind they could have done before they went. That defeats the purpose of redundancy, for me redundancy is because a job doesn't need to be done any more. They did know they were coming back for that short time because it was obviously after they were told they weren't needed anymore.

Interview 12 Female - I didn't speak to them personally but from what I know of people who had, they were happy to come back because that person had been here longer than I have been here, a long time, and felt a loyalty to the business. They sort of felt that they kind of owed it to them in a way, it was like, well unfortunately this had to happen but you've been here for a long time anyway and this person obviously the manager... you want to come back and help...to say you don't know?...it doesn't exist, no one needs to do it anymore.

Keep knowledge in organisational pockets - Complacently elsewhere

Interview 12 Female - I think it's quite deep in the pockets. I think there are some areas where they do see the value. But I think there's a lot of areas, where it is, again, that attitude. She'll be right, we'll pick it up, and someone out there will know what we're doing. Or they'll get somebody from outside and say you must have had the experience in the same industry, hoping that person can come in and just pick it up and run with it... that one knows a little bit, we'll get together and we'll be right.

Relevant employee for knowledge building and acquisition

Interview 12 Female - Well, I am selective on their knowledge area, you don't want people there who aren't relevant so I try and invite all the relevant people ...Or you invite some of the people who are at a higher level, where I like to involve the higher level and the people who actually do the work. So you've got those people in the workshop. When we were in there, the amazing thing was, a lot of those, I invited all came from that same area. The reason being, we think we might learn something from this and that to me has sort of rung bells because I thought, wow we've got five people

coming to the workshop that didn't need to come for a start which is amazing and secondly they came because they were hoping that they might pick up some knowledge from that they didn't already have about what they do from other people. That speaks voices, bring them all, good, the more people that know what they're supposed to be doing, the better for us.

Interview 12 Female - I find it really interesting that they came because they wanted to learn about their own job from other people. They came out feeling satisfied that they thought it was really productive because they did learn stuff. There were some people who don't even work in those areas, which was bizarre.

Knowledge is power: I want to be special

Interview 12 Female - From an erosion and degradation perspective a lot of them don't share that knowledge, because they think that if they share it they're not the only ones that know it so someone else could use that knowledge to better themselves, not just them. So if I don't share that information I have or that knowledge I have I look smart because I'm the only one who knows it. So I'm not going to tell you what my ideas are and I'm not going to let you in on the secret, because that's my leverage that I have with my manager or with the business to say that this is how special I am and you need me.

Interview 12 Female - It's true. On a communication level too and the communication comes to here and stops. These people know nothing because these middle people think it's not important to you, you just come in and do your job and go home and by doing that, again you're narrowing down the amount of information that is getting out to the business, people can't learn from. People can't learn.

Knowing a lot about a little - High ranking people but not high ranking knowledge

Interview 12 Female - Yes, In my experiences, there have been a few people that I've seen rise through the ranks, who are those people who know very little about very little there is that as well.

Interview 12 Female - In some areas, more than others. I just find, in my experience that people... and what happens is people tend to discover, suss out who the guy is that knows a lot about a lot and who's the ones that knows very little about or is probably the manager or higher. Then what happens is that guy who knows a lot gets all

the...because they have the confidence that person is going to be able to help them so then they do five times the amount of work. These people cruise a long, people go around them because they know they're not going to get information they need or want. What can you do about it? I mean that's the thing, what can you do about it.

Knowledge sharing barriers: Knowledge for job protection - I'm the only one who knows this, you can't get rid of me

Interview 12 Female - It would be the lack of sharing that knowledge. That knowledge is power and attitude, that attitude that it's mine and I'm not telling, I'm not sharing it with you. The natural process, where you've got all the long term staff leaving and no one learning what they know, they're not passing that knowledge on. Restructures, again the same process where no one is passing that knowledge along and there doesn't seem to be any interest in capturing that knowledge at the time. Their priority was to bring the numbers into line, rather than, as well as make sure the jobs are being done. They're probably the biggest things that I've noticed. The big one is people not sharing. People just don't like sharing. I think it's a bit of job protection, not just ego, like makes me powerful, it's people's job protection. When we're going through restructures, people feel unsure and insecure so they won't, they can hang onto stuff too because they think it makes them indispensable, I'm the only one who knows this, you can't get rid of me, which we know doesn't happen.

Knowledge sharing and storage - Limited channels

Interview 12 Female - I think one of the things would be, there's not really no channel within the business for people to be able to share a lot of their knowledge. It has come up in conversations I've had with people fairly recently during some training courses, that it's kind of, you build some sort of knowledge sharing database, some sort of way of people being able to communicate what they know about certain things. Even if it's not, I know stuff about things that aren't my job but that's because I've been here so long and I've learnt from other people but if I could share that and every time I get the opportunity to share that I do. So I think a lot of the business, there's not many communications, there are not many opportunities for people to share that knowledge.

Knowledge - Two sides of the coin: Don't tell me - I'm the boss -rah- rah -rah or - I'll just keep my mouth shut

Interview 12 Female - Or people aren't interested in that because they don't want to be told how to do something or why something happens, by someone that doesn't work in that area or that they don't see as being as important. You know, don't tell me what I should be doing because I'm the boss and I should be rah, rah, rah. You know the restraint is that. A lot of people feel that they don't want to tread on peoples toes. I don't want to be that know it all, so I won't say anything I'll just keep my mouth shut. I don't want people thinking I know everything, you know...That's the same with everywhere, even school. I find that the biggest thing I need is just the opportunity to share the knowledge. There's no, there's not people coming out in the business asking people, What do you know about this, or tell me what...? There's nothing. People just feel like, oh well it's not my place to say so, so I'll just plod along...Keep my head down. They don't want to stand out, a lot of people don't want to stand out.

Knowledge and change: Why do you do it like that?

Interview 12 Female - ... But yes, really bad and that's where that gets lost, where you have all the new people coming in and the old people going and there's no, a lot of times there's not a hand over, the handover of that knowledge. A bit like that intricate finance system, we do things a certain ways. Lately it's come up with people asking, why do you do it like that? Well the people who knew why aren't here anymore.

Inter-organisational cultures: Post impact effects of restructuring and downsizing

Interview 12 Female - There's a huge comparison. Previously I was in the corporate office. It was very cold, morale was quite low there was almost an oppressive feeling. You would come in and some days it was very quiet. A lot of people in that area felt very uncertain about their future in the business. It was a very high pressure area, in merchandise and buying and stuff, very high pressure. A lot of expectation on these people, they were hit pretty hard with restructures a few years ago and I don't think really recovered from that. I think there was a bit of distrust towards the business in those areas, and not knowing what's going on. A lot of people feeling like there are a lot of secrets going on and not being communicated with, not knowing what's going on with the business.

Knowledge - Keep your head down and do not engage

Interview 12 Female - No not at all. A lot of these people were people who just sit and do what they do, keep their heads down people that had been there a long time but still didn't know what they were doing but were here by sheer luck really, because they

have been here a long time and everything. But when I've come here and this building is a completely different culture.

Duck shoving vs networking - Over here versus over there

Interview 12 Female - Oh very friendly and open, a lot more conversations going on, a lot more information sharing. People want to know stuff. If you don't know something they will ask ten people. As opposed to over there where if they need to know something, well I'll just ask that person. If they don't know well I don't know. A lot of that duck shoving of stuff going on, if there's a problem, oh you do it. Whereas here, people try and find out themselves, which makes a big difference, which helps you with networking.

Interview 12 Female - Probably, my biggest thing, when I was reading through this, the biggest thing I think here within this organisation to do with knowledge, is that our biggest concern is what I said at the beginning. There's a lot of people here who know a lot and they're not utilised the right way and I don't think they are encouraged either. There's a lot of people who are happy to come in. They could probably do a lot more. A lot of them don't want to. But they're not given an opportunity to contribute in a lot cases, there kept out of stuff, stuff that might only be considered as your just a clerk or a...

Knowledgeable people - Do the work

Interview 12 Female - Yes, it is. From my experience, people who know the most about the business are people who do the work.

