

*An Investigation into the Decision-Making
Processes of Transport Companies when
Selecting a Warehouse Location*

*A dissertation submitted in partial fulfilment of the requirements
for the degree of Doctor of Business Administration.*

*Robert S Webster
AccCert, AssDip (Valuations),
GradDip (Management), MBA*

*Graduate School of Business
Victoria University*

February, 2009

Doctor of Business Administration Declaration

"I, Robert Webster, declare that the DBA thesis entitled *An Investigation into the Decision-Making Processes of Transport Companies when Selecting a Warehouse Location* is no more than 65,000 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".

Signature *R S Webster*

Date *26th February, 2009*

Abstract

This study examines and analyses the decision-making processes used by companies in the transport industry when making a warehouse location decision. Previous research has looked at location decision-making in many industries and at location decisions specifically in the retail and manufacturing sectors but not at the managerial decision process regarding warehouse location by transport companies.

The conceptual model developed indicated that there are three specific decisions required; first the need for a new warehouse; secondly the need to determine an appropriate regional location, and finally the specific site within the region. When making a location decision the companies interviewed used a process that comprises the three phases of identification, collection and evaluation for each of the sequential decisions required in each case.

In many cases the requirement for a new warehouse was driven by a new business opportunity and in many cases the client requirements drove the regional decision. Of primary consideration in determining the specific site for a warehouse is the access to freeways and other transport infrastructure. The locations of current and potential customers together with the building quality, configuration and flexibility were other major factors in the decision.

The current research makes a contribution by applying a case study method to eight warehouse location decisions made by 7 companies in Victoria between 2003 and 2005. The case studies provide a depth and quality of data previously not found regarding location decisions in transport companies and provides an understanding of how these Victorian transport companies have made warehouse location decisions in recent years and the findings contribute a conceptual model and listing of managerial actions in the location decision making process

The ability to use the developed model and the listing of management actions will encourage a more informed understanding of decision making for participants and provide for enhanced warehouse location decision making by transport companies in the future.

Acknowledgements

Over the course of this journey there have been some ups and downs. All the while my principal supervisor, Dr Ian Sadler, was there to help and assist. We celebrated the highs and with the lows he always knew that a good “bottle of red” would help start the re-building process. Professor Anona Armstrong AM, my second supervisor, was also a constant source of support.

My colleagues in the School of Property, Construction and Project Management at RMIT who were always a useful sounding board and source of counsel and I thank them for that. There are some whom I should mention by name; James Baxter, Kathryn Robson and Warwick (Rick) McGregor, as they have been a tremendous support over the journey.

To my own students over the past two or three years with whom I have discussed much of the material from this research project, your comments and views have always been to the point and welcomed. Sometimes just talking about my research with someone else helped me to sort out and structure my thoughts.

During the second half of 2007 I became involved in a Vietnam Veteran Post Traumatic Stress Disorder support group who convinced me that I could finish this dissertation – their encouragement was instrumental in getting the work completed.

I am also grateful to my colleagues in the doctoral seminar group run by Dr Sadler for their support and encouragement, helpful comments and good companionship.

And finally to my family, my wife Jenni, and my children Myf, Rohan, Luke, Ruth and Eloise my thanks go to you all for your love and support. Eloise

arrived at the start of this research journey and the delay in completion is because I have been busy watching her grow up into a delightful little girl.

Table of Contents

Doctor of Business Administration Declaration	iii
Abstract	iv
Acknowledgements.....	vi
Table of Contents	viii
List of Tables	xi
List of Figures.....	xii
List of Acronyms	xiii
Chapter 1 Introduction	1
1.1 Background	1
1.2 The research problem.....	5
1.3 Justification for undertaking this research	6
1.4 Significance and contribution to knowledge	7
1.5 Methodology	8
1.6 Outline and format of the thesis	10
1.7 Definitions.....	12
1.8 Limitations of scope and key assumptions.....	13
1.9 Conclusions	14
Chapter 2 The literature review regarding decision making	15
2.1 Introduction.....	15
2.2 Decisions and decision making.....	15
2.2.1 What is a decision	15
2.2.2 Classification of decisions.....	16
2.2.3 Models of organisational decision making.....	19
2.2.4 Process of decision making	29
2.2.5 Strategic decision making.....	30
2.2.6 Contexts within which strategic decisions are made	32
2.3 Summary	37
Chapter 3 The literature review regarding location theory	39
3.1 Introduction.....	39
3.2 Location theory	39
3.2.1 Neo-classical theory of location	40
3.2.2 Summary of neoclassical location theory	45
3.2.3 Behavioural theory of location.....	47
3.2.4 Summary of location theory	50
3.3 Strategic importance of location.....	51
3.4 Making a location decision.....	53
3.4.1 Location decision making process	58
3.4.2 Strategic location decision making.....	60
3.5 Summary	62
Chapter 4 Conceptual framework and research approach	63
4.1 Introduction.....	63
4.2 Location as a strategic decision	64
4.3 Decision Model	65
4.4 Research Questions	67
4.5 Research Process	70
4.6 Introduction to the research method	74
4.7 Unit of analysis	81
4.8 Selection of cases	81
4.9 Data Collection	84

4.9.1	Case study protocol.....	85
4.9.2	Interview Questionnaire	85
4.9.3	Interviews – collecting the field data	86
4.9.4	Document review.....	87
4.9.5	Case study write up	87
4.10	Analysis of data.....	87
4.11	The quality of case study research.....	90
4.12	Ethical considerations	92
4.13	Summary of the Chapter	93
Chapter 5 Case reports		95
5.1	Introduction.....	95
5.2	Introduction to the case studies	95
5.3	The business environment.....	96
5.4	Introduction to Case ALDINGA	97
5.4.1	Organisation structure	98
5.4.2	The need for a new location (Decision 1).....	99
5.4.3	The regional decision (Decision 1A)	99
5.4.4	The site decision (Decision 2).....	100
5.4.5	The strategic benefits of the new location	102
5.4.6	Evaluation of the decision making process	102
5.5	Introduction to Case BOMBALA	103
5.5.1	Organisation structure	104
5.5.2	The need for a new location (Decision 1).....	105
5.5.3	The regional decision (Decision 1A)	106
5.5.4	The site decision (Decision 2).....	106
5.5.5	The strategic benefits of the new location	109
5.5.6	Evaluation of the decision making process	109
5.6	Introduction to Case COOMA	110
5.6.1	Organisation structure	110
5.6.2	Cooma 1 - The need for a new location (Decision 1)	112
5.6.3	Cooma 1 - The regional decision (Decision 1A).....	112
5.6.4	Cooma 1 – The site decision	113
5.6.5	Cooma 1 – The strategic benefits of the new location.....	115
5.6.6	Cooma 1 – Evaluation of the decision making process	115
5.6.7	Cooma 2 – The need for a new location (Decision 1)	116
5.6.8	Cooma 2 – The regional decision (Decision 1A)	116
5.6.9	Cooma 2 – The site decision (Decision 2).....	116
5.6.10	Cooma 2 – The strategic benefits of the new location.....	118
5.6.11	Cooma 2 – Evaluation of the decision making process.....	118
5.7	Introduction to Case DIMBOOLA.....	119
5.7.1	Organisation structure	120
5.7.2	The need for a new location (Decision 1).....	120
5.7.3	The regional decision (Decision 1A)	121
5.7.4	The site decision (Decision 2).....	121
5.7.5	The strategic benefits of the new location	123
5.7.6	Evaluation of the decision making process	123
5.8	Introduction to Case EDINA.....	124
5.8.1	Organisation structure	125
5.8.2	The need for a new location (Decision 1).....	126
5.8.3	The regional decision (Decision 1A)	126
5.8.4	The site decision (Decision 2).....	127
5.8.5	The strategic benefits of the new location	128
5.8.6	Evaluation of the decision making process	129
5.9	Introduction to Case FLINDERS	129
5.9.1	Organisation structure	130
5.9.2	The need for a new location (Decision 1).....	131

5.9.3	The regional decision (Decision 1A)	131
5.9.4	The site decision (Decision 2).....	131
5.9.5	The strategic benefits of the new location	133
5.9.6	Evaluation of the decision making process	134
5.10	Introduction to Case GABO	134
5.10.1	Organisation structure	136
5.10.2	The need for a new location (Decision 1).....	136
5.10.3	The regional decision (Decision 1A)	137
5.10.4	The site decision (Decision 2).....	138
5.10.5	The strategic benefits of the new location	139
5.10.6	Evaluation of the decision making process	140
5.11	Conclusions	141
Chapter 6 Cross-case analysis of results		143
6.1	Introduction.....	143
6.2	Analysis and findings	143
6.2.1	Business Characteristics	144
6.2.2	Internal characteristics of the companies	146
6.2.3	Drivers for a new location	148
6.2.4	The regional decision.....	150
6.2.5	Location factors considered.....	150
6.2.6	Selecting the final location	153
6.2.7	Time taken for the decision process	154
6.2.8	Documentation prepared	156
6.2.9	Final approval	157
6.2.10	Real estate decision	159
6.3	Steps evident in the location decision process.....	160
6.4	Reflection and hindsight	164
6.5	Conclusions.....	166
Chapter 7 Results and Conclusions		169
7.1	Introduction.....	169
7.2	The research process.....	170
7.3	Responses to the research questions.....	171
7.3.1.	Research Question 1	174
7.3.2	Research Question 2.....	176
7.3.3	Research Question 3.....	182
7.4	Implications for location decision making by transport companies	184
7.5	Additional findings	186
7.5.1	Left hand turns	186
7.5.2	Time consuming	187
7.5.3	Integrated decision	187
7.5.4	Quantitative data and calculations	188
7.6	Implications for theory.....	188
7.6.1	Contribution to strategic decision making.....	189
7.6.2	Contribution to location decision-making.....	190
7.6.3	Methodological contributions	190
7.7	Implications for Government Policy.....	191
7.8	Limitations of the research.....	193
7.9	Summary and identification of areas for further research.....	194
7.10	Concluding remarks	196
Bibliography.....		197
Appendices.....		213

List of Tables

Table 6.1	Business characteristics	145
Table 6.2	Internal characteristics of the companies	147
Table 6.3	Drivers for the new location	149
Table 6.4	What drove the regional decision	150
Table 6.5	Location factors considered	151
Table 6.6	Selecting the final location	154
Table 6.7	Length of the decision process	155
Table 6.8	Documentation prepared	156
Table 6.9	Level at which final approval given	158
Table 6.10	Real estate decision	159
Table 6.11	Steps evident in the location process	161
Table 6.12	Hindsight	165
Table 7.1	Best practice WLD model	183
Table 7.2	Recommendations for managers making a WLD	184

List of Figures

Figure 1	Structure of the thesis	11
Figure 2	General model of a decision making process	25
Figure 3	Strategic decision process; an integrated framework	36
Figure 4	Sequential location decision model	66
Figure 5	Overview of the research	76
Figure 6	Case study approach used in qualitative analysis	80

List of Acronyms

CEO	Chief Executive Officer
CFO	Chief Financial Officer
GM	General Manager
WLD	Warehouse location decision

In each of the cases the position titles are given acronyms that are unique to each case.

Chapter 1 Introduction

This chapter introduces the thesis and discusses the background to its main research problem. It justifies the purpose of the research and introduces the research methodology adopted. It then outlines the thesis chapters, defines the key concepts used and identifies the limitations of scope and the key assumptions.

1.1 Background

In the course of any year a company will make many decisions: varying in type, scope and degree of importance and ranging from the inconsequential to the critical. Critical decisions, including strategic ones, are normally made at a senior management or Board level. The implementation of a strategic decision affects the entire organisation through the long-term resource commitment and influence that such a decision has on the company's future strategies and operations.

Selection of a new warehouse is a strategic decision for a transport company. The decision relating to a new location has significant long-term effects; firstly on the ability of the company to provide the required level of customer service, and secondly on the firm's cost of operations and therefore its profitability. The decision to develop or acquire a new facility is typically a costly, time sensitive project (Owen and Daskin 1998). Facility location decisions are inherently strategic and long term in nature because warehouses are expensive to acquire or construct and difficult to modify. Locations are difficult to change particularly as a warehouse requires a long-term financial commitment and may have millions of dollars of materials handling equipment specifically designed to meet the particular location or client's requirements. There is often considerable uncertainty at the time the decision is made.

The research examines the processes seven individual transport companies use to make a warehouse location decision (WLD) to determine

whether there are common elements amongst these processes when transport companies make this type of strategic decision.

The literature review in Chapters 2 and 3 indicates that there are many factors that impact upon the WLD process as with any form of site selection decision. Some of the internal company factors that are relevant to the decision making process include:

- the size and organisational structure of the business;
- the ownership structure;
- the financial resources available; and
- the management style adopted; and
- the internal rules and culture of the company.

External factors that might impact on such a decision include:

- the general state of the economy;
- regulatory and statutory controls;
- the type and nature of competition in the industry;
- the technological changes affecting the company and its clients; and
- road and other transport infrastructure.

The impact of these factors and the range of site-specific issues may be different for each company making a WLD. Individual companies make warehouse location decisions rarely, therefore many directors and managers may not have been involved in making such a decision before. Due to the wide range of factors that might impact on the decision process and the specific circumstances of each business, it is expected that not all transport companies will follow the same processes in location decision-making.

In the cases studied in this research the larger companies had generally well established location decision-making processes compared with the smaller companies where managers had little previous experience in such a process. The smaller companies however exhibited little corporate memory or acquired competency in the processes to be followed. Two of

the larger companies exhibited significant levels of sophistication such as complex mathematical models and business modelling in support of their decision-making processes, whilst others will opt for less sophisticated approaches, preferring to rely on the location decision-making expertise of their competitors and siting their operations either close to their clients or their competitors.

This study reports the results of an investigation into the decision-making processes used by third party transport companies when seeking a new warehouse location. The research covers a number of elements relating to the decision making process. Who were the people involved in making the decision? Where did they fit within the organisation structure? What information do they use in making the location decision? How was the decision subsequently implemented?

Many studies have sought to understand the process of managerial decision-making (Vecchio *et al.* 1992, Hickson *et al.* 1986, Simon 1979, Mintzberg *et al.* 1976). Decision-making is assumed to be rational with decisions being made consistently to achieve maximum value. A widely accepted generalisation, introduced by Simon (1960), suggests that decision-making involves an intelligence gathering phase, a design phase and then the choice amongst competing alternatives. These phases are the cornerstone of Simon's "Rational Model of Decision Making", which postulates decision-making as a structured process rather than an *ad hoc* activity following from values held by decision-makers.

As indicated earlier companies make many decisions. Critical decisions such as the location of a warehouse are often referred to as strategic decisions. Townroe (1991) makes the point that such decisions are multi-dimensional by nature and occur infrequently in the life of an organisation. The Bradford Studies (Hickson *et al.* 1986) found that the rarest strategic investment decisions were those that had the greatest financial and organisational consequences. In this regard location decisions were seen as being the most difficult and uncertain (p 241). Unlike other decisions

that a company makes, there is generally a lack of clear guidance and little corporate learning in how to approach the WLD process.

Hence, given the strategic importance of location and logistics, a decision to change the location of a warehouse or to open another facility is a strategic decision for an organisation compounded by both the long-term nature of such a decision and the amount of capital expenditure required. As these decisions are taken rarely, a WLD can be characterised as a decision that is out of the ordinary.

There are many studies concerning the selection of a location for a business with many of those addressing the selection of locations for retail business but there are few studies that have addressed the strategic decision making process with industrial location decisions (Badri 1999; Badri, Davis and Davis 1995; Canel and Das 2002; Haigh 1990; Schmenner 1982, 1994). Most of these studies concentrated on site selection for the manufacturing sector. The vast majority of these studies proposed normative or mathematical models for selecting a location (Badri 1999; Canel and Das 2002). A review of articles published in leading journals reveals few articles that deal specifically with the warehouse location decision-making process.

Chapter 3, that covers the literature on locations, shows that early literature on location decisions comes from the disciplines of geography and mathematics. The general body of work from geography discusses the formation and structure of cities and that from the mathematicians develops models that typically represent the problem of determining the number, location and throughputs of warehouses so as to minimise the sum of warehouse and transport costs. Most analysis of location decision-making has focused on the specific attributes or variables that firms evaluate. Schmenner's (1982 pp 37 - 38) influential work on plant location cites six critical variables that a corporation should evaluate in making a location decision.

Several writers comment that the location decision process is generally a two-stage process after the decision to seek a new location is made; the first stage is to find a general region and then to find a specific site within the regional boundaries.

When considering how companies make location decisions, Harrington and Warf (1995, pp 148 – 169) emphasise the close relationship between location decisions and the more general class of investment decisions. From the body of literature there seems to be little on the WLD processes of companies in the transport industry compared with that available for retail location and manufacturing plant location. It is difficult to compare or extrapolate from these other areas, as a transport company's warehouse location requirement is quite different from those decisions.

1.2 The research problem

This section considers appropriate boundaries to the research undertaken. In order to establish the research problem it is necessary to ask the familiar 'who', 'what', 'where', 'how' and 'why' questions (Yin 2003). The aim of this research is to examine 'what' are the processes transport companies use when making a location decision for a new warehouse to provide transport and distribution services and 'how' that decision is made. This research focused on companies with a multiple customer base. The decision-making processes these companies employ when selecting a new warehouse location was explored to determine whether transport companies followed a common process for warehouse location decision-making.

This research seeks to develop a widely applicable model of WLD processes used by transport companies that will complement Schmenner's (1982) work on manufacturing plant location. The Schmenner model is specific in discussing the steps required for a location decision and this is further developed in the literature review (Chapter 3) and conceptual model (Chapter 4). With Australia being such a sparsely settled large continent the transport and logistics industry plays a major role in the distribution of

goods. By providing such a decision model, it is possible to suggest improvements to decision processes currently being used by transport companies for warehouse location decisions. It will also consider the flow on effects of such location decisions to the property development sectors of the economy.

The research also seeks to develop an understanding of how some companies in the transport industry view the importance of warehouse location decision-making, and its integration with the business planning and future strategy of those companies studied.

The research seeks to determine whether warehouse location decisions are made within a specific framework and what factors affect the decision process. The ultimate aim of the research is to determine a process that is most effective in the warehouse location decision-making process for transport companies. The research questions are further developed in Chapter 4.

1.3 Justification for undertaking this research

This study is about the process that major transport companies use to make warehouse location decisions. The study was developed to address the following issues:

- how companies currently make this type of decision;
- whether companies consider that the location of their warehouses provides them with competitive advantage;
- whether transport companies are aware of the long term importance of their WLD; and
- to explore the context in which these decisions are made.

The outcome of this research:

- enables Australian transport companies to better understand the process by which WLDs are made;

- allows companies to compare the different process by which transport companies make WLD;
- enhances the ability of companies to make better warehouse location decisions in the future; and
- allows professionals to provide more appropriate advice to transport industry clients in making such a decision; and
- assists governments in planning for future land use and infrastructure development.

This study explores and enhances understanding of the processes by which managers make warehouse location decisions in transport companies and thus goes some way towards filling the gap identified later in the literature review where this aspect of decision-making is not well understood. The knowledge is significant because a location decision requires significant capital investment in the form of land, buildings and facility fit out. Such an investment can exceed \$20 million dollars for each warehouse facility.

1.4 Significance and contribution to knowledge

After reviewing the relevant literature on decision-making and location analysis, this research uses multiple case studies in seeking to develop a best practice strategic decision-making model for warehouse location. This research develops a model of WLD processes that is widely applicable and can be used by transport companies. This model complements Schmenner's (1982) work on manufacturing plant location. By providing this model, it is possible to improve and strengthen the decision processes used by transport companies for making warehouse location decisions.

This study is significant because poor decision-making processes can lead to poor choices that may subsequently hamper or destroy transport businesses. The correct location of a warehouse can give a transport company a significant competitive advantage. The ability to make better decisions is important because to change the location of a warehouse requires significant capital investment in the form of land, infrastructure, building improvements and internal fit-out. This research develops a

model to assist decision makers to make better decisions regarding their warehouse locations.

1.5 Methodology

The investigation uses qualitative research from the analysis of multiple case studies to understand and map the process that companies use when making warehouse location decisions. Questionnaire surveys were considered but due to the historically low response rate, the inability to get complex and detailed information and the perceived reluctance, or inability, of senior managers to respond to such surveys these were discarded in favour of a qualitative approach.

The case studies were developed using semi-structured interviews with senior managers together with the analysis of documents. The case studies provide an objective examination of the decision process, as the researcher has no control over the events. Case studies are also useful where the boundaries between the process and the context in which the decision was made are not clearly evident (Yin, 1994).

Multiple cases are a powerful means to create theory because they permit replication and extension among individual cases (Eisenhardt, 1991). By examining a number of cases, the researcher was able to inquire into events and behaviour in several organisations and gradually test and form theoretical constructs (Leonard and McAdam, 2001). The case study method allows the development of theory through comparison; i.e. looking at the same event or process in different settings or situations (Sitter et al. 1997). Seven companies were studied to provide for meaningful analysis and comparison.

Companies who had changed locations between 2003 and 2005 were identified from both telephone directories and real estate transaction databases. An introduction to these companies via the Chartered Institute of Transport and the Supply Chain and Logistics Association of Australia gained access to senior executives of the selected companies. Semi-

structured interviews with these executives were used to gather the data together with the collection of relevant documents and records that cover the period of the decision process.

The focus of the case studies was to analyse the process that each company used when making its most recent location decision. The case studies provided a breadth of data and understanding of the WLD processes of transport companies. It was therefore possible to map and categorise the WLD processes of a number of major companies in the Australian transport industry.

The case studies provided very rich data. The analysis and integration of the data lead to the developments of theory and a 'best practice' model. This model provides some explanatory power and will be of practical use to other transport companies. The development of the model via these case studies is thus grounded in actual business practice. It is this linkage between practice and theory development that made case studies attractive for investigating how these transport companies made warehouse location decisions.

The general process of mapping the content of the cases followed the steps described by Miles and Huberman (1994):

- a. making comparisons and contrasts between the case studies,
- b. identification of the critical variables in each of the cases, and
- c. identification of variables responsible for the presence and/or the relationships between other variables.

From the analysis it was possible to develop the model through a multi-stage process by reviewing the inter-relationships between the variables and reviewing case studies for linkages between variables. It was also helpful to be able to refer back to the case informants for clarification of assumptions made during the analysis stage. It was also important to review and evaluate alternative explanations for the relationships identified.

1.6 Outline and format of the thesis

This thesis is structured as shown in Figure 1. This chapter introduces the research problem and Chapters 2 and 3 establish the framework within which a location decision is made by reviewing the literature on location theory, decision theory and decision making processes. The main contribution of Chapter 2 is to review the literature on decisions and decision-making and Chapter 3 reviews the literature on location theory and making a location decision. The purpose of the literature review chapters is to identify gaps in the literature and provide the basis for the conceptual framework developed in Chapter 4. Chapter 4 also develops the research questions that guided this research and justifies the research methods used and lays out the procedures that guided the actual research. The research paradigm adopted fits with the case study method because of the explanatory nature of the research,

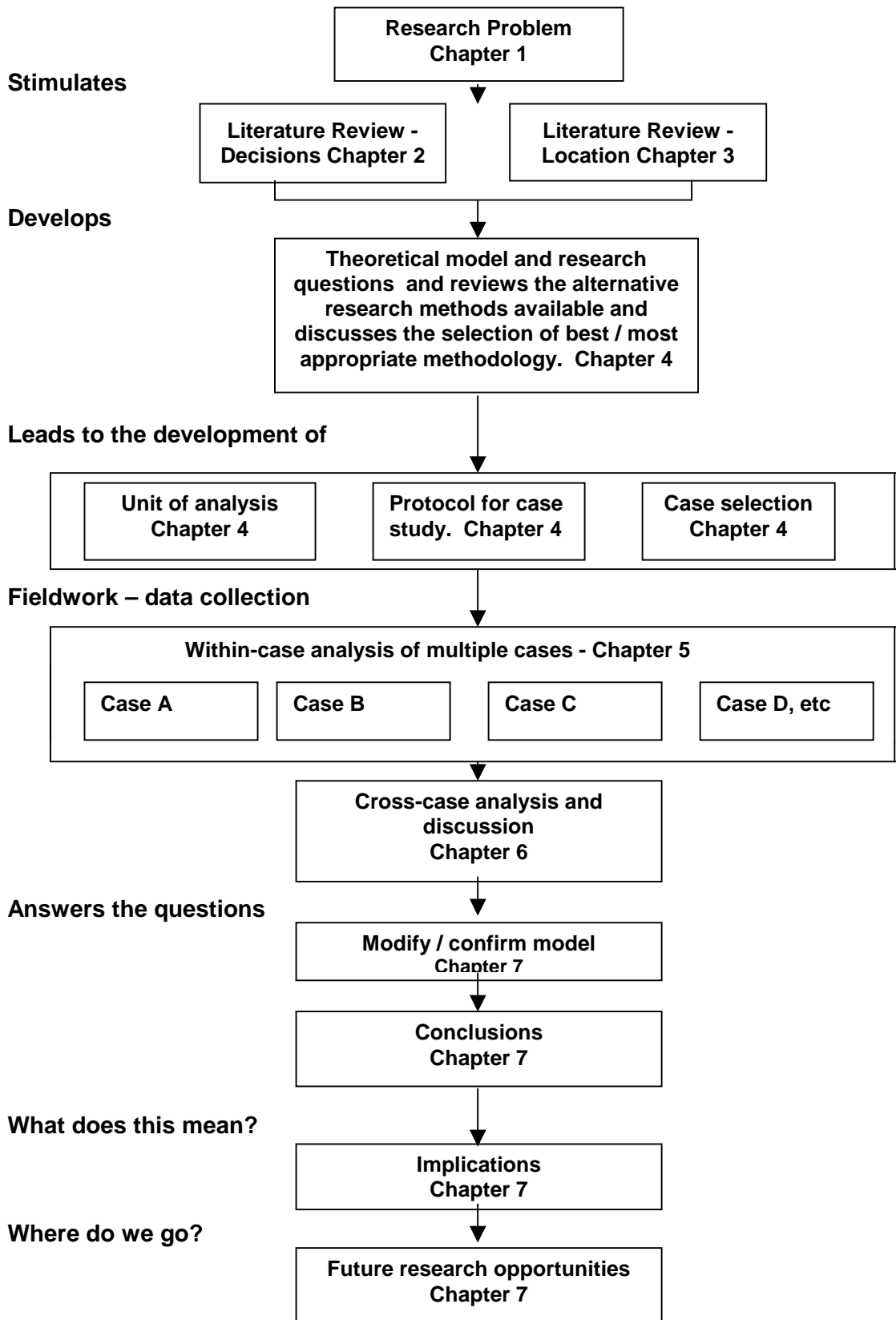


Figure 1: Structure of the thesis

Chapter 5 introduces the companies studied and provides an analysis of the individual cases. Chapter 5 is important to the thesis because it contains a summary of all the data gathered in the field. The analysis of this data is continued in Chapter 6 where cross-case analysis is undertaken to derive common themes. These themes are in turn linked to develop the theoretical findings. The cross-case analysis provides for data triangulation, which is such an important part of the case study approach.

Finally Chapter 7 draws on the accumulated evidence presented in Chapters 5 and 6 to answer to the research questions and to provide an overall response to the research problem identified. It also presents a WLD model that allows for the process to be used by other transport companies. The Chapter also discusses the study's limitations and identifies potential areas of future research.

1.7 Definitions

There are a number of terms that need to be defined to ensure consistency.

Decision is the point of time when the choice of a course of action to achieve a given objective or desired future state is taken.

Decision-making is the act of making a choice.

Decision process is the sequence of activities undertaken by an organisation to allow it to reach the position where it makes an appropriate choice of action (Van de Ven, 1992, p 171). This definition takes an historical perspective of the chain of events leading to the final decision.

Location refers to a specific geographical area within the State of Victoria, Australia.

A location decision is a decision that results in a firm either relocating its total operations or the acquisition or development of additional premises.

A transport company is a company (or separate business unit of a larger organisation) whose primary responsibility is the transport of goods and provision of a range of logistics services for multiple clients.

A warehouse is a structure that is primarily used for the receipt, temporary storage, and distribution of goods that are en-route from production or import to the consumer. The transport company may provide additional activities in such a facility. These may include pick operations, cross-docking facilities, inventory management, data and office functions related to the business operations. The type of warehouse being considered is one that services more than one main customer and generally provides greater services to its clients than that of a transport interchange facility. Warehouses vary in size from smaller operations to large facilities that offer more than one hundred thousand square metres. They may contain temperature controlled space for maintaining perishables.

Warehouse location decision (WLD) is the process undertaken by management in gathering and evaluating information on which to base a decision that determines the new location. The decision may also be classified as to the type of property to be acquired; is it to be owned or leased; an existing building or purpose built; serve a single client or be used by multiple clients? Each of these classifications might bring with it a different search pattern when determining the final site location.

1.8 Limitations of scope and key assumptions

This research covers only transport companies in Victoria and thus is not a universal study. The other important limitation is that the research relates

to facilities that are used for third party, or general contract, transport providers and does not cover those single-user facilities which some transport companies provide where they have exclusive contracts with a particular organisation. A good example of the type of facility that is excluded from this study is the distribution centre provided for major retail chains such as Coles or Woolworths in Victoria.

As the research adopted a multiple case study approach its scope was limited to the decisions studied within each of the cases.

1.9 Conclusions

This chapter lays the foundations for this thesis by identifying the topic and some of the issues surrounding it. The thesis is then outlined with a brief description of each chapter and the limitations to the scope and extent of the thesis are discussed. With this foundation, the thesis proceeds to a detailed description of the knowledge available in this research area.

The following two chapters introduce the major gaps in the literature regarding decision-making and more specifically in the area of location decision-making processes in transport organisations. Following this a conceptual framework for the thesis is developed and then the main research problem and research questions are identified and introduced. The case study method is presented and justified by the dynamic nature of the decision-making (DM) that required the management of resources, expectations and the process itself.

Chapter 2 The literature review regarding decision making

2.1 Introduction

In the preceding chapter the general topic of the process of deciding on a warehouse location by transport companies was introduced. Due to the wide range of literature being reviewed, the literature review has been divided into two chapters. This chapter reviews the literature on decisions, the decision-making (DM) process and the context within which decisions are made in organisations. The following chapter then discusses various aspects of location theory, and considers the process of making location decisions and the strategic importance of location to a business. A summary of the literature reviewed then provides the basis for the conceptual model developed in Chapter 4.

2.2 Decisions and decision making

In organisations there is a constant need for decisions to be made, ranging from the mundane, day to day decisions such as the choice of office stationery to the extraordinary decision that has ramifications for all parts of the organisation and has major impacts on its operations and clients and customers.