Breaking through the knowledge glass ceiling - Knowledge seekers

Interview 12 Female - It's true. One thing came up in a conversation not long ago and we were talking about how the sales, how the warehouse sales were down, share prices are down and it was all grim. But none of that really gets shared regularly with everybody. Because it gets to a certain level, I think they make the assumption that they won't understand it, and I think they would be very, very surprised at the amount of people that actually know more about that stuff than they think they do and they give them credit for. They know a lot about stock exchange. They follow the papers and read the financial review. There's a lot of people out there that are undervalued and I think It's, in a lot of cases maybe fear of I don't want to know acknowledge that person who I pay

to come in and process stuff and they know more than I do. So there is some of that there. But also on the other hand... there are a lot of people who just want to come in, do what they do, know what they know and go home. They don't want to be up-skilled and I don't think there's anything wrong with that in a lot of cases, we need those people to just come in and do what they do, the experts in that one little area. We need those people, the specialists, to come and do their thing and go home. There's always a lot of pressure within this business to empower people and everybody, everybody has to have some kind of leadership training.

Knowledge cogs - The bread and butter people

Interview 12 Female - Nearly everybody has to do some kind of development plan or training and some people just don't want to do that, and I don't see anything wrong with that. For me, you need those people too. They're the bread and butter people who keep the place running, turn the cogs. Whilst all the other high achievers are running around coming up with strategies and making plans and all that stuff, whose going to execute all that stuff? Those people, they don't want to be high flyers, they're happy to come in and do what they do. But they don't mind being involved every now and then, they want people to ask them what they know.

Organisational shapes - Knowledge reincarnated

Interview 13 Female - It was back then I was in New South Wales with the groceries and they were looking at a Property Improvement Program that they ran. They literally got rid of or let go a lot of knowledge and brought in a lot of new people that didn't necessarily do. I believe, we were very, very close to closing the doors until Organisation X came in and then there was this whole new ... They seemed to value older people that had knowledge or had gone through certain changes within the company. Not saying those people stayed but at least they listened to them and took time to go around and talk to these people. Again, their knowledge of where they had come from, transferred in here. Between the two obviously we took off. That restructure, then I've sort of seen some restructuring within different departments and It's quite funny that in some areas, in my area in particular in the company at the moment, I have seen them now go through their third rotation and It's quite interesting how once they make the changes, how they've gone back to some of the older, fairly new ways of doing things, new people, all of that. Twelve months down the track their

going, well hang on a minute, what they we're doing before did work. I see some where it has and other parts it hasn't.

Interview 13 Female - Look I think our management team now has learnt a lot and maybe from decisions that they made where knowledge had been eroded or left or whatever. I think now they listen a lot more and collect a lot more information, maybe before going in a particular direction.

Interview 13 Female - Look, I come from human resources hasn't always been valued in this company. From a point where in the old days there wasn't a HR team at all. I have actually come through a number of departments. I started with the liquor industry and then I came into payroll. I became the Payroll Manager and then from there I went into IT and then continued into HR so it's been a colourful journey. It's been very interesting being part of the HR team for a number of years now, to actually see our success woes and peaks I suppose. There's been times where little wins and show that you've got the knowledge and we can help you out and we can add value to your area, then you tend to get included and have the respect of the business. I think from that point of view the team definitely has come on in leaps and bounds and from the managers that are on now in the business, respects them and listens to them and do listen to, before we make those sort of changes, making sure is this the right way to go. What are we losing? What are we gaining? That's sort of, that's what I can see.

Knowledge awareness and decisions: Sometimes lost in translation

Interview 13 Female - I think, I don't think parts of the business know what is happening being within the top management team. In some, not all areas, but you hear comments from the business about decisions that have been made, and it's more I've handed the mark over than actually knowing what's been going on and how hard the management team have been working on getting things right. It only happened today as an example, where a decision has been made and it's not a popular decision. It's quite interesting with talking to some of the colleagues about their perception and how they have come to the understanding of how this decision was made. It's like, I've had to say to them, well that's actually not the way it was done. I'm lucky that I've have had other staff that know what the process was to get this decision out. So I think sometimes it gets lost, about why some changes are being made or how they've been made. In certain areas, yes I do believe.

Business knowledge and newcomers: Please explain and knowledge touch points

Interview 13 Female - Good question. I'm actually not sure. I hear it a lot from this side but I don't actually see someone responding to that. I'm hearing their comments more so than actually a discussion between somebody. I suppose from my point of view if someone says that to me I turn around and say, well actually I do, because I've been in these parts of the business. I know some of the newer people have said, well we have tried to get into your business, please explain? ... That's the thing I don't think that we do well is having those touch points of people that do have that knowledge to help them. We don't have those people to talk to our new people I suppose. Even on the floor the, the warehouse floor, I'm sure they would be so much, how can I say it's breaking down our barriers and it's been a big thing about us being siloed. Our new CEO is about bringing that all together and trying to cut the ... siloes and share our information. I think it's going to be a great journey and it's already started. I think our knowledge can be shared a lot better and I suppose that's, I see IT trying to help with that and trying to integrate with all the businesses and trying to align processes. They've even embarked on a project where they've gone out to the businesses and spoken to specialists, trying to get these things online, so that you can get into the information you need. It's such a big question.

Managers/leaders and knowledge stewardship, quality knowledge and empowerment

Interview 13 Female - Again I suppose I come back to leadership really. Different styles, I just feel that managers are such a great aspect. They can make or break and especially in imparting knowledge. I just think quality knowledge is in that, because we don't give people knowledge that's really not going to help them.

Knowledge: An internalist perspective-quality and training matter

Interview 13 Female - For me I suppose it's a bit hard because I'm not out in the actual operational business bit. So I'm looking from my peers. I mean external, all my factors about knowledge are really about internal and getting our business knowledge... extracting it from people, how we run our training and whether it's quality training to bring in new knowledge. Our training courses, our leadership courses, all of that sort of thing. That's how I think of it...and look that's just within our company. Again it

wasn't such a valuable thing to do or have previously or invest in. So some parts do it well some parts don't.

Putting knowledge into practice - A good system and information conversion

Interview 13 Female - Look from my IT background, I do. I think there's only certain amounts of knowledge and it's how you put that knowledge into practice. You can have something written on a piece of paper or in your system or locked away... It's how you use that and how you gain, how you interpret the knowledge that's on that system. I love systems, I have information, I look after a database, a HR database, the knowledge. How do I extract the information out to give the parts to the business ... I don't know? It's definitely handy at some levels to have a good system in place so that you know. I suppose if you don't, like I said IT are trying to get a knowledge database. But I know they're trying to gather as much knowledge from people, people with processes and things like that. It's great, but it's how you interpret some of that information.

Legacies and knowledge retention

Interview 14 Male - Legacies, they still need in some ways that knowledge or understanding of what was there and to be able to retrieve that and have someone being able to interpret it. Is it valuable to what the organisation is doing right at this point of time? Moving forward, it's probably not, but you need someone who can refer to it and still be able to understand it and take that away.

The case of the hailstorm: Disaster recovery knowledge goes missing

Interview 14 Male - I guess things like, we had a hail storm, massive hail storm down at our warehouse a few years ago. It basically rendered the site unusable because it was an asbestos roof on the site so we had to, obviously it was a very ... state to get the business back up and functioning and distributing and things like that. I think even from things like that we learnt that were probably a little short in terms of our disaster recovery and planning for situations like that. There wasn't a necessarily a total form of strategy that we worked through and so yes we did what we needed to do, but have we got something in place now to resolve that? I think yes it's taken that to where we sort of put our finger on it and say okay this is how we address it. So yes I think there's a number of ways that we've seen things progress over time and how we manage that. If

we talk about intellectual properties within the company and what that is. I think the organisation as such is that we've had a lot of people here who have worked here a long time within the organisation and when those people move on you are losing all that history and knowledge as to...where it is now. So yes we do lose that and sometimes that knowledge isn't passed or transitioned.

Value of knowledge IT enabled Context Management

Interview 14 Male - Yes I do. I think we are and I think that from where I sit and what we're trying to achieve now and how we manage that content and that knowledge and that information that everybody sort of accesses and sees on a day to day basis, yes. It's only going to become more relevant I think in the future as to how we understand what we do, the ways that we can improve that, what our customers do. I think it's going to become more important as well.

Interview 14 Male - There's a lot of discussion around what is... some of the information that we do hold at the moment is not in the way that it's useful knowing who holds that knowledge across different pillars and where it's accessed from. So I think from an IT perspective is how we centralise that information, we bring it all together, that it's readily accessible, definable, and updatable by multiple people at the same time. That whole content management or enterprise content management is becoming very important.