This section commences by defining a decision and then reviews the process of decision-making in organisations and the environment in which these decisions are made and then reviews the various models of organisational decision-making.

2.2.1 What is a decision

“Decision” is defined in the Concise Oxford Dictionary as *“settlement of a question, conclusion, formal judgement, making up one’s mind”* and it could be argued that this point is reached at the end of some sort of investigation

and evaluation process. From a management perspective Harrison (1999 p. 5) defines a decision as:

“...a moment, in an ongoing process of evaluating alternatives for meeting an objective, at which expectations about a particular course of action impel the decision maker to select that course of action most likely to result in attaining the objective”

This definition specifically encompasses the search and evaluation process in determining the appropriate course of action needed to achieve a given objective. It is not however indicative of the gravity of the question being asked or the resources required or committed to the achievement of the objective.

2.2.2 Classification of decisions

Given that the definition does not indicate the gravity of the question or the commitment of resources, there needs to be some way of classifying decisions that captures these issues. There have been various methods of classifying decisions advanced. The best known of these classifications is Simon's (1960 pp 5-6), distinction between *programmed* and *non-programmed* decisions. Drucker (1967 pp 122–125) made essentially the same distinction between decisions but he labelled them “generic” and “unique”.

In this bi-lateral classification system, decisions are programmed to the extent that they are routine, repetitive and well structured so that a definite procedure has been established to handle them so that they don't have to be treated anew each time they occur. There are numerous examples of programmed decisions in organisations: pricing ordinary customers' orders; determining salary payments to employees who have been ill, or reordering office supplies, the everyday routine decisions of an organisation. Non-programmed decisions are classified as those that are novel and unstructured to the extent that there is no predetermined method of

handling them. There are three potential scenarios with a non-programmed decision.

- It may be that the problem has not previously occurred, or, if it has, it was so long ago that no-one can remember how it was solved; or
- It may be because the precise nature and structure of the problem are elusive or complex; or
- The problem is so important that it deserves a customised treatment.

Non-programmed decisions are often situations where a manager may not have sufficient experience or information on which to readily develop the rules to guide an appropriate response. Due to the lack of experience or information this type of decision generally involves significant uncertainty about the expected outcomes.

The terms *programmed* and *non-programmed* represent a whole continuum, with programmed decisions at one end and non-programmed decisions at the other one and thus become labels for the extreme ends of the decision spectrum. One of the major reasons for distinguishing between programmed and non-programmed decisions is that different techniques are used for handling the decision-making for each type of decision.

An alternative three-stage classification was proposed by Gore (1962). This classification is composed of *routine*, *adaptive* and *innovative* decisions. Here the distinctions are that adaptive decisions deal with unique, but small, problems rather than with the recurring tasks of routine decisions and that innovative decisions result in major changes in activities and operations.

Anthony (1965) proposed another three-stage classification of decisions. Anthony classified decisions into *strategic*, *tactical* and *operational* decisions where *strategic* decisions are those long-term decisions concerning the determination of broad policies and planning for using the resources of the company to best support its long-term competitive strategy; *tactical* decisions address how to schedule the use of resources

efficiently within the constraints of previously made strategic decisions and *operational* decisions are narrow and short-term by comparison and act under the operating constraints set out by the strategic and tactical decisions.

Other authors however have retained and refined the two stage classification of decision characteristics (Thompson (1967), Hickson *et al.* (1986), Harrison (1999)) and generally decisions are classified in this literature as Category I decisions or Category II decisions. Category I decisions are those that are routine, recurring and certain and Category II decisions are those that are non-routine, non-recurring and uncertain. Harrison (1999) discusses the methods used in dealing with Category I and Category II decisions. When dealing with Category I decisions there is a reliance on rules and principles, pre-fabricated responses, uniform processes and accepted methods of handling. In comparison, responses required for Category II decisions require reliance on judgement, intuition and creativity; and develops an individual response to the problem often using heuristic problem solving techniques. Harrison and Pelletier (2000) comment that Category II decisions constitute the primary decision making domain of management and Hickson *et al.* (1986) indicate that there are comparatively few Category II decisions, but that these type of decisions are notoriously full of complex problems and issues. Mintzberg *et al.* (1976) suggest that a Category II decision sets precedents and creates waves of lesser decisions within a company.

It can be seen that a Category II decision is one that has significant implications for a firm. In most situations this is considered a strategic decision. Papadakis and Barwise (1998) discuss the five characteristics of a strategic decision:

- a. they are usually big, risky and hard to reverse, with significant long term effects;
- b. they are often a bridge between deliberate and emergent strategy;
- c. they can be a major source of organisational learning;
- d. they are important in the development of managers; and

- e. they cut across functions and disciplines.

As discussed later in section 2.4 of this chapter there is evidence from a number of sources that a location decision is a strategic decision for a transport organisation.

2.2.3 Models of organisational decision making

A common classification of models of decision-making is that used by many authors (for example Harrison (1999), Allison (1971) and Schwenk (1988)).

The categories of models in this classification are:

- a. classical, rational;
- b. neoclassical, organisational and bounded rationality; and,
- c. political.

These categories, whilst presented as if they are mutually exclusive, have some overlap and they are not entirely independent of each other. They are discussed in turn.

2.2.3.1 Classical, rational models

Economists and philosophers have mainly concentrated on how decisions should be made. Decision-making is assumed to be rational with decisions being made consistently to achieve maximum value. The classical, rational models are often linked to “economic man” and are based on the assumption that humans are entirely rational beings. The approach is considered to be normative or prescriptive in that it describes what ought to be. A rational decision follows a strictly defined sequential process comprising the following steps: (adapted from Vecchio *et al.* 1992, p 417 and Heracleous, 1994, p16)

- a clear and unambiguous understanding of the nature of the problem;
- the objectives to be achieved by solving the problem;
- a comprehensive search for alternative courses of action to solve the problem;
- an objective evaluation of the alternatives available;

- implementation of the chosen course of action to maximise the benefits to the organisation; and
- monitoring of the consequences of the decision with respect to the initial objectives.

The important assumptions of such a model are:

- the decision maker has complete information about the situation in hand;
- the decision maker has only one goal or objective and power, bias and conflict have no role in the process;
- the objective is capable of being expressed in quantitative terms
- the decision maker knows all that each alternative offers and the consequences of choosing each one;
- the decision maker will chose the alternative that will maximise returns; and,
- the decision is being made by one person alone (Harrison 1999, Browne, 1993).

Whilst this list of assumptions is presented from the literature it is clear that to follow them would appear to be a very autocratic way of making a decision in a company. Many studies have sought to understand the process of managerial decision-making. There is a strong body of evidence that the predicted rational models are rarely observed in practice. Much of this evidence challenges the assumptions of rationality and notes that they do not apply in the ordinary course of events (Barnard 1938, Cyert and March 1992, Simon 1960).

For example it is impossible for a decision maker to have all the information regarding a particular problem available. This is due to both the time and cost constraints under which decision makers work. Another important issue that impacts on rationality relates to the ability of the human mind to process all the information available and the tendency for decision makers to work with what they know and understand rather than seeking information that may be less understood by them.

2.2.3.2 Bounded rationality models

As a consequence of the shortcomings noted above, Simon (1962) developed a theory that has become known as “bounded rationality”. Other terms sometimes used in this context are “administrative man”, “organisational models” or “neoclassical models”. Bounded rationality is the type of rationality that people (or organisations) resort to when the environment in which they operate is more complex than their ability to understand the impact of all the variables in the complex environment. Rather than seeking the optimum solution to a given problem they may instead seek a solution that provides a satisfactory yet less than optimum solution. Despite the variety of terms used, the influence for them all can be traced back to the work of Simon, March and other members of what has become known as the Carnegie School – a group of scholars at Carnegie Mellon University in the late 1950s and early 1960s (Cohen *et al.* 1972).

The bounded rationality model is considered a good description of non-routine decisions and purports to describe what actually happens in organisational decision-making rather than what someone thinks should happen (Browne 1993). Its assumptions differ from the rational model and this model acknowledges that:

- Not all alternatives are known;
- Not all possible choices or actions are known, and
- The consequences of choices or action are not known.

According to Simon (1962) and Cyert and March (1963 p 113) the characteristics of situations requiring a decision are that:

- Goals are constantly changing;
- The consideration of alternatives is sequential rather than simultaneous;
- The first satisfactory alternative found in the search is accepted;
- Where an existing policy meets the goals, there is little search effort for alternatives; and
- Where a failure occurs the search is intensified.

Simon (1976 pp 196 - 206) summarised the significant differences between the rational model and the bounded rationality model. These differences are:

- Problems are so complex that only a limited number of aspects of each problem can be attended to at any one time;
- Maximising of outcomes is replaced by “satisficing” of outcomes. Such satisficing involves the selection of a satisfactory alternative rather than seeking the alternative that is “best” in objective terms;
- Organisations generate alternatives by sequential rather than simultaneous or parallel search procedures. The discovery of a suitable alternative is enough to abort the search procedures; and
- Organisations tend to have alternatives that may be implemented if feedback indicates that the earlier choice is not yielding a desired outcome.

This means that decision makers are involved in finding an acceptable solution or course of action rather than an optimal solution. March and Simon put this succinctly in their description of the cognitive limits of rationality:

“Most human decision-making, whether individual or organizational, is concerned with discovery and selection of satisfactory alternatives; only in exceptional circumstances is it concerned with the discovery and selection of optimal alternatives.” (March and Simon, 1958, pp 140-141).

When it comes to searching for alternatives, Simon (1976) suggests that, within the bounded rationality framework, decision-making is based on the sequential generation of alternatives by a relatively stable search procedure. Discovery of an alternative that has the capacity to solve the problem is sufficient to abort the search process. As soon as a satisfactory alternative is found the search for alternatives ceases and there is movement towards implementation of the satisficing course of action.

Harrison (1999) supports this approach when he suggests that, even if unlimited time and money were available, the search seldom will obtain all the required information related to a particular course of action. Consequently whatever information is gathered is always incomplete or imperfect and the number of alternatives identified is similarly limited. This situation arises because the cost in human and financial terms of continually trying to obtain perfect information rises significantly and that the value of that information to the decision maker declines at some point. By simplifying the problems they face, managers can bring problems within the bounds of their processing power and are able to arrive at effective solutions (Simon 1991).

Some work by Eisenhardt (1990) challenges the Simon view of a sequence in the search process. Eisenhardt studied the decision-making process in twelve companies in the rapidly changing environment of high technology industries and found substantial differences in the way alternatives were developed between firms. Eisenhardt concluded that managers who made decisions quickly, develop many alternatives simultaneously and analysed them very rapidly with an emphasis on breadth rather than depth in contrast to slower decision makers who analysed fewer alternatives at a much greater depth.

Bounded rationality does not imply irrational behaviour but recognises limitations to the abilities of decision makers in evaluating information. In general, firms only consider a limited number of options and will often choose the first alternative that exceeds a certain criterion (van Dijk & Pellenbarg, 2000).

When Simon (1960) originally described decisions as happening in phases over a period of time he saw it as comprising three principal phases:

- Finding occasions to make a decision;
- Finding possible courses of action; and
- Choosing among courses of action.

This phase model is a subset of the bounded rationality models. The basic assumption of this model is that there is some logic or structure in the

sequence and processes of decision-making as they occur over time. The theoretical foundations of the phase models, like bounded rationality in general, owe much to Simon (1960) and are close to what he later called "procedural rationality" (Simon 1976).

Other writers (Brim *et al.* (1962); Soelberg, (1967) and Witte (1972)) adapted this work and came to the general conclusion that decision making for complex matters did not have one final decision but consisted of a plurality of sub-decisions. Descriptions of decision processes describing events over time assume a straightforward sequence of phases but a number of observers noted that things seldom happen so neatly in organisations and they developed frameworks for dealing with complexity in decision-making that allowed for looping back and jumping forward.

For the past few decades, researchers have attempted to model the strategic decision process and identify the major categories of strategic decisions. This is a difficult task since strategic decisions are often described as "unstructured", "nonprogrammed", and "messy". Mintzberg, Raisinghani, and Theoret (1976) provided an early attempt at modeling the process of strategic decision making and identified three major phases with sub-routines or sub-phases within each. Mintzberg's work provides a model that is widely accepted in the literature as a complete and explanatory model for decision making. The model's basis is in the work of Simon (1960, 1965) and describes the intelligence-design-choice sequence.

This particular model has received a great deal of attention and it articulates in some detail, and gives a good basis for, the analysis of decision processes in real life. The model, described as a structured model, was developed on the basis of mapping the information collected on 25 non-routine decisions in a variety of environments and generalising the events into a series of processes, routines and interrupts.

The model developed is shown below in Figure 2:

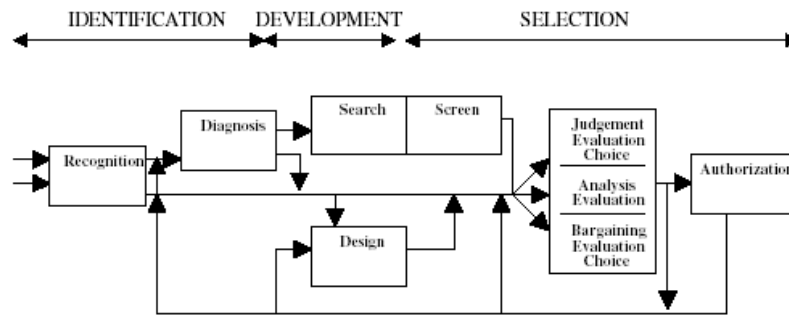


Figure 2: General model of a decision-making process

(Mintzberg, Raisinghani and Theoret, 1976)

The main line through the middle of the model recognises that each problem must first be recognised and eventually an evaluation and choice must be made. During the course of the decision-making process there is a routine that allows for the diagnosis of the dimensions of the problem and either allows searching for a custom made solution, or there is allowance for a unique solution to be designed.

As shown in the model, Mintzberg *et al.* describe the decision process as occurring in three main phases, discussed in turn:

Identification phase

1. The decision recognition routine: opportunities, problems, and crises are recognised and invoke management action and decision related activity.
2. The diagnosis routine: information relevant to opportunities, problems, and crises is collected and problems are more clearly identified. Resources are identified to collect and analyse the information gathered.

Development phase

3. The search routine: decision-makers go through a number of activities to generate alternative solutions to problems.

4. The design routine: ready-made solutions which have been identified are modified to fit the particular problem or new solutions are designed.

Selection phase

5. The screen routine: this routine is activated when the search routine identifies more alternatives than can be intensively evaluated. Alternatives are quickly scanned and those identified as not obviously feasible are eliminated.

6. The evaluation-choice routine: an acceptable alternative is chosen either through a process of analysis and judgment or a process of bargaining among decision makers.

7. The authorization routine: when the individual, or group, proposing to make the decision does not have authority to commit the company to a course of action, the decision must move up the corporate hierarchy until it reaches a level at where the necessary authority resides.

The model is dynamic and includes interrupts, feedback loops and iterations that allow decision makers to return to earlier phases as necessary and to change the tempo and direction of the decision process as new information emerges and is evaluated and dead ends appear (Mintzberg et al. 1976, 263). These interrupts may also be caused by environmental or scheduling delays and to allow time for participants for comprehension and to review the situation as it evolves. The authors suggest that there are seven different decision-making patterns or path configurations available to managers. They distinguish between:

1. *simple impasse* (where a ready-made solution is available);
2. *political design* (design, analysis and negotiations are conducted in a repetitive way);
3. *basic search* (search for the best available ready-made solutions);
4. *modified search* (a search for the best available solutions that also have to be modified).