IT and changing internal perceptions

Interview 14 Male - ... I think it's where IT really needs to start changing and evolving the way that it's seen within the business and I think some of the things that I've come from a previous background...where I worked for other IT companies so they really knew ... the benefits of IT and what IT is to the business and I think there's a mindset that needs to change internally as to IT shouldn't be seen as just a cost. It needs to be viewed as someone that is going to contribute and shape and change and add value to the business

Knowledge: Getting more skin off the bone: Systems based knowledge

Interview 14 Male - I think it's the knowledge that you hold and maintain and the systems you that keep and tick over and that sort of stuff, nothings really said about it while it's working. You only ever hear something when it stops working and that comes ... is about a shift and change in how we need to sell the importance of what we provide

and what that actually does and the benefits that it gives to the company and once you change the businesses mindset into, hey if this is critical to how we move forward then you start getting a bit more skin off the bone, bit more clarity as to understanding the importance and wealth of that information and knowledge and having it and what it does for us.

Gen Y agnosticism

Interview 14 Male - I think, I relate it back to technology. I think the generational change to the Gen Ys and the people that are coming out, the technology that their working with and dealing with and their education and that, they're a lot more agnostic¹⁵⁵ as to how they view technology in the way that it works...this is what we're giving you, a piece of equipment towards this and you can get this...the younger generation they're not fussed, they're more agile. I can use this and I can do exactly the same thing, it works for me and so therefore I think the way they have been taught is to be a lot more flexible in their approach and I think that's just a structure and shift in the way that we identify what works, what doesn't work and those new learning methods that come through.

Generational differences - Loyalty and Knowledge succulents

Interview 14 Male - I think there's obviously the enthusiasm but there's also a bit of entitlement and sort of owed and therefore the generational gap I think the older generation is a lot more aligned to loyalty within the company and whereas now it's oh well the company will get rid of me as quickly as I'd get rid of them.

Interview 14 Male - I don't think so, I think they sort of see this is the way it is so therefore I may as well suck as much out of them as what I'm going to push back into them. Yes, it's the exchange and so therefore it's not viewed as I'm going to be here forever and so it's an opportunity to pass on my learnings and take as much learning as I can as well.

Barriers to knowledge - Communication and open ended information

Interview 14 Male - Inhibiting knowledge I think more is how we communicate within the organisation, as to what is valued and respected and things like that. I think in some

¹⁵⁵ Agnostic derived from agnosticism philosophically represents not subscribed to a fixed view or backup that proves either God exists or does not exist. This context the participant is stereotyping generally less oriented to an existing system and flexible to accommodate other systems.

instances within the organisation we can be quite closed in how we manage communication. Obviously there are things that obviously need to be kept sensitive, but we are now starting to see with new management coming in that there is more openness and more broadness in the way that the information flows and communicate and so therefore I think it's trying to reach out and build the rapport back into the organisation and it's trying to say, well here's a degree of openness that we are showing and...so I think that if people start to see that it's a more open, you communicate with every one of our people. We tend to close and restrict the information in that trust sense...then I think people would be more closed. So I think we need to actively share from the top down to foster that communication.

Knowledge communication - Pressure or pain points

Interview 14 Male - ... it's sort of trying to understand what's been going on within the company over time and where the pressure points or pain points are, may not necessarily have been communicated in the past whereas I think now there's more, we're experiencing issues here, we need to focus on this, we need to address it, how are we going to do it? It's a work in progress, but as soon as we know what it's going to look like we will communicate that with you.

Inhibitors to knowledge - Individual not just organisational responsibility

Interview 14 Male - It also falls down to people and individuals. An individual that manages a group or works within a group and how they push that message through their teams to foster that collaboration. People are always going to inhibit or restrict that.

We're masters of our own destiny: Knowledge information on an even keel: information in bits

Interview 14 Male - Within the organisation I don't think that there is, we're masters of our own destiny there... I don't think there's anything that should change or prevent that. Obviously external influences and what the industry is doing may shape what we have to do and change things, but I think from the internal side of things, there shouldn't be anything that changes or impacts or stops us or impedes us from doing what we need to do.

Interview 14 Male - I think experiences and things like that are such that within the organisation at times there are certain people or certain bits of information that is not necessarily on an even keel. So like one manager may give information to be passed on

to and communicated through their team, may be acceptable, but another manager... to sensitive and I won't pass that information on to the rest of my team.

Interview 15 Female - I've been always with the Organisation Y and probably in the last 6 years I've been working with division X, which is the retail area. Organisation Y is my first full time job, which is interesting, so the companies been great ...

Withholding knowledge for power

Interview 15 Female - For me it's more sharing that knowledge. I guess sharing would be potentially for me goes hand in hand with whole no sharing of power, just being able to impart, the more knowledge I have the more I'm able to give back to my customers and be able service my customers and when I talk about customers I talk about internal and external because I deal with a lot of external parties and the more I find out about people within my role and outside my role, I feel that I can add more and then I guess it gets to the point where knowledge adds value to my role...providing that additional value to everything I do. Whether it be knowing information myself and being able to impart it or knowing who the right person is, so I don't waste that person's time trying to search for that information...Yes empowered yes I think that would probably be it, you're right.

Working in silos

Interview 15 Female - I think I've always felt that the company worked very much in silos. I don't really know what's going on in other business areas obviously organisation X has tried to close that gap more recently with video content, quarterly reviews to let us know how the business is tracking. For example, where I work in marketing, I don't really know what other marketing strategies and activity in other business pillar is doing. From a degradation point of view, and erosion point of view rather than share the information more openly and make sure were all doing similar things in terms of marketing we could be doing that, we could all be doing a better job. I think that's slowly changing ...but across the board we're almost working as an independent business, which I feel that could be a lot tighter in terms of how we talk to one another within the business and were all doing similar jobs.

Management style

Interview 15 Female - No definitely, without a doubt the management style. I think if you have, our management style is quite flat so therefore the erosion of knowledge

probably doesn't... it's not a huge hierarchy that's filtered down and then by the time you've heard about it, you're hearing it literally straight from the person who is delivering that knowledge, which definitely helps with the degradation or erosion of knowledge...the quality of the knowledge is important as well because how it's being delivered to you can make such a big difference. I personally am a very youthful person so if someone goes through something and says something to me I'm going to apply that knowledge and hold it a lot more than if they're just sending me something in, an email, if they often send an email rather than pick up the phone. For me, it's [phone] got more depth to it.

Finding knowledge sources: Wrong information means unhappy customers

Interview 15 Female - ...In a lot of situations I hear about someone not providing me feedback but I hear it first and I wonder why they haven't gone to me directly. I feel that I'm the type of person that's quite willing to listen to suggestions and feedback but then it's either that or they don't know who to go to, so therefore they don't know who the knowledge seeker is or the knowledge imparter is ... Yes that's right, I guess in terms of where to find that information can be lacking and that also can come down to...Sources, ...and then access to information has been one of those areas where often myself, I wouldn't know who to find that information from.

A stab in the dark – Information gaps make unhappy customers

Interview 15 Female - ... yes with our operations there's obviously quite a broad spectrum. Previously when I initially first came into the job, if I needed to find a form for example, I wouldn't know where to go... people contact me and where is that information and they just waste so much time and they don't know who to go to. In the end they just do what they think is right, they don't get the information that they need and then the customers ultimately aren't happy.

Not speaking up - Lack of employee voice

Interview 15 Female - Yes and exactly, people don't speak up about certain things. They could be providing so much more value to a particular activity and they don't.

Knowledge risk: New ideas every two years knowledge steep

Interview 15 Female - I think it's more that they, the company needs to highlight the areas in which across the board there is a situation that could lead to knowledge erosion and degradation. I think if they highlighted specific areas either management or individual staff members could look out for, that would be where those short falls are and be able to realise that okay well maybe I need to change the way I communicate or I need to not tell people where to find this information, I need to encourage people to speak up because in our company I think every couple of years they have a competition to be able to see who comes up with a great idea to implement into the company, you know these people, every single person in this company, if they took half an hour or an hour out of their day or once a week to come up with a way to improve things or a way or a new way of doing things, a new idea all together or benchmarking or anything that they could add value by providing, putting forward that suggestion or improving that process. I think that's lacking because I think the company should be more encouraging of their staff members to be accountable for that area.

Interview 15 Female - Again, I think it's because the company sort of does work in individual businesses and we don't really share that information and again that is closing up, I'm definitely speaking to more parts of the business. Whether It's on various different activities, but previously prior to that, maybe a year ago, I wouldn't know given what other parts of the business do day to day and now I'm getting more involved in that. And that's just by the fact that the worlds become a bit smaller with the whole digital social focus and therefore the company itself is looking at ways of closing that barrier and seeing that we all do similar things to make sure we maximise that all those assets that we have currently and so one person isn't doing something completely different to the other, which I think is fantastic and again sharing that knowledge is going to lessen that erosion or degradation of knowledge.

Intensive knowledge handover and reincarnated knowledge

Interview 15 - Yes. Why do I say that? Because I don't think we have enough visibility, attentive, obtaining and keeping knowledge. So someone leaves and I see that because I handle terminations and everything and usually, sometimes I do see it when people go, and then that person goes and then you hear people say, well gee who's going to do that role? Did they do a proper handover with the knowledge? And then six months later we find out that person has been reemployed on a contractual basis so that they can train

that person. I don't think we get enough intensives with exiting interviews or someone handing in their resignation.

Technology enablers and collaboration

Interview 15 Female - Definitely the digital/social side of things, definitely technology. For example when we're doing any digital or social activity we would go normally through organisation X IT and request that that be done and now it turns out that organisation X is using one particular company to help us bring that to life. Just from that simple conversation, oh okay we're using xyz company and so is another part of the business and there seems to be more of that going on right now where organisation X is trying to pool their resources through so everyone is utilising similar companies to be able to bring that to life and therefore, again, that collaboration then occurs as a result of that. You're sharing information, you're trying to get feedback, and you're trying to find out how that person has worked with this specific company. Okay you're doing iPhone apps, okay I'll have a look at your one to see if it's similar to what I want to do.

Interview 15 Female - ...There's a focus to be able to collaborate the digital aspect so anyone who is a decision maker in terms of all that digital space. Now that finally we've come to a point where organisation X has recognised that and they're collaborating; a group of people to share that information ongoing to make sure we are all maximising the benefits of all the different tools that organisation X can pool together.

From the top down - Lead by example and knowledge expansion

Interview 15 Female - I think that comes from the very top role. Recently been organisation X CEO, the new CEO come through, the fact that he has made a lot of effort to get to know different parts of the business and actually find out what we do in our jobs so he came around I guess part of his induction. He introduced himself to every part of the business, within every department, every pillar and for him, to acquire his own knowledge to be able to do his job the right way and better and I think it starts from there, leading by example, having all the leadership aspects.

Interview 15 Female - Yes I guess there was a separation, he was just our CEO of organisation X and we didn't really know what his overall plans were and how he wanted to change the business in that sense and credit to the HR department as well

within organisation X. The courses, whether they are compulsory or not, they're very encouraging to be able to expand your knowledge...whether it's knowledge you need to know to be able to do your job; HR policies are really important. For me, to be able to manage my team, they've always got training courses that are readily available to improve your own understanding and knowledge about the business and about your job and about other skills.

Knowledge erosion factors

Interview 15 Female - ... So I can't really speak for anyone else, but from my experience I think the knowledge, erosion, I'm not sure it's like, it's not as, I'd say that we retain quite a lot of knowledge, but we definitely lose it to some degree you know when good people leave or people don't speak up or when certain situations or processes just aren't in place.

Knowledge safeguards: Get to gatekeepers and networker knowledge

Interview 15 Female - Yes probably more regular get together, meetings and presentations. Just about what is going on within the business. That's been happening a lot more, whether it be across our business. As of last year, instead of having state conferences or state meetings, we consolidated that into a national meeting and that was a great opportunity. That opened up the doors from a networking point of view for every retailer and our suppliers and our own staff to network and discuss about the business about the liquor industry and that was not ground breaking but for us it was a step in the right direction. It just meant that more people were talking about the business, understanding what we're trying to achieve collectively and collaboratively and that knowledge has since then been retained and expanded and the feedback and suggestions that we've got from that, and the fact that all different departments are talking to one another and again that stems from our CEO recognising that and realising that we need to change the focus to be everyone working separately to working and meeting together, face to face and again it's about sharing that knowledge as opposed to just holding onto it yourself and working it to your own advantage.

Knowledge sharing risks versus benefits: the "safe zone", information not misused

Interview 15 Female - ... Culturally, it's a very safe space, zone for us. I don't have to hold back in sharing information with other people. In the sense that I don't feel like if I share some information, someone is going to use that to my disadvantage, manipulate

it. Some people don't feel if I give that information to someone else, they'll have my job tomorrow. The company is very, the culture is, it's encouraging to be able to say share that information and we'll take it on board, and if we can improve the business in any way that's only going to be a benefit for yourself and the rest of the company.

Interview 15 Female - There's definitely risk of that without a doubt because a lot of the information that we share is confidential. We have programs in place and a lot of that information is quite confidential.

Interview 15 Female - Without a doubt, if certain people left and they left on a bad note but without a doubt the knowledge is going to the wrong hands. It's true, every time someone does leave there is those areas where certain people that have that information. I don't believe that there is anything at stake about risk management.

Time to reflect in the job

Interview 15 Female - Yes, I mean these questions that you're asking me I just haven't really even contemplated to some degree but not to the point where I've really had to think about, without a doubt.

Releasing knowledge

Interview 15 Female - In general? I think a lot of people do. It's true. I think the company doing those competitions every couple of months to find out what people think about, the feedback about the company, coming up with great suggestions to improve the company. That should be almost something that doesn't have to happen every few months or once every two years to encourage people to come forward.

Organisational forgetting - I think a lot about it then it's all forgotten

Interview 15 Female - No I think a lot about, it might have been discussed or presented and then it's been all forgotten after that, it hasn't been followed up or maybe the follow up ...

Interview 15 Female - I honestly think that if it was encouraged more and put into staff's minds just to think about how to prevent knowledge erosion. That's something that I just think needs to be put into place in the day to day work environment and if that was encouraged more, then, people would do it naturally as opposed to having to be told, oh okay there's a situation, It's gotten to the point where knowledge is either

lost or discarded or eroded, what could we do as a company to make sure It's not? I think it starts with management having to put some good measures in place ...

Projects and knowledge - "projects do intertwine"

Interview 16 Female - That is correct. How organisation X share it, we have no means of sharing that. I'm very fortunate because I have 15 years of history with organisation X. I have 15 years where I've also built a working relationship with most of my colleagues from different businesses. If I need to find knowledge or information about something, and I think knowledge is the information or the behind structure of a business pillar, I have to go to them. This is not shared. If someone else was to say in a single role of myself and came on board and wanted to gain some knowledge of the core basis, not an organisational structure as such because most organisations do that, It's a bit more people orientated. But what do people actually do? What knowledge are they gaining for the business and sometimes these, I guess, I'm going to call them projects ...projects do intertwine... Maybe finance admin does need to know about an acquisition that legal and property have been involved in but there's no sharing of that knowledge. Is it because the company has expanded so much? I'm not too sure but it seems everyone and there's no common system to gain that knowledge. There's no system that says okay click onto this and you'll find that, you have to sit there and it's an intranet process and you've got to figure out this has happened or that's happened. So from Organisation X's point of view and from my understanding of what knowledge and organisational, and how does it intertwine, I believe that's what it's all about.

Interview 16 Female - And I think as you'll be aware from other discussions ... it is an important factor of what came across when we were looking at process management and retaining that knowledge about project managing, there's only one tenth left and what can you learn from one person's project. There's none of that.

Knowledge intensive role

Interview 16 Female - Where am I? My area of expertise, my role ...I report to the Chief Financial Officer. I have a budget of \$ 6 million annually. I have a team of nine staff. We do finance administration but it's more office administration. So we look after the corporate sites. So we oversee the day to day functionality office wise for over 800 staff. I do national projects like office equipment, which I've just rolled out in a new MPS, Management Print Solution Program for the corporate sites, 800 users. We're

looking at doing that nationally. We do things from, simple things like stationery to more complex projects like travel. So we work a lot with non-trade recruitment and obviously I work with finance. We do a lot of renovations, relocations, we do a lot of people management because obviously all of our areas are personally driven...it's a very personal aspect, so we do a lot of people management.