5. *basic design* (intensive design activities that lead to complex and innovative customized solutions);
6. *blocked design* (as for basic design, but also involves repetitive political activities including negotiations, also after authorisation);
7. *dynamic design* (complicated decision-making processes involving repetitive design, search, evaluation, and negotiation).

In a later discussion in sections 2.4 and 2.5 it is seen that a location decision fits into this final *dynamic* category as such a decision is one that is complicated and involves significant evaluation and negotiation within the organisation.

2.2.3.3 Political

The political models of decision have much in common with the bounded rationality models with some clearly evolving from the work and ideas of the Carnegie School (Simon 1959, Cyert and March 1963, March and Simon, 1958). There are however some fundamental differences in the way that the process of decision-making is conceptualised and the emphasis each approach has. Those who see decision-making as an exercise in bounded rationality emphasise organisational processes and objectives. For those writers who see decision-making as essentially a political process, the behaviour of individuals in organisational settings is a major point of reference over and above the way the organisation is conceptualised. It is argued that people in organisations have different interests resulting from functional, hierarchical, professional and personal factors (Hickson *et al.* 1986).

Another important difference is that the political model focuses on compromise or bargaining strategies in decision-making and sees the process as being concerned with finding an alternative that is acceptable to all parties.

Other characteristics of the political perspective of decision-making are that it:

- Does not consider all alternatives but rather those which differ from existing policies;
- Considers only a small number of alternatives and for these only a restricted number of consequences;
- Continually redefines the problem, with countless adjustments to make the decision more manageable;
- Has no “one decision” or “right” choice but instead a series of attacks on the problem by individual analysis and evaluation; and
- Focuses on short term rather than long term problems (Harrison 1999 p 157).

The political perspective on decision-making characterises organisations very differently from the bounded rationality perspective. In the political model organisations are seen as coalitions of individuals, some of them formally organised into sub-units, with both the group and individual goals and aspirations varying and evolving over time (Cyert and March 1963, p 27). In such an environment decision-making becomes an exercise in balancing the demands and interests of the individuals and coalitions. These individuals and coalitions make demands on the finite resources of the organisation that are often not related to the core business but to sub-unit and individual interests and thus are often in conflict.

Another important factor in decision-making viewed as a political process, is the extent and the ways in which interests outside the decision group seek to influence the group itself. Thus decision-making processes have to take into account the divergent and shifting interests of the participants who will exercise whatever power they have over the process. They also take into account the pressures exercised by stakeholders outside the group or the organisation. Decision makers must recognise that they are operating in an environment subject to significant conflict and must be “adaptively rational” rather than “omnisciently rational” (Hickson, *et al.* 1986).

In such a situation the desired outcome of a decision making process may be far from the optimum decision in rational or even bounded rational terms. What is sought is a decision that is (1) satisficing and (2) acceptable to all interests in the organisation rather than producing a decision that might maximise organisational benefits. When looking at decision making as a political process it is also important to consider the concept of power and conflict within the organisation (Eisenhardt and Bourgeois 1989; Eisenhardt and Zbaracki 1992; Papadakis and Barwise 1997).

Within the political models there are a number of different groupings of models and these are sometimes referred to as “process”, “choice” and “garbage can” models (Browne 1993).

It can be argued that in making a strategic decision each of these models of decision making might be exhibited. The following discussion about the process of decision-making indicates that such models are used in many circumstances.

2.2.4 Process of decision making

Many studies have been undertaken to try to understand the process of managerial decision-making (Barnard 1938; Cyert and March 1992; Simon 1960) and there is a strong body of evidence that the predicted rational models are rarely observed in practice.

Although the various decision models discussed differ in many important aspects it is clear that decision-making is dynamic and that major decisions are not taken in isolation but are inter-linked with other decisions and form an interconnected process. Simon (1965) agrees when he states that decision-making should not be treated as a unitary event but as a complex social process. This is especially so when the sequential nature of the decision making models are modified to provide for feedback loops and the evaluation of multiple alternatives simultaneously.

The decision-making process relies on information about the problem requiring a decision. The quality of information in any decision situation can run the whole gamut from scientifically derived data to subjective interpretations, from certainty about decision outcomes (deterministic information) to uncertain outcomes represented by probabilities and fuzzy logic (Gonzalez and Fernandez, 2000). The diversity in type and quality of information available about a particular problem affects the ability of the members of an organisation to understand and process all the information to achieve a satisfactory outcome.

2.2.5 Strategic decision making

A strategic decision is one that has the potential to have a long-term impact on the organisation's competitive position. Such a decision requires the commitment of considerable resources, generally has longer-term implications and the costs required to subsequently change a decision are likely to be prohibitive. In the context of the previous section a strategic decision is a special type of Category II decision. Schwenk (1988) describes a strategic decision as ill-structured, non-routine and complex, Hickson et al. (1986) describe such a decision as substantial, unusual and all pervading. Dean and Sharfman (1996) comment that, whilst researchers have not reached consensus as to what constitutes a strategic decision, managers generally do not have trouble in identifying what is a strategic decision.

The Bradford studies (Hickson *et al.* 1986) examined the nature of strategic decision-making in a wide range of organisations. These studies found that the rarest strategic decisions were those that had the greatest financial and organisational consequences. They indicated that a strategic decision is rare, novel and does not generally fit into accustomed decision-making channels or processes within an organisation. The following sorts of situations were classified as strategic decisions in the Bradford studies: internal reorganisations; mergers with, or major acquisitions of, other organisations; and the siting of a headquarters or major plant. They were classified as strategic decisions due to their complexity and the

uncertainties associated with their decision characteristics and ultimate implementation. From their study it is important to recognise that types of decisions that are clearly strategic in one industry may be less so in another. What can be seen from this discussion is that each strategic decision is unique and context-specific.

A common approach to the definition of a strategic decision can be summarised as follows; a strategic decision is a complex, out of the ordinary, decision that is important from the organisation's point of view; such a decision commits significant resources and has long-term impacts on the company (Mintzberg *et al.* 1976; Hickson *et al.* 1986 and Eisenhardt 1989b).

Strategic decisions are those highly important organisational choices that involve the firm's positioning, affect firm performance, involve multiple functions, are highly complex and ambiguous and represent a substantial commitment of resources (Eisenhardt, 1989b). A strategic decision is characterised by ambiguity and complexity and often decision makers are forced to make key decisions that impact on the firm's future using incomplete information (Mintzberg *et al.* 1976). Gavetti, *et al.* (2005) indicate that in such situations managers fall back on past learning and their experience in a variety of business settings.

As noted earlier, a decision regarding the location of a warehouse is a strategic decision. Townroe (1991) makes the point that location decisions are decisions of a multi-dimensional nature that occur infrequently in the life of an organisation. Unlike other decisions that a company makes there is generally a lack of clear guidance and little corporate learning in how to approach the location decision making process. The Bradford studies conducted in the early 1970s (Hickson *et al.* 1986) examined the nature of top decisions in a wide range of sectors. The studies found that the rarest strategic investment decisions had the greatest financial and organisational consequences, location decisions being the most difficult and uncertain in this regard (p 241). The novelty and the uncertain ramifications raise these

types of decisions to a level of complexity and internal politics that cannot normally be resolved through standard organisational processes.

Hence a warehouse location decision (WLD) can be characterised, for most organisations, as a decision that is out of the ordinary, difficult and its implementation may have an uncertain and difficult resolution with far-reaching consequences. Most companies lack the skills, experience and up-to-the minute information necessary to carry out the thorough analysis required for such a decision. Even for large corporations the site selection decision is an infrequent event, occurring perhaps once every few years at best and a decision that clearly requires a "custom made" solution. A less than optimal location choice may result in higher operating costs and a loss of competitive advantages that persist for years.

For the remainder of this thesis a reference to a decision means a strategic decision.

For several decades, researchers have attempted to model the strategic decision process and identify the major types or categories of strategic decisions. This is a difficult task since strategic decisions are often described as "unstructured", "nonprogrammed", and "messy" and are categorised as Category II or non-programmed decisions. There is also the issue noted earlier that each decision is unique and context specific. The literature clearly indicates that the context in which these decisions are made has significant impacts on the information available, the way that the information is assessed and the inter-relationships between the people involved in making the decision.

2.2.6 Contexts within which strategic decisions are made

From an organisational point of view there are many factors that can influence how a decision is made. First, given that strategic decisions are made in the context of an organisation's operating environment, the process by which such decisions are made and their characteristics are influenced by business environmental attributes such as complexity,

competitive influences and uncertainty. Second, organisational conditions such as the internal power structure, past performance, past strategies, and the extent of managerial resources available have a significant impact on the process. Third, even within a single organisation, the process can vary across decisions because of differences in decision-specific factors such as the impetus for the decision, the urgency associated with the decision, the degree of outcome uncertainty, and the extent of resource commitment. In other words, contextual antecedent factors, namely environmental, organisational and decision-specific factors, significantly influence strategic decision process characteristics.

The organisational characteristics that might influence the decision making process include the size of the organisation, the ownership structure, organisational culture, internal alliances, the existing strategy, the availability of resources, the purpose of the business and the forms of decision making traditionally adopted within the organisation (the internal rules). Townroe (1991) and Hickson *et al.* (1986) both comment that there are different patterns of decision-making in companies depending on the corporate hierarchy and the influence of current management systems. Townroe also finds that larger firms are more likely to engage in some kind of formal systematic analysis than smaller firms. Other researchers (McDermott and Taylor 1982; Townroe 1971) suggest connections between organisational structure and their location decision-making processes.

Hickson *et al.* (1986) found that the environment in larger organisations is more political than smaller companies and that the existence of personal alliances across the organisation structure can either inhibit or enhance the decision-making processes. Townroe (1991) finds that owner-managers tend to be more entrepreneurial and have different management styles from professional managers. Owner-managers make decisions with less formality and often more quickly than professional managers.

O'Loughlin and McFadzean (1999) suggest that individual personal attributes of managers such as knowledge, motivation, personality, experience and management skills all play a role in configuring the problem

solving process. Considerable work has been conducted into the investigation of individual characteristics that affect decision-making but there is a lack of evidence to show a clear relationship between problem solving ability and the individual characteristics of managers (Gallupe *et al.* 1992).

The factors described above impact on the strategic decision making process. In the literature they are shown to influence:

- the duration of the process (Schilit and Paine, 1987);
- the degree of rationality and comprehensiveness (Fredrickson, 1984, 1985);
- the amount of political activity (Welsh and Slusher, 1986); and,
- the extent of individual and coalition involvement in the decision process (Duhaime and Baird, 1987).

These decision process characteristics, in turn, help determine the process outcomes such as:

- the timeliness or speed of the decision (Eisenhardt, 1989);
- the level of commitment from individual and organisational units (Carter, 1971); and,
- the extent of organisational learning (Dutton and Duncan, 1987).

Process characteristics as well as process outcomes influence economic outcomes such as Return On Investment (ROI) or Return On Assets (ROA) and sales or profit growth (Eisenhardt and Bourgeois, 1988; Fredrickson and Mitchell, 1984). Hence a comprehensive model of strategic decision processes must include not only the process characteristics and their antecedents but also their economic and non-economic outcomes (Rajagopalan *et al.* 1993).

It is important to note that the definition of the strategic decision process encapsulates all the different phases in the strategic decision process identified in earlier studies such as problem/issue identification, alternative

generation, evaluation, and selection (Fredrickson, 1984; Mintzberg, Raisinghani, and Theoret, 1976).

Rajagopalan et al. (1993) argue that there are two elements in the review of strategic decision-making; the process outcomes and financial outcomes. The process outcomes include timeliness, speed of the decision, level of commitment to the decision and extent of organisational learning. The financial outcomes include sales and profit growth, ROI and ROA.

The framework in Figure 3 (Rajagopalan *et al.* 1993) identifies three sets of antecedent factors: environmental factors, organisational factors, and decision specific factors, and two sets of outcomes: process outcomes, and economic outcomes. Of interest is the fact that while the antecedent factors are considered explicitly in the decision process they continue to have indirect influence on the subsequent steps and outcomes that are further down (along) the process. In this model the focus is on the characteristics of the strategic decision process as a whole rather than on the characteristics of individual phases.

Papadakis and Barwise (1998) argue that there needs to be more focus on the outcomes of strategic decision-making. Harrison (1999) discusses the difference between a maximised outcome that presumes the best possible result and a satisficing outcome where a desirable result is achieved due to an acceptance that there is less than perfect knowledge regarding the potential outcomes of a strategic decision. Harrison (1999) makes the observation that there are many studies of decision failure but few of decision success.

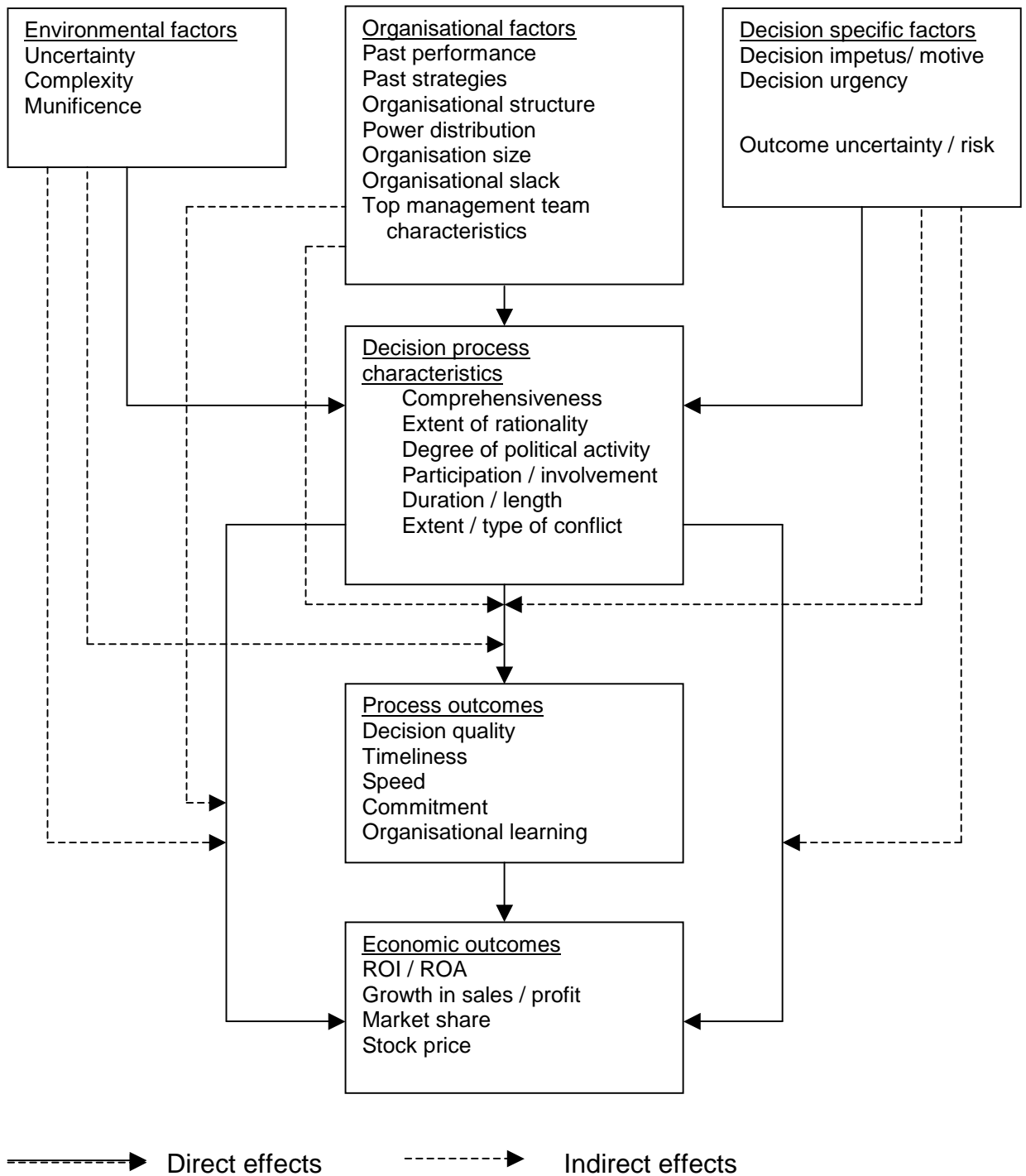


Figure 3: Strategic Decision Processes: an integrative framework

Source: Rajagopalan *et al.* 1993 p 352

2.3 Summary

This chapter reviewed the major literature related to decisions and decision-making. It focused on a range of decisions generally referred to as strategic decisions and looks both at the process of strategic decision-making and the context in which such decisions are made.