Across the board knowledge and human knowledge

Interview 16 Female - The reason being we do need to, and this is where I'm very passionate, I need across the board knowledge of every business pillar. So that when a business pillar asks me to action something on their behalf, I can fully understand what their goals and objectives are. There's nothing worse than going into a situation and someone says, well I want you to redo, design the office. Well what are you trying to achieve? Well I've got structures, these are the people that are to go into this particular area, these are the people, this is what my goal and objective is. So from there I gain the knowledge of how the business runs. So I may not know the bottom P&L, I might not know, but I do need to know what the basic knowledge of what the CFO or the CEO of that business requires. So then I can go off and action it and indicate what they need.

Preventing knowledge erosion: Documenting knowledge

Interview 16 Female - I think we need to be a little bit more focused on documentation. Whether it is via systems, whether it is a manual process, whether it is, we have KPIs, we a very fortunate organisation. I think we do put a lot of... metric systems stuff but really behind the scenes, especially with the KPIs, there are procedures and processes and things that work successfully for the organisation. Where is the library where all this happens? Yes they may go and change it and may acquire a person who has more skills or better knowledge but at least you've got a core. That person can go away and say okay this person used to do it this way and that person does it this way and hey that's not a bad idea. Maybe we can elaborate or maybe I need to sit down with Peter [name changed] and say to Mike [name changed], well Mary [name changed] used to do it this but hey look I think there might be a better way. What do you think? Should we change it? At least they have their core. This is what I'm saying, you don't have to have the intricacies of everything but you have the core. What does that person do? What does that analyst in IT actually sit there and do all day?

Organisational transition, complexity and diversification

Interview 16 Female - I think there is a lot of awareness but I think we're such a complex organisation at the moment. I don't know where you would start. I think that, I don't just think it's organisation X, I think it can be any organisation that's going through the transitions that we are going through who would be asking themselves where do we start? Where are the resources?

Interview 16 Female - The complexity of organisation X is that we have certain divisions within organisation X or business pillars. So each business pillar specialises in a field. Whether it's food, whether it's liquor, whether it's hardware, whether it's whatever. So we've always been very, very driven by that business always is focused on that business. I love what's happened now within organisation X I've seen it grow with all the changes. Now we've got a common, I guess common values if you want to call it as such or goals and really we are now each of those pillars looking at supporting our retailer and our independents. So there's not, oh we're doing this or there's no across the board common goals and objective or value that really sticks to each of those units. Before, I think it was very much food did this, liquor did this, and hardware did this...

Behind the Scenes - Differentiated businesses

Interview 16 Female - ... I think that's what I would call it, a culture shift. Don't get me wrong people go, people I've worked with for 15 years. But in saying that, I think it's an evolution of a new business and the way they're looking at things and I think from there what we're going to see is maybe an attempt to retain our knowledge, and each business unit will have a common goal, objective and process. They're different businesses... and they do run, behind the scenes, different structures but I think there's a common goal and objective we're seeing.

Outsourced and expertise – “Putting things in black and white”

Interview 16 Female - Well I just had a very quick conversation with a manager before I came here to talk about knowledge and one of the things we have is we've outsourced an organisation to look at one of our businesses. One of things he said to me was, it's very exciting to actually see things start to be documented. Where previously organisation X would always look at restructures but not really documented... He said it's really lovely to see how this outsource company is actually putting things in black and white for us, and everyone sees the same common goal and objective. There's no,

“oh this project team is looking at this, they’ve got their own agenda”, we’ve got an external organisation that sees things in different mode, there’s no personal factors involved, there’s no personal agendas involved, so we’re actually seeing people put in ... is all I can think of.

Where to source knowledge: where is the “little library”? “the brain is here”

Interview 16 Female - I think if you said to the people how do you think organisation X retains knowledge, you will probably find that most of people answer the same. Where is our knowledge? Where is the little library that we can go to? Where do we go for it? I get people ringing me from Western Australia asking me about something, I’ll transfer you... it’s like, do you want my answer? But due to my knowledge of being here for many years, the brain is here, the knowledge is here but I can’t really, 50% of the time I can’t tell them well go here and you’ll find that information.

Protect my patch - Hold onto knowledge

Interview 16 Female - I think there’s two sides to that question. If you’re asking, why would a person not want to share their knowledge I think you would be saying that it’s my job. Don’t tell somebody how I do my job... I think there’s that little bit of protection. Oh I know this but I don’t want to share it. Why would an organisation not want to share their knowledge or what would be preventing an organisation. I think it’s time, resources, applications, sometimes decisions have to be made from an executive point and then knowledge is not shared. I believe that and I think this is what’s very good with Mario [name changed] at the moment. With all the changes that are happening within organisation X he is still sharing what he believes people need to know out there. Your jobs aren’t safe, we are restructuring, we are looking at the business and this is what’s happening. He gives us the knowledge and I think there’s a certain level of knowledge within an organisation that can be shared but this is where I go back to that there should be a core knowledge...there is reasons why things cannot always be shared... I think the things I would say that would prevent an organisation would be time, resources, ongoing management, there’s too much, things, other things happening, we’re trying to resolve or we’re doing really great so we’ve got to go out there and promote our business and that sort of stuff.

Projects and executive knowledge needs mandated: “Throw in the ball” knowledge

Interview 16 Female - I think the biggest thing is, I just worked on a project and I guess that's why I'm quite passionate about knowledge and sharing and doing business, lessons learned. So for the first time ever recently I worked with a different department on a very big project. This project was a representation of most departments... So every time we worked through every step, there always appeared to be someone behind the scenes that said no I don't want to do change because it's too complicated or it's not, or no I don't want to, or yes I do want to, or no I don't want to. It's a terrible thing to say but then you'd have to throw in the ball - well the CFO wants it and the CEO wants it and the CIO wants it so we're going to have to do it, so go away and try and come up with a solution for me please if you can't do it. If you need other things, well let's go back to these three ...and say look, hey let's get it, and that's what I struggle with. I think, towards a lot in that people in management, that it's okay I'm not taking away that responsibility, it's a shared project. We both have to make this work. I'll do the administration side and you do the backing side, and so people feel that oh Erin [name changed] is coming to take that away. But I'm not. I'm working on the project to simplify processes and make things easier and that's where I face it sometimes and change is hard. In my role I have to manage a lot of change.

Change and knowledge to meet stakeholder needs

Interview 16 Female - ... how does change affect knowledge or work with knowledge? You need to have knowledge of the processes and the way things do operate. I can't walk in and say...this is what we've done, and we've gone and taken all the printers, fax machines, photocopiers off site, we've given you one tool that does everything. We've gone from an environment that has 300 pieces of equipment now we've got 120 pieces of equipment. I can't. I couldn't go in there and do that. I needed to sit down and talk to them and find out and understand their knowledge of how they did things.

Interview 16 Female - That's correct. So then I sat down and said what does payroll need? What do you actually do? The knowledge of the business is how the business operates and what we do helps the business operate. We have to sit with them and they say, I do this, this, this. I'm a bit concerned because I have a major pay run that happens every Monday and I have 2,000 payslips that need doing and you're going to hold up my... Okay well let's go and get you another printer, still on the same... So we did have to do a tech run, only for specific printers. So you have to gain that knowledge on what that business is and then sit down and put a solution in place and then manage

that change and the only way you can manage change is when you're given the end news of what they want.

Knowledge about the business growth and knowledge for look outside the square

Interview 16 Female - That's correct and people need to revisit the ways and this is what I always say to people, look outside the square, that's what I'm asking you, and if you say to me, Allen I've looked outside the square and I don't think I can implement this change well then let's sit down and talk about it. Unless it's something where knowledge, I think there's two sides to knowledge as well. There is the knowledge of the business and there is... that knowledge to grow with the business. Then there's knowledge of the business that is knowledge that has been with the business for 50 years and can't grow and it's not growing, it just sits there. I think what industries and businesses need to do now days. Knowledge is not that anymore. Knowledge is what my business does, what opportunities do I also have to offer the business?...It's not just how the business operates, but it is, it's the core and It's the way of functionality of business but really does the knowledge give me the opportunity to look outside the square? Is there a different way of doing things?

Future knowledge opportunities versus redundant knowledge: Where can knowledge take us?

Interview 16 Female - Yes that's right. Realistically speaking, I mean it's an awful thing to say and I listened to the news very quickly last night and one comment, and not many newsreaders look outside the square, one comment that one person said was, one automotive business is closing and it's not practical and we've spent money trying to support this. Has anybody thought about, can we go somewhere else? Whereas these people be put into Germany and Switzerland and all these highly manufacturing organisations. That's what they do. If they close the business, they always have another business that they can evaluate. But I don't think you can tell somebody who has been doing that role for 30 years, look at it that way. Does that make sense? And I think that's the difficulty with knowledge. We say to people, you've got this knowledge, you're very good, you work very well, and you work along lines or whatever it is that they do on the factory floor. Most of it is automated now or you run the computer. Hey maybe we can look at some other industry that you can work on.

People and knowledge management - More than “have you had a good day?”

Interview 16 Female - I agree definitely. ... I'm going to get all the knowledge out of your brain. The role of the person that's going to promote knowledge and put forward of knowledge and Ideas and processes is the manager that's looking after that person. The big thing I always remember from a lot of theory work, 80% of my role is really people management. And people management isn't just sitting there and saying, have you had a good day? It's really encouraging that person to put forward ideas and sharing their knowledge with their co-workers. Now I'm very lucky because I'm in an organisation where every person needs to know what the other person does. So if someone's away someone can step up and do their role. Now I understand that's not practical in all organisation or business dealings. In casual positions I should say, but that's what a manager should be looking at. If you have a team of 10 people, those 10 people should be sharing their knowledge of the business, how they do their role, day to day activities, share it. So if that person is not there, breaks a leg off for six weeks, (thank God that's never happened) there's someone that can pick that up.

Organisational Culture - Leadership change and occasional hiccups

Interview 16 Female - I think the culture of organisation X is growing. I think there are some changes occurring. I think with the changes there needs to be serious consideration on how those changes are implemented. I think what I see at our Christmas party it was the first time our CEO actually got dressed up and attended our Christmas party for the full event. That's our cultural change, and the comment from people was, yes it was a great evening thank you very much but how lovely was it to see Andy [name changed] dressed up and attend our Christmas party. That is the change of organisation X's culture. I think it's evolving and I think it's a great thing. We might have hiccups and we might have people fall down occasionally and do all that sort of stuff but I think it's an exciting times.

Bringing all the knowledge into the workplace

Interview 17 Female - The discussion that came in actually, the PBS and the knowledge and I got on that and experience that I had to actually learn and bring it back here or bring it within the team and it's, you've got managers that don't actually understand... ..and I'm in a position where I do, and I'm a person that likes to learn...and I'm doing a Commercial Law Degree at the moment so It's helping with all this, so I'm actually

just trying to finish now. I'm trying to bring all that knowledge into this workplace and it also makes me strong with my immediate manager as well as an employee.

Preventing knowledge loss/erosion - "Don't care anymore" "I don't want to learn"

Interview 17 Female - It is, when you don't have anymore, I think it's actually, when people don't really care anymore or they don't get recognised for their jobs or even people that have been in a workplace for so long, and I've seen it first hand, all they know how to do is maybe think will they get made redundant? They go out there, there's no knowledge to take with them, there's no nothing.

Interview 17 – Female - When you join a workplace like organisation X and you know that people have been there since they were 16 and they're in their 40s or 50s, well you can just see they don't want to learn, they don't want to expand. I don't know whether they're just in their own world or their not, they don't care. They even say I don't want to learn, they don't want to know. It's easy enough. Okay, I'll get a \$1 you might get \$10 but I'll get \$1 and I'm happy with that. Whether it might also be I see as being different...

Monkey see, monkey do approach to knowledge

Interview 17 Female - But then again it could be a well monkey see, monkey do. My parents have a saying their parents have a saying you know, it's talking. I guess it's up to the individual themselves.

Knowledge quality deprivation

Interview 17 Female - The depriving of quality is that what we're on about?

Interview 17 Female - Training. They give us training, they give us opportunities. I've just completed a Management Diploma here through Organisation X not last but the year before, and every year they give people the opportunity to expand on their career, knowledge, whatever it is they want to call it. If we want knowledge on CBS or the new Property Act or anything else that's coming on board...So if they want me to go and participate and updating the knowledge.

Attitudes to learning and knowledge - "It's up to the individual"- upgrade or downgrade

Interview 17 Female - I would say, correct me if I'm wrong, but I would say the need of wanting to actually learn or upgrade yourself and if one person in the team is, doesn't want to bring themselves up to that level, then it brings other people down as well. So that's the individual... If I see that one of my team members is lacking excel knowledge or whatever, I will then promise them that you can do a course, whether it's offsite or onsite. But it's up to the individual then, whether they do want to take on that opportunity.

Interview 17 Female - I'll give you an example; I have an employee who I believe shouldn't be in her role. She's at the stage where she needs to step up. Now she's restraining herself from stepping up, she doesn't want to. So to answer your question, it's all up to the individual. Me, if I've got the opportunity mate I'll go for it, I do. It depends on the individual.

Lifestyle and value dictate knowledge

Interview 17 Female - I think it's the lifestyle. I think it's the person's lifestyle. One particular person...will say yes and if she needs to stay for 5 minutes behind after 4PM, there's no way I'm going to do that...just for lunch, they'll ring up mother, what's for lunch...fantastic - those two, they'll be gone. It's the individual. It's their lifestyle, it's the way they've, I don't know.

Absorbing knowledge

Interview 17 Female - The company puts it on us whether we want to absorb any more knowledge or not.

Rapid and shortcuts to knowledge - Get from A - Z very quickly

Interview 17 Female - With the unit station, I went on a one week conference to Adelaide with the AICS. I wanted to learn more, I needed to know...improve my area and processes might change, I might learn something different that...I'm the type of person who, I like to get from A to Z very quickly. I don't like going A, B, C, D...do it the easy way. I don't like doing things the hard way. And with that, going out there and learning makes it a lot easier.

Family influences on learning

Interview 17 Female - With my dad, I'm a lot like my dad, he likes to learn, and he's gone now. He was a learner and I learnt a lot of things as well. I guess my dad was well educated and the more knowledge you absorb the better you are and the further you'll get in your career and that, so I never say never, I love saying teach me more...I mean I've got two, one mechanical, one engineering degree and the masters of that and still learning other things as well...we've always learnt. I've got an uncle who, my dad's older brother who was an interpreter. He read and wrote and spoke 8 languages. So the knowledge to us...

Organisational culture - IT: Like herding cats

Interview 18 Male - Cold. The business is cold

Interview 18 Male - Well yes I guess, so our accounts payable area upstairs on the top level of this building every Christmas they decorate their whole space and their whole space is as big as the building the whole floor. To me they are over the top to decorate their space to engage and motivate their staff so if we use them as a benchmark for what the culture should be ...so for this year I said to Y, it's on the other side of the ground floor we walk through our risk and assurance of administration teams to get to the office so I actually went around to the teams a couple of weeks ago and told them I want to do a decorating competition down here to compete against them upstairs because I want to start to expand that culture out of upstairs and bring it to other levels. IT sits in the middle and I think it will be like herding cats to try to get them to do anything when it comes to a culture especially a Christmas culture that I definitely think that the ground level does have that mindset of the importance of culture in an organisation so when I floated the idea with the Y they jumped on aboard straight away and said yes absolutely and we've already started to talk to one another we haven't started putting decorations up yet but Jordan [name changed] started this banter between the teams that he is going to be better than what decorations are going up and how good our area is going to be compared to theirs.

Interview 18 Male - So that's the benchmark, that's where we want to be, we want to be engaging, nobody else does it or very few people in the business do it, I want the culture to be inclusive and open and engaging and inviting and supportive that everything it should be. At the moment it is probably not supportive, there is a bit of this bit of politics, an undercurrent of politics everything is calm on the surface you're

best friends with somebody but then you hear afterwards that that person is working underneath to try and bring you down. It happens quite regularly and it happens all over the business as well. So there is this political culture in the business as well.

Perceptions on leadership - “Amazing dictation and just gloating along”

Interview 18 Male - Again it comes back to the pocket. So Mavis [name changed] our manager [title changed] is amazingly inspirational and I think as a manager in this business she is what people should be mirroring themselves against. There are other areas of the business where the leadership is fear based, it’s dictatorial...and then there are the ones in the middle who are just floating along.