The following chapter will discuss the literature on location theory, the strategic importance of location to a business and how location decisions are made.

This page is left intentionally blank.

Chapter 3 The literature review regarding location theory

3.1 Introduction

All types of business need a location from which to operate. Determining and choosing that location is a strategic consideration that may have a profound impact on other aspects of an organisation. Site location decisions are driven by many corporate goals but it can be argued that the key factors that drive a location decision are the provision of appropriate levels of service to its customers whilst minimising the operating costs of the business. The site selection process is almost idiosyncratic because the requirements of individual companies and the characteristics of available locations combine in such a way as to make each location decision different.

This chapter reviews the major location theories and provides an historical perspective of the evolution of industrial location decision theories.

3.2 Location theory

The scientific study of facility location and related issues dates back to the early 17th century, but location theory was not formally introduced until the 19th century (Love, Morris and Weslowsky, 1988). General location theories were initially developed to explain the location of economic activity. These theories attempted to explain the economic utilisation of space and explicitly consider the cost of transport in the production and consumption choices made by firms and households.

Over its evolution, location theory has shifted from the focus that transport costs are the sole determinant of location, to a total cost approach and from there to the concept of the market (or customer) base. There are essentially two major paradigms in this area: neoclassical location theory and organisational behavioural theories of location.

3.2.1 Neo-classical theory of location

Neoclassical locational theories were constructed as a form of economic determinism where economic forces dictated the location of industry. This approach is derived from the standard classical economic theories and focuses on cost-minimisation or profit-maximisation theories. Amongst the better known of these theories of location are those of von Thünen (1826), Weber (1909), Predöhl (1925), Christaller (1933), Hoover (1937, 1948), Lösch (1943) and Isard (1956).

Neoclassical economic approaches to location theory can be described for agriculture, industry and services. In agriculture, von Thünen's (1826) model of land use provides the classic example whereas in industry Weber's (1909) model is the one most commonly discussed. Similarly Christaller's (1933) central place theory typifies normative approaches to modelling the distribution of settlements and services. These particular models and their numerous modifications and extensions are discussed in much of the economic geography literature.

Whilst discussion of the detail of these models is not important at this stage there are certain features that need to be noted. The neo-classical models were based on rather unrealistic assumptions including perfect knowledge, rational economic behaviour, the maximisation of profits, a homogeneous physical environment (often referred to as an isotropic surface) and, for von Thünen and Christaller, a linear relationship between distance and costs. In each of the models the key variable is distance.

The structured study of location theory began with von Thünen. He was the first to develop a basic analytical model of the relationships between markets, production, and distance. The "Isolated State" of von Thünen (1826) has a single large central city serving as the only marketplace for agricultural goods produced on a homogeneous plain that surrounds the city. Von Thünen's work argued that the specific location of the activity would be influenced by product prices, the cost of the product and transport costs. From this he developed the concept of economic rent as the

difference between market prices and the sum of the cost of production and the transport costs.

Von Thünen argued that a system of fairly differentiated concentric rings will form around the town, with each producing its own particular staple product. With each concentric ring away from the city products with marginally lower transport costs will be developed. He argued that location decisions would be dictated by distance and the cost of transporting the farmer's output to market. Physical, technical, cultural, historical, and political factors will modify the concentric pattern of agricultural land use of the von Thünen model.

Consequently the theory predicts that bulky and perishable products will be produced close to the market. The important implications of von Thünen's theory are that activities with the highest rent producing capacity will locate nearest the centre of the city whilst the lower rent producing industries locate further from the city. Clearly not all industries have the same rent producing capacities and their location decisions reflect this cost. Von Thünen's model helped to explain the importance of relative location by emphasizing the importance of accessibility to markets for land use.

The problem of locating industry was particularly relevant at the end of the 19th century when the industrial revolution was well established and the development of rail transport, energy, telecommunications and urban growth provided more options for distributing firms and components of the manufacturing process. Weber's (1909) theory of industrial location follows a similar format to that of von Thünen's. With the publication of *Theory of the Location of Industries* in 1909, Weber put forth the first developed general theory of industrial location.

Weber (1909) also started from a basic premise that particular locations did not have cost advantages in the actual manufacture of goods, however in addition to land most manufacturing industry required inputs of more than one factor of production and unlike land these cannot be assumed to be uniformly distributed in general. Weber argued that the location of a plant would therefore depend on the relative pulls of the various material

locations and the market. The theory he formulated is that an industry locates where the sum of the transportation costs of raw materials and the final product is a minimum. Weber's model took into account several spatial factors for finding the optimal location and minimal cost for manufacturing plants.

Weber (1909) examined the distorting effects of labour costs and he made some modifications to the basic framework. Weber realised that an industry could be attracted to a point of least labour costs, if the savings in labour costs offset extra transport costs. To accommodate this Weber derived lines (isodapanes) of equal total cost (assembly, distribution and transport) for helping to determine the least cost site. Finally Weber noted the tendency for industry to agglomerate. He demonstrated how firms might be prepared to incur increased transport costs if production rose sufficiently to lead to an overall reduction in the unit costs of production. Weber's ideas were applied with some success to the Swedish paper industry (Lindberg, 1953) and the Mexican steel industry (Kennelly, 1955).

An economist, Predöhl (1925, quoted in Isard (1956)), recognised that Weber's least cost theory could only be a partial solution to a given location problem. Predöhl predicted that the costs of production would vary between different locations and in different markets and therefore that transport costs alone could not determine location. He linked the theory of location to general economic equilibrium by substituting one of the factors of production (land, capital or labour) for one or both of the others. In his location model Predöhl envisaged that one production factor could be substituted for another. This meant that if one location was deficient in labour it could still be a feasible location given capital substitution into plant and equipment. It could be argued that Predöhl certainly anticipated modern capital-intensive forms of industrial organisation.

Hoover (1937, 1948) made a further advance on Weber's "least cost" theory of location by arguing that since raw materials, industrial plants and final markets were usually separated in a geographic network then transport costs played an important part in determining industrial location.

Hoover used a mapping technique that plotted a line joining all points on a map where total costs of production plus the cost of transporting the finished goods have the same magnitude. Hoover's contribution to industrial location theory takes into account such differences as graduated freight costs, the existing pattern of transport networks and many social-economic variables.

Later additions to the Weber model included that from Isard (1956) who placed the theory firmly in the context of neoclassical economics using the concepts of substitution and transformation. In this substitution context there is a discussion of whether transport can be traded off against other inputs to produce a lower overall cost.

These early works later stimulated other theories related to location. The size and distribution of urban locations had also been a significant question in urban science. Walter Christaller, a German geographer, originally proposed the Central Place Theory (CPT) in 1933 (translated 1966). Christaller was studying urban settlements in Southern Germany and advanced Central Place Theory as a means of understanding how urban settlements evolved and were spaced in relation to each other. The question Christaller posed in his research was "*Are there rules that determine the size, number and distribution of towns?*" He attempted to answer this question through a theory of central places that incorporated nodes and links in an idealistic situation. The theory consisted of the basic concepts of centrality, threshold, and range where centrality is the draw to a particular place: threshold is the minimum market that is needed to bring a new firm or service provider or city into existence and keep it running, and range is the average minimum distance that people will travel to buy these services or goods. From this a hierarchy of service centres was envisaged with a large number of small (low-order) centres providing basic services and increasingly smaller numbers of higher-order centres providing more specialized goods and services in addition to the basic services.

Christaller used a factor of three, applied to area and population in determining the hierarchy with three low-order centres being needed to

support a second-order centre, similarly third-order centres would serve hinterlands that were three times the size of second-order centres. In such a hierarchy the number of settlements at progressively less specialized levels follows the geometric progression 1,3,9,27 ...

The Christaller model proposed a hierarchical arrangement of settlements and conceptualised the model with hexagonal arrangements. The hexagons best equated a circle for maximum coverage and some of the problems of overlap within circular arrangements were removed by this arrangement. The population size and importance of a settlement were not necessarily synonymous, but the centrality of the place was conceptualised in terms of its importance in the region around it.

Similar to the location theories of von Thünen (1826) and Weber (1909), locations in the CPT model are assumed to be located in an isotropic plane with similar purchasing power in all directions. The assumption of universality in the transport network was also established and all parts of the plane were served by the central place. A central place is a settlement or a nodal point that serves the area around with goods and services (Mayhew, 1997). Christaller's model was also based on the premise that all goods and services were acquired by consumers from the nearest central place, that the demands placed on all central places in the plain were similar, and that none of the central places made any excessive profit.

Extensions and modifications to Christaller's CPT have been proposed. The foremost contribution was from Lösch, another German economist, who proposed in the 1940's a consumer model based on administrative and manufacturing structure as opposed to the service centres in Christaller's model. Lösch started from the 'bottom' of the model by considering one 'equivalent customer' or one unit of consumption and built up from there. Lösch (1943) contributed further to the theory of industrial location by introducing the concept of market areas around a production facility. Lösch believed that the boundary lines for each market area would be hexagonal in form following Christaller's earlier work of market areas

accepting that such an arrangement minimises total transport costs in serving any given market.

Despite the inapplicability of the model in realistic situations, CPT was a breakthrough in predicting and understanding the hierarchical development of settlements, where each level of the hierarchy provides different and distinctive services. This hierarchical arrangement has been applied in regional and urban economies, in describing the location of trade and service activity, and for describing manufacturing for consumer markets. This hierarchical arrangement also results in a distinctive social network as the economic activities and movement of people are modified according to the hierarchical level of services provided. CPT has acted as a foundation for a large body of work on 'systems of cities' and the CPT attempts to show that each urban settlement is held in place within a system of cities and any changes in these are determined by a place's position within the system (Heilbrun, 1987).

These early contributions provided conceptual foundations for understanding the competitive bidding for sites with higher accessibility (producing a declining land rent gradient from high access to lower access locations) and the spatial separation of firms competing for market share (Waddell and Ulfarsson 2003).

3.2.2 Summary of neoclassical location theory

One of the important assumptions made in all the location theories is that the advantage in the supply of certain factors and the demands for output will determine industrial location. Early theoretical explanations of the industrial location process, starting with Alfred Weber (1909), tried to identify the least cost location factors. George Renner (1947, p.169) identified the major location factors as proximity to raw material, market, labour, power, transportation and capital. The relative importance of each of the factors depends upon the characteristics of the industry. This concentration on the supply side arguments of 'least input cost functions

continued until Lösch (1943, p. 29) filled the vacuum of demand analysis by introducing the concept of revenue to the existing theory. From Lösch's research came the idea that industry would be located where profits are maximised. There are obvious limitations of quantifying different characteristics of the demand side, and these weaken the practical applications of Lösch's arguments.

According to neoclassical economic theory, competition is identified as the general regulator of economic behaviour, including that of location decisions. If competition is allowed to function without hindrance, rational spatial patterns will inevitably result. The forces of competition eliminate weak or incompetent firms from within industries including those who make inappropriate location decisions. From this view there is little need to examine decision-making processes or the internal structure of the firm in order to understand general patterns of economic activity. In the context of location, firms only need to locate where their revenues cover or exceed their costs if they wish to remain in business (Hayter, 1997). One of the results of rapid technological change is that some locations can deteriorate in their attractiveness to business.

Williamson (1975) identified several general characteristics of the neoclassical explanation of industrial location:

- It focuses solely on economic variables, especially transportation and labour costs;
- It analyses economic factors in an abstract, deductive manner to derive generalisations as to where industry should locate;
- It assumes economic laws, which are based on universal notions of rationality that govern behaviour.

The neoclassical locational theories were developed in an age of steam power when coal was a dominant source of energy for industry in western economies and industrialisation had rapidly developed in regions that had ready access to coal resources. These early industrial regions in the UK, the USA and Europe had a commonality in terms of their products,

production systems and the locational environment. At the time the cost of labour and transportation of raw materials and delivering product to customers were counted as the most important components of production cost.

The neoclassical models provided a framework for empirical studies and had significant impact on studies of economic location. Limitations of these models can be identified – the most obvious of which are the neoclassical assumptions of economic man, the maximisation of profits, complete knowledge and the ability to utilise that knowledge. The second critical limitation is that most of the models are static in nature and the social and economic changes that have occurred since their development are far in excess of those anticipated by classical theory (Healey and Ilbery, 1990; Hayter, 1997). These models also exclude non-economic motives which later theorists have discussed as being relevant to an understanding of economic behaviour.

3.2.3 Behavioural theory of location

The simple neoclassical model is useful as a benchmark that defines the “optimal” behaviour of the firm in economic terms under the assumptions of rationality and perfect information. However it does not take into account the internal dynamics of organisations in a context with imperfect information and uncertainty where profit maximising behaviour is not the ultimate goal.

Beginning in the early 1960s, scholars started an organisational behavioural approach to search for explanations of why and how firms chose particular locations for facilitating business activities (Cyert and March, 1963; McNee 1960; Pred, 1965; Hamilton, 1974). Where neoclassical approaches assumed that location and land use decisions are determined by the need for profitability, the behavioural approach suggests that entrepreneurs may have goals other than profit maximisation.

The behavioural approach emphasizes the individual firm while largely rejecting the methods of enquiry associated with neoclassical economics. The analytical focus shifted to gathering information about organisational structures and decision-making approaches within business organisations. In general the behavioural approach views business enterprises as complex organisations (Hrebiniak, 1978) not as entrepreneurs with the single goal of maximisation as in neoclassical economic theory. Risk and uncertainty also impact on location decisions and these are impacted by the amount and type of information that is available to decision makers and their ability to use it. The information collected will depend on the resources available, the subjective perceptions of different places or land uses and the size of the firm and the prior experience and knowledge of the decision maker. When the information has been collected it needs to be evaluated and this evaluation will reflect differences in education, experience and aspiration levels of the decision maker.

In a study by Pred (1967) it is argued that particular locational choices made by firms reflect the interplay between factors influencing the availability of information to firms and the factors influencing the ability of the firm to use that information. The former depends on the behavioural environment and the latter relates to the competence of the decision-makers in dealing with specific decision situations. Pred also used the notion of satisficing from Simon (1957) and recognised that firms in different situations could react to given stimuli in contrasting ways and thus make different locational decisions. This may also be affected by various personal and group characteristics of the decision makers.

The question about location becomes all the more important in the context of behaviourist location theories. Simon (1959, p.277) argued that the rational, profit maximising behaviour assumed of location decision makers is far from the reality. Luttrell's (1962) study of the movement of manufacturing industries in the UK brought ample evidence to support this argument. He noted that the search was more for a suitable location rather than an assessment of comparative operating costs and other factors at several possible locations. Townroe (1971) found that a majority of

companies do not evaluate locations on explicit cost grounds; rather the financial assessment comes after locational choice. Townroe noted that the non-routine nature of site selection process and the lack of personal experience lead to imperfect decision-making where the decision maker chooses the first location that comes up to his/her aspiration level.

Behavioural studies of economic location have been concerned mainly with long-term decision-making. Most work has been of an empirical nature and considers decision making within individual firms and locational change of industry. Most of these studies collected information on the business attributes and attempted to relate these to the behaviour of individuals. The literature is also generally limited to retailers (Hernandez and Bennison, 2000; Davies and Clarke 1994; Clarke *et al.* 1997), manufacturing capacity (Schmenner, 1982; Karakaya and Canel 1998; Yang and Lee 1997; Badri *et al.* 1995; Vos 1995; Canel and Das, 2002) and office location (Edwards 1983; Markheath, 1992; Healey and Baker, 1994; Gibson and Lizieri, 2001). Much of the work on retailing has focused on “gravity models” that track the movement of customers and thus market area determination whilst that focused on manufacturing has found that location decisions are largely driven by factors of production, particularly cost effective access to key supplies and labour. The office location literature has reviewed employment statistics, clustering and the changing nature of work.

In summary most work adopting a behavioural approach has examined aspects of the behaviour of individuals or groups and attempted to see whether there are systematic variations in their behaviour. An important aspect has been to investigate how individuals and firms make location and land-use decisions and the factors that influence them. Individual and group decision making takes place in an environment of uncertainty and the decisions taken will vary because individuals have different goals, levels of knowledge and they vary in their aversion to risk (Wolpert, 1964).

In the light of this uncertainty, satisficing decisions are a more realistic alternative than optimising behaviour by managers. This concept

recognises the limitations placed on the decision maker. These limitations often lead to a spatial bias in location decision-making – more distant locations are less well known and therefore it is likely that nearer locations will be chosen more frequently.

3.2.4 Summary of location theory

Traditional, 'classical' industrial location theory had its origin in the work of von Thünen and Weber and the further development of neo-classical economics. Weberian theory is a clear example of the idea that an optimal location for a firm can be derived, focusing on the minimization of transportation costs related to the distance from markets and the sources of raw materials. Firms are assumed to produce a single product serving only local markets. Raw materials are the only critical inputs. Labour, information, knowledge and other inputs are ubiquitous. In this setting, the cost-minimizing (profit-maximizing) location is easily determined. The characteristic of 'classical' location theory is summed up in the description that 'location theory has been developed through the incorporation of spatial variables – localized resources and distances – into microeconomic theory' (Beckmann and Thisse 1986). This framework neglects the requirements of contemporary firms for markets, skills and infrastructure, and for whom it is not costs only that matter, but also the quality of those inputs (MacCormack *et al.* 1994). Moreover, location theory, by focusing on the location decision, ignores the interplay between the location decision of a firm and the firm's larger and more intricate investment decisions, only one of which is to invest in a new production facility (Harrington and Warf, 1995).

In a review of the theoretical approaches to industrial location theory discussed above several shifts can be noted which are of importance to this research. Location theory shifted from the focus that transport costs are the sole determinant of location, to a total cost approach and from there to the concept of the market base. In the last decades of the 20th century there was a more targeted focus on the behavioural aspects of the location decision and often on meeting the social aspirations of the decision makers.

There is a discussion later in the chapter regarding personal influences on the location decision.

Location planning is concerned with where to establish a new facility or relocate an existing facility to achieve an objective. Such an objective could well be to minimise distances travelled, minimize the cost involved or to establish and maintain a competitive advantage.

3.3 Strategic importance of location

Choosing the location of a facility is a strategic consideration that has profound impact on other aspects of an organisation. It has been argued that, of all the business decisions made by management, none have more serious ramifications than those regarding where to locate a facility and how to design it (Weiss and Gershon, 1993).

In an article discussing "clustering", Porter (2000, p16) suggested that a good deal of competitive advantage lies outside companies, residing instead in the location where their business units are based. This complements his earlier writings (1985, p105) where he indicated that the firm that locates its facilities well would often gain a significant cost advantage and thus a competitive advantage. To gain competitive advantage, Porter asserts that companies must perform their primary activities more efficiently and effectively than their competitors. Porter includes both inbound and outbound logistics as "primary activities" of a company.

Logistics is also mentioned in the other literature as one of the functional areas of business that can provide both superior business performance and provide a sustainable competitive advantage (Tan, Lyman and Wisner 2002, Zhao, Droge and Stank, 2001, La Londe and Masters 1994). Porter suggests that the location of warehouse and distribution activities is a strategic component of logistics system design and plays a significant role in the success of business. Porter also notes that the optimal location of these logistics activities can change over time.

Other categories of business activity have also recognised location as important. With respect to retailing, Ghosh and McLafferty (1987) note

... that in the extremely competitive retailing environment, even slight differences in location can have significant effects on market share and profitability... since store location is a long-term fixed investment, the disadvantages of a poor location are difficult to overcome.

The importance of location decision-making to retail organisations is further heightened when viewed against the trend of the average retailer operating from larger outlets, across a wider variety of locations, increasingly experimenting with new retail formats, and investing substantially larger amounts of capital on location decisions than they did in the past. In a comment in the similar vein Berman and Evans (1983) state:

... essentially you are married once you pick a location and divorce can be very expensive.

The terms of the occupancy can be substantially more binding if the retailer owns the freehold of the property. In such circumstances, the location represents a major fixed asset, and carries with it (when viewed in aggregate) financial and strategic repercussions (Wrigley 1996). Simply, once a retailer opens a store they are tied to the locality for a number of years. As Clarke (1995) notes:

... The location decision is not something which is just made as a one-off decision -- it is one that the organisation has to live with and manage to ensure continued profitability.

This acts as a major disincentive and impediment to location decision-making as the risk and uncertainty attached to a location decision mean that many organisations avoid making a decision and remain in their current location. As Hickson *et al.* (1986) noted in a study of strategic investment decisions, location decisions were ranked as taking the longest to make and having the most significant consequences for the organisation. The binding long-term nature of the "location decision" rests uneasily with the

traditional short-term opportunistic planning horizons adopted by retailers and the dynamic nature of the environment in which they operate.

Hence a persuasive case can be made that a choosing a new location is a strategic decision for a company. Whilst much of the research in this area concerns retailing and service industries there is sufficient research to indicate that a decision to change the location of a warehouse, or to open another warehouse, is a major strategic decision for a logistics or transport organisation.

3.4 Making a location decision

Site location decisions are driven by many corporate goals – from better customer service to shorter cycle times, to proximity to key suppliers or customers. It can be argued, however, that the key factors that drive a location decision are the provision of an appropriate level of service to customers and the minimisation of total operating costs. The site selection process is almost idiosyncratic because the needs of individual companies and the characteristics of available locations combine in such a way as to make each location decision different. Whilst the situations and the specific factors at the time generally differ, there should be a common process for collecting and analysing information and then making the location decision.

For many transport companies, the site selection decision is an infrequent event occurring only once every few years or less. In these circumstances companies rarely have relevant experience and the up-to-date information that is necessary to carry out a thorough analysis (Townroe, 1971; Mintzberg et al. 1976; Hickson et al. 1986). The site selection decision is one of the most difficult and far-reaching decisions that a company can make. A less than optimal location choice may result in higher costs and a competitive disadvantage that will persist for years.

As was seen in the previous section much of the early literature on location decisions comes from the discipline of geography. Geographers have for many years discussed those factors that lead industry to locate in a particular place (Weber 1909, Christaller 1933, Lösch 1943, Renner 1947, Isard 1956, Townroe 1976, Healey and Ilbery 1990).

For many years the facility location problem attracted a great deal of attention in both the management and logistics literature. As a result there are a variety of methods proposed for solving this type of problem. Among the earliest models developed are those of Kuhn and Kuenne (1962) and Cooper (1963). The models developed in these two early papers are based on the locational principles developed by Weber (1909) and refined by Isard (1956). The facilities location literature dealing with quantitative modelling has become quite extensive. However a review of articles published in leading journals reveals that there are few articles that deal specifically with the warehouse location decision-making (WLD) process.

Miyazaki, Phillips and Phillips (1999) identify five articles in the first twenty years (1978 – 1998) of the *Journal of Business Logistics* that dealt with "warehouse location". Rosenfield (1987) dealt with a case study for locating distribution centres in a retailing network using mathematical programming methods. In their articles Ballou and Masters (1993, 1999) review the range of commercial software that was available for warehouse location modelling, their functionality and ease of use and the cost of the software. Ho and Perl (1995) and Meshkat and Ballou (1996) developed mathematical models for determining warehouse locations under service sensitive demand or where there was uncertain stock availability.

The *International Journal of Physical Distribution and Logistics Management* published ten articles concerned with location in the period 1993 - 2007. The majority of these articles deal with various optimisation techniques using linear programming (Lee 1993, Tyagi and Das 1995, Jayaraman 1999, Canel and Das 1999; Giddings *et al.* 2001; Meepetchdee and Shah 2007), cluster analysis (Fuente and Lozano 1998) and neural networks (Schwardt and Dethloff 2005) to determine the most cost efficient

location. Other articles have dealt with cross-border trading issues including the most appropriate siting of warehouse facilities to deal with international trading circumstances (Taylor and Closs 1993; Pedersen and Gray 1998) and critical success factors for small logistics companies (Gunasekaran and Ngai 2003).

Other journals, generally in the field of operations research, have also carried articles on location analysis and capacity planning in supply chains. Canel and Das (2002, p114) provide a detailed list of location modelling going back to the mid 1970's. In addition Geoffrion and Powers (1995) tracked the evolution of the algorithms used in location analysis and the design of distribution systems over two decades. Owen and Daskin's (1998) paper highlights nearly 40 years of research using stochastic and dynamic programming models that attempt to find an optimum location in terms of profit maximisation or cost minimisation. They conclude that advances in the various programming and scenario planning techniques have increased the capacity for analysing and modelling important strategic facility location problems. Bhutta (2004) provides a similar survey of mathematical modelling for location and his survey reveals that virtually all authors use some sort of optimisation techniques to either minimise cost or maximise profit. This modelling uses a wide variety of techniques including mixed integer linear programming, linear programming, network modelling, goal programming and linear piece wise algorithms.

In the models revealed in the literature there is a wide range of variables used in formulating them. The variables include demand quantity and frequency, the number of customers being serviced, the capacity of the facility, together with a range of transport variables associated with the number of vehicles, their carrying capacity, travel times and distance and a range of costs associated with storage, materials handling, the fixed costs of the facility and variable costs per unit of inventory.

This previous analysis shows a substantial body of work devoted to the development of mathematical models for warehouse location in the logistics and the mathematics and operations research literature. Typically these

models represent the problem of determining the number, location and throughputs of warehouses so as to minimise the sum of warehouse and transportation costs. Researchers have made significant advances in modelling location decisions and the models proposed can be extremely useful to decision makers. These operations research models typically emphasize the mathematical formulation of allocation problems. As this research focuses on the managerial decision-making process detail regarding the individual models and techniques has not been included in this literature review.

What is evident from the literature is that there is a lack of discussion between the design and output of these mathematical models and how they are applied to support the managerial decision-making processes that organisations use.

Transport and distribution businesses are specifically considered in only a few instances (Schmenner 1994, Tyagi and Das 1995). Schmenner identified 64 transport and distribution businesses from a total of 926 service industry firms who responded to a wide-ranging location survey of service firms in five mid-west American states. Responses were sought on general location influences and site-specific issues. There was no separate tabulation of these transport and distribution business responses in the article. The only specific references to transport and distribution businesses in the article related to the requirement for good infrastructure (roads, communications) and proximity to suppliers and customers. Schmenner concluded by suggesting that there were consistencies between the responses from different categories of service firms. The Tyagi and Das article reported the development of an integer-programming model for the long term planning and operation of a wholesaling system (including the location of warehouses) which lacks behavioural factors.

Most analysis of location decision-making has focused on the specific attributes or variables that firms evaluate in selecting locations. Schmenner's (1982, pp 37 - 38) influential work on plant location cites six

critical variables that a corporation should evaluate in making a location decision. These are:

- competitive labour costs;
- degree of labour unionisation;
- proximity to markets;
- proximity to supplies or resources;
- proximity to other corporate facilities; and
- quality of life issues.

These requirements all assume that suitable land is available in the particular region or locality. The requirements listed provide much of the information that should be used in the decision-making process. Despite general agreement on the key variables used in site selection analysis, it is generally recognised that the relative importance of the variables is different for each firm and that the variables can change over time as the business consolidates or develops at that site. It is important to recognise that over time new matters for consideration are likely to emerge.

In the area of real estate and property research, a more strategic outlook is being proposed. There are a growing number of authors calling for a more strategic approach to site selection (Roulac 1999; Roulac 2001; O'Mara 1999). Roulac (1999) ties his discussion back into Porter's theory of competitive advantage and the need for all steps in the process from raw material to consumers to add value. Roulac (1999) highlights that at each link in the value chain there is frequently a property requirement. If that real estate is appropriately located, with relevant linkages, then it can add value to the chain. Roulac (2001) more specifically argues that a firm's real estate strategy is integral to its corporate strategy and that property can provide competitive advantages to the organisation.

O'Mara (1999) created a typology of location decisions to provide greater insight into the actual drivers and models that decision makers might use. The typology is grouped into two major categories: a move to a new geographic area or a move within the same geographic area (p376). Moving to a new geographic area is seen as a major strategic decision

relating the need to achieve cost advantages or scale economies or to demonstrate a major repositioning of the organisation. Companies that remain within the same geographic area are either consolidating existing operations, seeking greater control over their existing environment or maintaining and strengthening major historical links to the community.

In summary, there is a growing awareness of the importance of the location of property (warehouses) and its contribution to adding value in a supply chain including providing for the development and maintenance of a company's competitive advantage.

3.4.1 Location decision making process

One conclusion that emerges from the past research regarding location decision-making is that firms typically approach the decision as a multi-stage process (Haigh 1990; Schmenner 1982; Blair and Premus 1987). Several of the writers' comment that the location decision process is generally a two-stage process after the decision to seek a new location is made. The first is the determination of the particular region, state or country and then a more specific site search within the region selected. Schmenner (1982) identified an eight-step sequence of incremental decisions involved in the process for selection of a new manufacturing plant. The sequential steps in the process are:

1. the decision to seek a new site - with notification to those corporate staff members involved in the site selection process;
2. decisions relating to the size, scope and operational requirements for the plant under consideration;
3. decisions relating to the design and engineering of the plant;
4. decisions related to the key locational criteria, developing a list of conditions to be met and a list of desirable but not essential conditions;
5. regional location selection decision - using the essential and desirable lists;

6. decisions on available sites within the target region to form a list of alternative sites for evaluation;
7. decision to reduce the number of alternative sites for intensive site-specific investigation; and
8. site selection decision using results of comparative site-specific analyses.