Barriers to knowledge diffusion - “Free-flowing” vs not “Filtering down”

Interview 18 Male - Well they are part of the problem at the moment, we recently did some work with an external consultancy company on how communication flows through the business and the outcome was that information between the top two levels of the business to the executive level and the general manager level is free-flowing so it goes back and forth. They are all aware of what’s happening, the order, the strategy they all know what their part is in the strategy is. They know everything about what is going on. It stops. So there are three levels, the senior managers and supervisors and the individual contributors, so if information is free-flowing with the general managers it doesn’t filter any further down. The senior managers of the business don’t have the information to retain so if you think about that suppression sort of thing and it’s not intentionally suppressed but it stops and we’ve got clear evidence to show.

Knowledge information sharing - “I haven’t got time”

Interview 18 Male - ...Yes because we want people to get that mindset. Knowledge sharing with others interesting. An experience. I went and asked someone for some information and they said I haven’t got time for this.

Familiarity breeds contrast Knowledge versus need to know information

Interview 18 Male - ...I think the GMs and the executives are used to communicating with each other and they are very open with each other. I think that some of the general managers would feel that some information is too sensitive to pass on and it’s a need-to-know basis.

Interview 18 Male - And the good ones- my executive is brilliant in monthly meetings, she explains everything that is going on. We don’t rely on our general managers to pass

information on. We are getting it straight from her but our structure in Department X is very different to the structure in the rest of the business. They do have an executive and a number of general managers that sit on the board, the executive rarely speaks to anyone under that general manager level, so they just don't know what is going on.

Competitor knowledge - Transplantation

Interview 18 Male - We get someone from a competitor who tries to apply their knowledge from the competitor's business and it doesn't work because we are very different, we are operating on a very different set of rules.

Critical and at risk knowledge and job role

Interview 18 Male -...so we have succession planning and tele tracking. We have identified critical roles in the organisation. Critical roles would be the ones that have, the person sitting in that role who would be considered as the critical. There is a definition, which I don't know off the top of my head, there is a structured definition on what it is and HR managers around the organisation have been asked to understand what that criteria is and then they provide us with the critical role. Frustratingly enough we get roles coming through that are absolutely not critical at all and even we can see that. There is a bit of mixed communications to the HR manager for what we are looking for. We have gone back to them again and ask them to readjust some of the staff we have been sent through. We have identified roles critical and the knowledge that person holds is considered critical.

Knowledge barriers - "All guns blazing" and people "Shut down"

Interview 18 Male - I definitely see it. I don't personally have anything that springs to mind but I have seen in my mind it's more about the way the person wanting the information approaches, so I think if you build that bridge most of the time people are happy to cross it with you but if you go in all guns blazing and start demanding stuff then people shut down. And I definitely see examples of people and between you and...I won't tell you who that person is I have definitely seen that person tried to get information from other departments who I have a great relationship with and they will not respond. They won't give any information because of the way they come across. So yes it absolutely happens that you can have that good relationship and get what you need. It's the relationship, that's a really an important thing and because we are really

pushing this relationship issue at the moment in the business, people are starting to realise the importance of it so I think that is why people go- well I have that relationship with you so I will work with you or, you're not even attempting to build a relationship with me so I won't work with you.

Views about the interview and topic

Interview 18 Male - These are all great questions. There's a couple of really great questions, It's easy to find the person with the knowledge I need, that going to be a great question, yes I think they are all really good questions.

Organisation design and structure siloed

Interview 18 Male -... It really does come back down to that that protection or that silo that we have been talking about. Some teams will say everything is great other teams will say that it is dire other people will be big picture focused whereas others will be insular and very focused on their own little team... so I guess it will be about deciphering, what are they talking about the company on a whole, their own department, are they talking about their direct manager... people that are a different level, different areas of the business high-level ones will probably think a bit more big picture than the lower-level ones..

Interview 18 Male - Okay so the executive level general manager, it's actually GM/BUL, then there's senior manager, then supervisor manager, and then individual contributor. So they are the five levels...

Interview 18 Male - So you can go and buy a supermarket (or an organisation Z or competitor 6) it goes up and down in that industry. It's quite interesting, so you can buy a store and then organisation X will support you. It will assist you in setting up, store up. If it's an organisation Y or an organisation Z or whatever it is, we have processes and departments in place that will help you set the store up, and then there is all these support functions that will help you, but you don't have to take advantage of any of it. You could walk in by faith and say well I want to be an organisation Y but I don't want you to step foot in my store ever. We just back away.

Constraints to Knowledge strategies contractual ties

Interview 18 Male - That's exactly right. So we don't have control. If the store is filthy, we can't go in there and tell them to clean it up but, we can say to them these are the things we think can help you be more successful. If we were a little bit more on top of

the clients of the store-maybe. Whatever it is, so we can't go in there and say you have to do this.

Interview 18 Male - Well it's actually the same in that the independent owns 100% of the store, so everything that is within the store...there are contracts in place about how much stock they buy through organisation X... so there are those contracts in place. So there's definitely financial links the best reputation and brand links as well. So that exist too. So yes it's more about the contract...

Rewards for better knowledge practices

Interview 18 Male - I would rather have a culture that organisation X people just did it that anyway. I'm reluctant sometimes to offer rewards like that because I think it is an expectation that because I think it's an expectation for very little effort.

Organisational background - The emergence of siloed structures

Interview 18 Male - Absolutely, so organisation X, as a retailer quickly moved into wholesale and distribution. The model existed like that up until the early 90s. At that point, the food and grocery industry became much tougher and we saw the business start to drop off. So at that point, the [overseas] company organisation N and Carry came and bought the business over. It was called organisation Z which is what it was called up until the early 90s. Then, organisation N came over, bought the business out and completely restructured...so when they came in, they purposefully set the business up with the silos so there were a number of silos. ALM was a silo that is Australian Liquor Marketers, so they were one silo. Organisation Y distribution, with its own silo Organisation Y fresh with its own silo, the convenience organisation O' wholesale with its own silo.

Resides from the past internal competitive climate

Interview 18 Male - So we had all these businesses working under the Organisation X pillar but they were all competing against each other and it was set up that way. So Jim [name changed] the CEO who is in that hand out that workbook, purposely set it up so that ALM was competing against distribution, who were competing against fresh who were competing against the wholesale part so there was competition in there. So of course you are not going to share your experience with the competition because you

want to be the winner so for 10 maybe 12 years the business ran very siloed mentality direct competition with each other, the great thing about that was it pulled the business out of close to bankruptcy and put it in a point where we were making double digit growth for many years after was 10 or 11 years the company was making double digit growth because of this new structure this new silo this competition that was in place. So they don't alter their own L&D [Learning and Development] component... So I work for ALM and L&D, I would have an amazing management program, leadership program, all these amazing programs I have written with my knowledge and delivered them to ALM but I would never ever share that with organisation Y distribution (so cooperation is weak) yes, so organisation Y distribution might do their own thing, it might not be anywhere near as good as I do but it might be much better than I do. I don't know that. They don't know what I offer.

Interview 18 Male - So with this competition this silo I am retaining the knowledge I have and I am not going to give it to anyone else. Over the last couple of years we are working to break the silos down again to make the business understand that what happened before what worked before (a shift in business models and a more corporate sort of approach of a whole business approach) a centralisation idea that's what we're trying to go through at the moment so rather than have people working remote to each other let's bring everyone together and share our ideas. That's the process we are going through at the moment, that cultural change we have spoken about, and a cultural change can take a number of years, and we have only been on the cultural journey of in the business change for about 12 months, maybe not 12 months may be 8 or 10 months. I'd say that's the background as to why there are potentially some of those gaps and why people aren't as comfortable to share their experiences.

Budget constraints and barriers to knowledge and learners

Interview 18 Male - Well it's definitely a point of difference if you think about say competitor 1. For example. I recently found out they spent about \$68 million a year just on learning and development alone. Now if we get \$400,000 for our entire workforce that is quite a healthy budget for us. So for me it's a budgeting issue. I just don't think we have the resources or the finance to hire the resources to gather the information correctly, document it correctly, store it correctly, we just don't have the resources to

do that. And everyone has their job and unfortunately no one's job really is to note down what they do how they do it and to keep it updated.