From these steps it can be seen that the first of the location decisions is to determine an appropriate "region" (steps 4, 5 and 6 above) and then determine the specific "site" within that region (steps 6 and 7) before a final decision is made (step 8). In the initial phase of this search process the most important considerations are likely to be the availability of an appropriate work force and various cost factors. Once the initial "regional" decision has been taken more detailed evaluations are undertaken regarding specific sites and some of the issues that might additionally impinge on the decision will include public infrastructure, local tax policies, assistance and incentives to relocating firms.

In keeping with some of the earlier discussion on behavioural decision making, Lambert and Stock (2001) make the point that the location decision-making process may either be highly formalised or very informal depending on the structure of a business and the managerial style adopted.

When considering how companies make location decisions, Harrington and Warf (1995, pp 148 – 169) emphasise the close relationship between location decisions and the more general class of investment decisions. They propose that the incremental revenues and costs of any particular location should be the inputs to a five or ten year investment analysis, discounted at an appropriate rate and the decision then made on the basis of net present value. This type of analysis can be viewed as another form of optimisation modelling and criticised because the numbers used are only rough estimates. Harrington and Warf (1995) also introduce the use of external consultants and their role in assisting in the location decision-making process to gathering information, preliminary negotiation with local or regional authorities and the capital budgeting analysis.

The preceding discussion in Schmenner (1982) and Harrington and Warf (1995) provides much of the analysis of content required for the decision rather than addressing how this information is used in context of the organisation's decision-making process and the interplay of the various parties who may be involved in the decision. Within the various writings, however there are many pointers to the issues and factors involved in making such a decision. They can be grouped into the personal issues affecting the individuals involved in making the decision, the group dynamics, and the informal relationships within the organisation. Management group attributes such as cohesiveness, structure, norms and communication also contribute to the determination of the processes used in addressing the warehouse location problem. In addition the formal structure and rules of the organisation impact on the approach to such an important decision.

Personal matters or quality of life issues, ranging from individual life-style issues to access and availability of education facilities for company officers' children (Schmenner, 1982, p 134; O'Mara, 1999, p 383); also influence an individual's view as to preferred locations. O'Mara (1999 p377) includes a delightful line relating to a briefing for company executives where "*their eyes lit up when I mentioned that there were eight golf courses within five miles*". The increasing emphasis on quality of life issues reflects an increasing awareness that economic success of business is dependent on its workforce (Love and Crompton, 1999). Schmenner (1982 p 162) finds evidence that location decisions are influenced by the commuting time and travel distance of executives to manufacturing plants.

3.4.2 Strategic location decision making

As past studies have shown (Hickson *et al.* 1986; Papadakis & Barwise, 1998; Papadakis *et al.* 1998), strategic decisions in organisations are not just about solving technical or economic problems following criteria of efficiency. As long as they imply an allocation of resources they also have

to accommodate a multiplicity of interest about the use of these resources. The various interests involved shape strategic decisions either via formal or informal impacts on the decision process.

The literature provides a great deal of information regarding the individual and group factors that influence the way decisions are made within organisations. Much of the more recent literature points to satisficing behaviour by managers as these decision makers have limited information and bounded rationality suggests that they cannot possibly evaluate all relevant information (Simon 1996, 1998).

There are strong arguments in the literature that a location decision is of strategic importance and there is a growing awareness of the benefits that a good location can add to a company's competitive position (Hickson et al. 1986, Porter 2000). Such a location decision involves a long-term commitment of resources. From a strategic point of view, there are elements of uncertainty in such a long-term investment decision and this uncertainty has an impact on the behaviour of the individuals involved in the decision making process.

From the body of literature there seems to be little on the warehouse location decision making processes of companies in the transport industry compared with the large body of research concerning retail location and manufacturing plant location practices. From the Bradford studies (Hickson *et al.* 1986) it can be readily argued that the factors that might be considered in the location of a transport company's warehouse are quite different to the location decisions required in other types of business. Much of the material in the literature concentrates on the content required for such location decisions, with much work devoted to the development of sophisticated mathematical modelling, rather than on the processes adopted by decision makers, which have more influence on the decision outcome. The inability of many of the statistical models to deal with industry specific and micro-level detailed information has led to speculation that such models make generalisations which are too broad for use by individual managers in specific businesses.

3.5 Summary

This chapter reviews the literature related to location theory. It is evident from the discussion on decision classification (in Chapter 2) that making a location decision is a major milestone in the life of many organisations. It is also clear that the location of a business, particularly a transport company, can lead to a sustainable competitive advantage in its business environment.

The decision to find a new warehouse location is a major decision for a transport company. As with most strategic decisions there is significant uncertainty surrounding such a move and the decision to proceed should be taken only after appropriate investigations and thorough analysis of the alternatives available. The literature suggests that there are many individual and group factors that influence the decision making process as well as the formal structure within which the individuals and groups operate.

But just how do transport companies make such a decision? Previous research has looked at the decision making process in many industries and location decisions specifically in the retail and manufacturing sectors but not at the location decision-making process regarding warehouse location by transport companies.

The following chapter develops the conceptual model for this research project and establishes the research questions to be answered. The following chapter concludes with a discussion on the various research options available for this project.

Chapter 4 Conceptual framework and research approach

4.1 Introduction

This chapter establishes the conceptual framework and discusses the theoretical issues related to the warehouse location decision-making (WLD) of transport companies in Victoria. Firstly there is a synopsis of the relevant literature review chapter to focus the research. The next sections discuss location as a strategic decision and the form of the decision model adopted. The final section introduces the specific research questions.

The latter part of the Chapter provides the research method and design for the execution of the research used to test the questions and in doing so create new theoretical insights. It describes the research methodology, philosophy, strategy, the techniques applied and the validation aspects of the method. This Chapter goes on to detail the empirical approaches taken in answering the research questions proposed. The Chapter concludes with a discussion for assessing the quality of the case study research design regarding the reliability, validity and generalisation and the ethical issues involved in the study. There is a brief discussion of the ethical issues involved in this research study and how these were canvassed and discussed with the interview participants before commencing the interviews.

The available literature shows considerable knowledge about decisions, decision-making, location theory and the strategic location of a business. Previous research has looked at strategic decision-making or the decision-making process in many industries but has not examined specific strategic processes for the location of warehouses in Victoria. In particular this knowledge has not been integrated and tested in a systematic way in organisational decision-making for locations for warehouse property in Victoria. The few specific references to transport and distribution (Schmenner, 1994) provide only rather fragmented ideas of how a warehouse location decision (WLD) is undertaken by transport companies.

As a consequence there is no comprehensive model of warehouse location decision-making that can be used with confidence by those managers responsible for making complex decisions regarding warehouse location.

It is this lack of such a model that provides the motivation for this study.

The study aims to:

- integrate theories of organisational decision-making with location theories into a model for testing;
- test the model empirically with transport companies in Victoria, Australia that have made warehouse location decisions in recent times;
- build on the outcome of testing by proposing a revised model for future use by transport companies in Victoria.

4.2 Location as a strategic decision

Strategic decisions are complex and entail a host of active variables (Harrison, 1992). A strategic decision is defined as one that is complex, out of the ordinary and important to an organisation in terms of the actions taken, the resources committed and the long term impacts on the company (Mintzberg *et al.* 1976, Hickson *et al.* 1986, Eisenhardt 1989b and Harrison and Pelletier 2000).

From the literature review in Chapter 2, the important characteristics of a strategic decision are:

- the novelty, complexity and open-ended nature of the decision;
- the uncertainty and ambiguity surrounding the decision;
- the extent of the resources committed;
- the potential impact of the decision on the whole organisation; and
- the implications of the decision on the organisation's relationships with the environment within which it operates.

The literature clearly indicates that selecting a location for a firm's business operation is a strategic decision which frequently entails a great deal of risk

and uncertainty (Porter 2000, Hickson *et al.* 1986 and Townroe 1991). In addition the commitment to a specific site will require significant financial commitment if a property is leased or purchased.

Given the strategic nature of a warehouse location decision (WLD) it is one that deserves significant management attention and priority. A location decision should be made at the appropriate level and approved at highest levels of the company.

4.3 Decision Model

Many writers have indicated that firms typically approach a location decision as a multi-stage process (Haigh 1990, Schmenner 1982, Blair and Premus 1985). With the complexity and the dynamic nature of strategic decision-making, much research supports the use of a process model for making these decisions (Mintzberg *et al.* 1976, Harrison 1996, Nutt 1989, Papadakis *et al.* 1998).

Based on the literature review it is considered that the most appropriate model follows the Mintzberg *et al.* (1976) phase model. It is argued that a WLD is a sequential set of three decisions each of which exhibits the three phases'; the first decision is the determination that a new location is required; the second a decision to choose a particular region (although this second decision might be made in conjunction with the first decision); and the third a decision regarding a specific site within the chosen region.

In the general model of decision making offered in Figure 2 earlier (Mintzberg *et al.* 1976) there were three phases: identification, development and selection. Each of these phases is evident within the model proposed in Figure 4 over the page. The identification of the problem, the requirement for a new warehouse is in the initial stage, each of the subsequent stages involves development of alternatives and then selection of the most appropriate. In common with the Mintzberg *et al.* model each of the decisions is subject to interruptions and delays within their particular

stage of the model. The Schmenner (1982) eight-step sequence of incremental decisions discussed in the literature review earlier requires two decisions; firstly the identification of a region and secondly the identification of a specific site. This process fits neatly within the model outlined above.

This decision making model relies on aspects of both the phase and process models that were discussed in the literature review. The literature review noted that the differing decision making models are not mutually exclusive and that there is overlap evident within the models and further that the strategic decision-making is a dynamic and complex process.

Warehouse location decision model

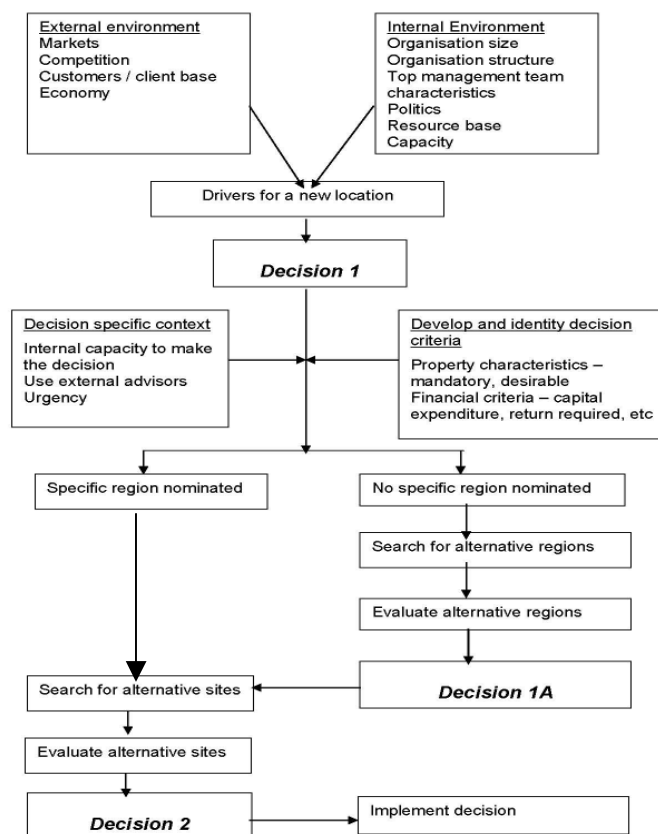


Figure 4 – Sequential location decision model

Developed from the literature review by the author, after Schmenner (1982) and Mintzberg *et al.* (1976).

Whilst identified as separate decisions it is possible that **Decision 1**, to require a new warehouse will include the identification of a particular region where the new warehouse is to be located; this might come from contractual requirements with new business or seeking a wider regional coverage for general business reasons. If this is the case then the decision process proceeds directly to a site selection process. If however a particular region is not identified there is the need to make that decision through a search and validation exercise. After a region is selected in **Decision 1A** it must be validated through the second stage process. During the site selection process information and intelligence from the earlier stages may be used but it needs to be confirmed during the process in **Decision 2**. This allows for some of the developmental data from each stage to be used in the succeeding stage. In practice the ability to use information collected in earlier stages of the decision-making process might assist in shortening the time taken during the decision process. There is also the ability to modify/review the evaluation of alternative regions or sites from continuous feedback as analysis is undertaken and additional information comes to hand.

For the purpose of the empirical aspect of this research the drivers for the new location will be examined together with the business and competitive environment within which that decision was made.

4.4 Research Questions

The review of knowledge of a number of areas of decisions, organisational decision-making, location theory and the strategic importance of location identified a number of gaps. Knowledge of the process of location decision-making by transport companies was limited and yet it is an interesting and significant area of research because of the economic importance and significant resource requirements in establishing a new warehouse.

The theoretical framework for the research questions comes from the findings of earlier work in decision-making and location theory. The choice of this framework is guided by the literature with the most cited, and the most credible, model of decision-making providing the starting point. This research is founded on the concept of bounded rationality. It integrates the features of the Mintzberg *et al.* (1976) structural model of decision-making with the findings of the research on location theory together with an overlay of the decision contexts consistent with those proposed by Rajagopalan *et al.* (1993) in their integrated model of the strategic decision process.

Important additional contributions to the previous research can be made by the following research questions:

- R1 Are WLD made within a framework of distinct steps; and within each step are there identification, development and selection phases?
- R2 What contingent factors affect the WLD process?
 - R2a What is the effect of interrupts and delays on the warehouse location decision-making process?
 - R2b What information and knowledge was used in making the warehouse location decision?
 - R2c What factors in the business environment provide the most impact on a warehouse location decision?
 - R2d What are the typical behaviours of managers when making a warehouse location decision?
- R3 What process is most effective in transport companies warehouse location decision-making?

From the research questions a series of propositions were developed. The propositions for testing are as follows:

Proposition 1 Within the steps of the decision process there are three distinct phases: (1) identification, (2) development and (3) selection.

Proposition 2 Within the decision process there are dynamic factors that comprise (1) interruptions, (2) delays, (3) feedback, (4) timing delays, (5) comprehension and (6) failure recycle.

Proposition 3 During the decision process groups of decision makers operating within the framework of bounded rationality will demonstrate process behavioural patterns described below:

Sub proposition 3(1) during the decision process decision makers are consistent in terms of searching for alternative solutions.

Sub proposition 3(2) during the decision process, decision makers use the principle of satisficing.

Sub proposition 3(3) decision makers do not gather information on other alternatives when one alternative has been implicitly or explicitly chosen.

Sub-proposition 3(4) decision makers seek information not directly related to the identification and evaluation of alternatives.

Proposition 4 Decision-makers explicitly consider the external environment in their search processes.

Proposition 5 Organisational characteristics influence the search patterns and the development of information used during the site location evaluation process.

The research questions proposed investigate the decision process so that an appropriate WLDM process for transport companies may be determined. The conceptual framework and the research questions developed are built on the literature identified earlier that relates to location decisions and company decision-making processes.

The latter part of this chapter discusses the research procedures used to answer the research questions and to discover the context within which location decisions are made within transport companies.

4.5 Research Process

The basic purpose of research is to advance theory: to understand and explain phenomena, gaining solutions to problems or answers to unsolved or unresolved questions. Different methodologies can be used to design and execute research. There are two main schools of thought on how best to conduct research describing different and competing inquiry paradigms. The two leading paradigms generally adopted by researchers are the positivist and the interpretive paradigms (Blaikie 1993, Pawson and Tilley 1997).