Interview 18 Male - They can get people up and running a lot quicker than we can I think if you've got the documentation with a new employee they can pick it up, they can read it, they can run with it really quickly it takes our is quite a long time to get somebody up to speed because It's about having a conversation with somebody about how to do something or going spending time with another department rather than just have the documentation of what the precept is. So it takes a lot longer for us to get up and running too.

Company profile - Warehousing - "don't really need to know a lot" "the headset...tells them exactly what to do"

Interview 18 Male - We have 5500 thousand employees. The majority of those are what we call blue-collar, actually it's referred to as orange or fluoro collar now. Our warehouse is the majority of our staff so we have 4000 warehouse workers. They do their job they come in and do their pick, there is probably not a lot of, you don't really need to know a lot to do that job other than the layout of the warehouse, they've got these little machines and they wear a headset which tells them exactly what to do. In that space it's probably okay, then we have the office staff, which is about 1700, the figures might not add up, but it's about that. The white-collar staff, so that is the area I feel is the biggest problem in knowledge management and documentation, 1700 white-collar about 4000 fluoro collar. From an attrition perspective, our attrition rates are sitting about 18% at the moment It's not bad industry-standard, industry-standard is about 15%, were working around 25% 12 months ago we put a lot of new recruitment practices in place and changed lots of the on-boarding process which we go through, so we've actually seen a really good decline in attrition. Especially within the first 3 to 12 months because of the high attrition rates in the first 3 to 12 months.

Organisational Culture - Don't "expect to be hand-held" but come back for the "20 clock dinner"

Interview 18 Male - ... The business is you have to be a self-starter you have to be self-motivated, it's just what the business expects. So if you are not that and you walk into this business and expect to be hand-held or expect a lot of communication it doesn't

happen. So we were moving a lot of people really quickly because of that, so from recruitment practices which started to see from a hiring perspective, you need to be talking about the culture you need to see that this person walks in with their eyes open, we've seen a dramatic decrease in the amount of attrition within the first 3 to 12 months because of those changes, and we talked to new staff we always talk to them about their interview process and we always ask if it was explained the culture to them. And more often than not it has been, because this is what we are trying to achieve. So from a tenure, length of employment perspective, so to give you an idea in New South Wales alone we do something called a 20 year clock dinner so anyone who's been with the business in New South Wales more than 20 years gets invited to this dinner. We ran it a couple of weeks ago, and just in New South Wales alone we invited 150 people, just in New South Wales 150 people who have been with the business for more than 20 years...

Knowledge erosion and degradation - Farmed out work and knowledge

Interview 18 Male - Okay so I guess I would say the competition between pillars, you have major issues, it's secretive, it's between an us and them type of environment, it is about breaking down that behaviour, that's probably the biggest one. Resourcing would be a very close second because we don't have the resources or the funding to hire people who can document this. If everybody is already that busy, I don't know if I mentioned that we did redundancies last year. Someone gets redundant ...the work then would be just farmed out to other people. Everybody is very time poor, they have trouble doing their daily role never mind documenting everything they do.

A new direction: redundant people and knowledge

Interview 18 Male - Not with the redundancies, actually not with any role, usually the person has left before the new person can get to it. So there is very little if any, it really comes down to if the individual in the role initially wipes their hand over your document I would say a lot of the time that doesn't actually happen and then the responsibility falls upon the manager or the department itself to try to bring them up to speed so there is probably little from that respect as well. Probably another thing which we haven't spoken about is the change which the business is currently going through, so we spoke about a change in culture and behaviour. It's also a change in actually how we operate and how we do our job so the fact that we are going through this change is that people will have to do their job differently. Processes which would have worked before are not going to work moving forward we actually have to start the creation of a

lot of processes again. It's not really eroding it It's just that it never existed now we have to start. How do we do things better how can we be more efficient how can we change the current processes to fit with the new look and the new goals of the business? Those are probably the three factors, the competition, resourcing issue plus this new direction that we've just started to go in.

Technology Systems: Work in progress and resistance to change

Interview 18 Male - ... we don't really have the systems in place technology perspective I guess that is why IT are working on these things at the moment and introducing this new system which we'll see which will replace the current one. There's a lot of people who are resistant to change in the business a lot of people plus a large percentage of our workforce is nearing retirement age with that perception that computers are difficult to use, systems can be confused, so they will reject it but we do have a lot of people in the business whose manager actually has to put in if they want to take annual leave their manager puts it in for them because they don't want to know or they just won't use the systems that we have in place. So me I think technology is vital but maybe that is because of my age you know mid-30s, so I think if we can get these people to embrace these systems there's a few there exactly.

Navigating and the intranet - "not user friendly"

Interview 18 Male - The main source of knowledge is our intranet. It's supposed to be the first point of call for any question about the business any question about a process or a policy. I know I was saying before I was trying to find something. Knowledge management it is a difficult system to navigate through. It's not user-friendly. It is not user-friendly it was created many years ago...the intranet spreads across all pillars yes so they have their own little systems, so I guess those systems are more about gathering data from our retailers so it's not really about knowledge management.

Erosion degradation - Discounted knowledge - "the past is rubbish"

Interview 18 Male - Could be that people don't place any importance on that, so another insight in the business is that people... whenever we get a new employee, I say to them that it is the most important thing that they don't ever discount or speak negatively about what was done in the past, because people are very loyal and hold those processes very highly. They have worked with it for many years and have seen that it can be very successful. They hold on to that ideal. You get the new people in the business who think ridiculous. And we have a really great example of somebody in the

business who started and the first thing they did when they came in here they said everything you have done as a team in the past is rubbish and you will do it my way moving forward and that person got no buy-in and nearly 2 years later they still have no relationships with anybody and people talk very negatively about this person who is a very senior person in the business and they have no relationship with any of the retailers just because of the way they came in and said everything you have done before is rubbish. Whereas we say to people if we talk about degradation it is important to acknowledge that the process has existed it's important to acknowledge that it worked before that it was very successful in the past, you acknowledge that contribution and it is taking the people on a new journey. Using that as a foundation and then guiding them into a new direction. If that manager had slightly adjusted the way that they acted initially, then they would be in a very, very different position now.

Interview 18 Male - They are struggling at the moment in the business and it's because they just don't have the buy-in and people reject everything they say. But they haven't changed their tune, they are still saying the same thing. So is it important to me, is it a priority or is it not so people just make that assumption and then that knowledge just gets pushed aside and is probably vital to their role they think it is not Important to them to do that or someone else can do that.

Knowledge barriers and hierarchical structures - where people won't speak up

Interview 18 Male - When we think about it exactly as you said we do have- there are some areas of the business where there is a very hierarchical structure, people at the lower levels who have the knowledge won't speak up, or they don't care enough. Or they suppress it because it comes back to if I know this no one else knows this, this gives me more security in my role so I won't let anyone else know this, so yes there is definitely a bit of a fear culture in some areas so they won't speak up. I really do believe that that comes down to the manager because what we talked about what we are trying to change is this culture to be more open and there are managers who are completely happy to come on this journey and there are others who aren't, the ones who aren't are the ones who have created the culture in the teams where it is very dominated by the manager and everybody. Just you work from A to B and that's your job and you never step outside of that. If you've got an opinion then I don't want to hear it.

Organisation X business model-challenges driving knowledge

Interview 18 Male - Organisation X operates quite uniquely and I know most businesses say that were unique especially in the food and grocery industry it is quite a unique model so think about competitor 2 and competitor 1 you have franchised models and they dictate to the store how they look, how they operate. The corporate area dictates that, we don't have that. So basically they have complete control over their store. We have independent owners and we have to try to influence them so we don't have that direct we can't dictate to them so because it's a little bit unique people operate uniquely within the environment as well, does it impact our ability to be successful, yes absolutely it does because when those people leave and we lose the knowledge that that person has, like we talked about ,we have got a high length of tenure so if they leave, they take 20 or 30 years of not only necessarily organisation X experience but food and grocery experience. So we have to bring somebody in who doesn't have that experience, who is expected to do the same job, they might see the KPIs that the last person had to work towards that if they haven't written their KPIs it makes that new person's role even much more difficult. There is the inability to evaluate the role for some of these new people that come in. Evaluating the role you can use that sort of term- injecting that wisdom and so forth that gives it something extra exactly ...so we talked before about you don't discount what happened in the past but at the same time we do want fresh blood we do want fresh eyes we want new ideas that we can't completely throw out what we have done before we have to look at what happened historically and then build from there.