The positivist paradigm is rooted in the natural sciences with an emphasis on experimental scientific observations to explain cause and effect relationships of an event or situation (Eisenhardt and Howe 1990, Babbie 2001). Positivism refers to approaches that consider scientific knowledge to be obtained only from data that can be directly experienced and verified by different observers. In this way it mainly uses quantitative and experimental methods to test hypothetical-deductive generalisations (Blaikie, 1993). Positivism searches for causal explanations and fundamental laws and usually reduces the whole to the simplest elements in order to facilitate analysis. The positivist school believes that society and people can be studied in a natural scientific manner; as a result this standpoint relies heavily on statistical evaluation of the phenomena being investigated.

On the other hand the interpretive paradigm is founded in the humanities with an emphasis on holistic and qualitative information to provide rich insights into components of a social phenomenon and is more concerned with observations and description, generating hypotheses (Husen 1988). The interpretive theorist views that the social world possesses an 'uncertain

ontological status' and that the truth is socially constructed (Ticehurst and Veal 2000) and therefore the best way to understand the social world is from the point of view of the participant investigated (Hassard 1993). In this view the interpretive approach is to understand meanings of particular situations (Schwandt 1994) thus acquiring a rich understanding of social life aspects and experiences (Yeung 1995). This form of enquiry uses mainly qualitative approaches to understand and explain the phenomenon. Miles and Huberman (1994) note that human activity is seen in interpretivism as 'text', i.e. a collection of symbols expressing layers of meaning and research is concerned with a deep understanding of such meanings. Furthermore it recognises the individual viewpoints of practitioners and researchers involved in the process.

The selection of the most appropriate paradigm should then be influenced by the nature of the investigation, the aim of the research, the nature of the research questions and the accessibility of research resources.

Thus the research methods applied should be appropriate within the context specific settings as well as the myriad factors that affect it. This research explores the little-known area of the decision-making processes used by transport companies when they are making a warehouse location decision. As we have seen earlier in this chapter the location decision-making process is a complex phenomenon very much shaped by the organisational context in which the decision is taken as well as the perspectives, beliefs and motivations of the individuals involved. The literature on decision-making shows a wide range of data collection methods being used in studies on decision-making and organizational processes. These range from interviews (Mintzberg *et al.* 1976), participant observation (Pinfield 1986), document analysis (Browne 1993) and protocols (Newell *et al.* 1958). A number of studies of organisational decision-making have also been undertaken using case studies, in particular work by Allison 1971; Anderson 1983; Heller 1984; Hickson *et al.* 1986; Eisenhardt 1990; Van de Ven 1992 and Dawson 1994 & 2003.

Techniques such as mathematical modeling and controlled experimentation were eliminated at the preliminary stage of screening as they proved less capable of addressing the type of research questions involved. Survey techniques were considered but excluded mainly because they could not meet the required depth of analysis when investigating an area where existing theory seems inadequate (Barnes 2001; Stuart *et al.* 2002). Large-scale survey based methods have been criticized for their superficiality, rigidity and lack of rigour (Meredith, 1998) and appear to have been favoured mainly in confirmatory hypothesis testing studies (Forza 2002). These alternative methods of research have been rejected, as they were considered less useful or inappropriate for the complexity of the proposed research. An evaluation of these various methods led to the choice of the case study method, primarily because this method can be used to build and enhance theory development. A number of other researchers (Barnes, 2001, Voss *et al.* 2002) strongly support the use of the case study approach in investigating strategy processes and building theory.

The research problem 'how do' and the main questions 'what are' are descriptive rather than prescriptive and these require a theory building approach (inductive) rather than a theory testing approach (deductive) (Perry 1998). Accordingly the interpretive paradigm (inductive) is more suited than the positivist paradigm (deductive) because the research is concerned with the actual world of the investigated phenomena rather than providing statistical details about the cause-effect relationships between variables within the examined phenomena.

As noted earlier the location selection process of a transport firm is a multi-faceted process that contains numerous subjective and objective factors that are often hard to assess (Hayter 1997). For many companies the location decision is a complex, strategic one that is made in an environment of uncertainty involving a major resource commitment. Senior managers typically make this strategic decision and because of their reluctance to respond to questionnaire surveys the qualitative research method using interview techniques for data collection was considered the most suitable.

Additionally since the business location decision of a firm is strategic (Blair and Premus 1987; Hickson *et al.* 1986; Porter 1998, 2000) the best approach to examine the strategic decision process is to get inside the minds of the senior decision makers to unearth the decision details (Mintzberg *et al.* 1976) to gain a holistic overview of the context under study (Miles and Huberman, 1994). This current research considers that the qualitative approach and method is the most useful way of gaining access to senior executives and their mindsets because it offers intensity and richness in the collected data. Such an approach avoids the common barriers of validity and reliability in a social and organisational study.

The aim of this research points to the development of a model of the decision process in an organisational context. As a consequence the option for this research is based on the interpretative school of thought. The research uses qualitative approaches to understand the human experience in context specific settings. As pointed out by Silverman (1998) a particular strength of qualitative research is its ability to focus on actual practice *in situ*, looking at how decisions are made in organisations. The researcher analysed the decision process with an emphasis on the meanings, facts and words to reach a broader understanding of making location decisions.

The qualitative approach enables a researcher to understand and explain the personal experiences of humans more deeply than does the positivist approach. Its use fitted the eight cases examined because the information collected in each case differed in complexity. Each of the case interviews was a complex story in its own right (Ticehurst and Veal 2000).

Consequently the current research was designed to gain a rich and comprehensive picture concerning the phases in the location decision-making process and the many factors considered by transport companies when making a warehouse location decision. The best way to recognise and uncover the complexity involved in such a decision making process was to 'get inside' the minds of the organisations' decision makers and understand the process from their viewpoint and experience.

As there has been little research directed at transport companies location decision processes the current investigation is adding new understandings and concepts in the field and this necessitates the adoption of an interpretive paradigm (Yeung 1995).

From the material in the literature review it is noted that the interpretive paradigm using case studies has been widely used by scholars in the general area of strategic decision making in business (Eisenhardt 1989a, Eisenhardt and Bourgeois 1988, Mintzberg *et al.* 1976, Papadakis, Lioukas and Chambers 1998), in location decision making in manufacturing and service industries (Haigh 1990, Townroe 1971,1991 and Schmenner 1994) and in logistics research (Ellram, 1996). By capturing detail and depth case studies are amongst the most effective methods of evaluating process, performance and outcomes. Case studies can evaluate the effectiveness of a WLD by highlighting the conditions, information gathering and evaluation and the decision-making process used in determining a new location.

4.6 Introduction to the research method

The earlier discussion in this Chapter provides the conceptual framework for this research. After undertaking a literature review it was discovered that there are a number of gaps in the literature relating to warehouse decision-making by transport companies. Based on these gaps appropriate research questions were developed to provide data regarding the research problem.

The research methodology represents the development of the logic of the research process used to generate theory. It thus refers to the procedural framework within which the research is conducted. The aim of this research is to be rigorous, systematic, integrated and focused in answering the research questions.

The following sections explain the research method adopted by reviewing the process step by step. This includes the research overview; the selection of the research method; the development of the structured interview protocol; case studies; data collection and analysis. The sequence of the research process is shown in Figure 5 below.

This research commenced with a wide ranging literature review that is summarised in Chapters 2 and 3. This review of the literature continued all through the project, continually monitoring developments in academic and professional journals during the course of the research project. The phenomenon being researched dictates the terms of its own dissection and exploration. Since this study focuses on “how”, “what” and “why” questions about a contemporary set of events and addresses a process not yet thoroughly researched, multiple case studies was the logical methodology (refer Section 4.5). The best way to respond to the research questions was by the use of multiple case studies that would meet the replication requirements. An alternative to historical case studies might be direct and impartial observation on “live” projects but in such a situation there are difficulties in the identification of organisations that may currently be going through a location search process and, secondly, the level of resources required to track a number of such projects even if they could be identified.

Yin (2003) defines case study as *an empirical inquiry that investigates a contemporary phenomenon within its real life context especially when the boundaries between phenomenon and context are not clearly evident.*

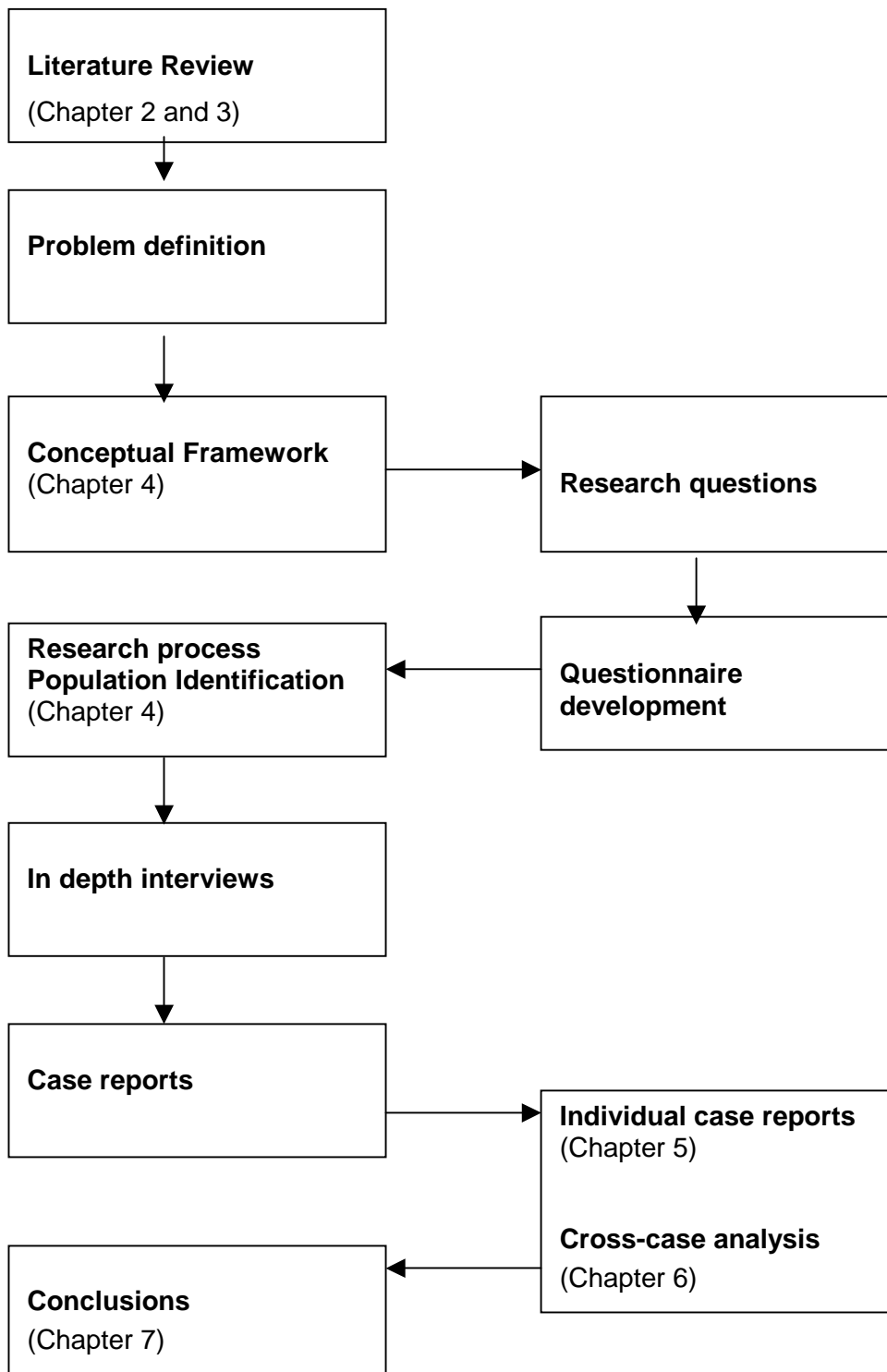


Figure 5: Overview of the research method

Yin goes on to discuss the use of case study when the researcher specifically wants to cover contextual conditions that may be highly pertinent to the study. The aim of case studies is to reach a fundamental understanding of structure, process and people involved in the phenomena

being studied. Case studies can be either to test existing hypotheses or to discover new hypotheses ranging from single to multiple cases being purely qualitative or combined qualitative and quantitative (Yin, 2003, Silverman, 1998).

This research adopted multiple case studies because they allow the analysis of data across organisations, which enables the identification of context specific constraints in the location decision process. Miles and Huberman (1994) note that multiple cases adequately sampled provide understanding and explanation as they help point out specific conditions under which a finding will occur and also help to form more general categories of how these conditions may be related. In this way, a multiple case study design allows for replication logic in which each case study serves to confirm or disconfirm inferences drawn from previous ones (Yin 2003). Another advantage of multiple case studies is that the evidence from multiple cases is considered more compelling and the study may be regarded as being more robust.

A protocol for the case studies was developed to ensure consistency of information and data collection. Yin (2003) suggests that the decision to undertake multiple case studies would be similar to that for multiple experiments and based on the need for replication. Both Yin (2003) and Eisenhardt (1989a) note that it is important that multiple case studies are not compared to multiple respondents in a survey, since this follows a “sampling” logic rather than a “replication” logic.

The case study method was chosen to capture the complexity of the environment within the transport industry. Amtoft (1994) and Dawson (2003) propose story telling as a useful communication device for recording experiences. “Story-telling” is simply an intimate synonym for case study. Appropriate case study research provides a depth and quality of data previously unavailable. The direct experiences of participants in making a location decision - the stories preferably told as freshly as possible - should yield more meaningful information than that obtainable from a survey questionnaire alone.

Eisenhardt (1989a) suggests that the case study is a research strategy which focuses on understanding the dynamics present within single systems and that this style of research can involve single or multiple cases. Yin (2003) observes that the case studies are the only method that capture the dynamic, changing conditions that characterise a warehouse location decision (WLD). Case studies are often used to describe a situation, test theory or generate theory (Eisenhardt 1989a). This research will use the case study method to describe the way in which transport companies make location decisions.

The case study strategy is suited to the exploratory developmental nature of this research, and the strength of this research strategy lies in its ability to be grounded in and directed by the trends and patterns observed in the field data (Eisenhardt 1989a, Yin 2003). Dawson (2003) observes that narrative case studies have been able to provide contextual descriptions of the processes by which change evolves. In this instance the change involved is the acquisition of a new location. By using semi-structured interviews and reviewing company documents obtained this methodology facilitates the development of a rich and detailed understanding of the WLD process in transport companies. It also allowed the flexibility to pursue relevant, and related, issues as they arose in interviews with the transport company personnel. In addition, by agreeing on a common schedule of questions the method also ensured the maintenance of a degree of consistency in the data collected.

One of the major advantages of using the case study approach is to retain the holistic and meaningful characteristics of events such as managerial processes (Yin 2003). One criticism of the case study strategy is that it is not possible to make generalisations. Yin (2003) however suggests that case studies can be generalized to theoretical propositions but not to populations. Since the goal of this research is to identify and expand issues and not to enumerate frequencies of occurrence then use of this approach can be justified. The unique and discrete nature of each location decision also suggest that the case study approach is appropriate.

Dawson (2003) also refers to the ability of the case study to be set in its particular context. The case study method was chosen to capture the complexity of the environment within which transport companies operate.

The investigation will therefore use qualitative research from the analysis of a number of case studies to understand and assess the process companies use when making WLDs. The case studies should provide an objective examination of this contemporary phenomenon where the researcher has had no control over the events and where the boundaries between the decision process and the context in which the decision are taken are not clearly evident (Yin, 2003). Yin suggests that case studies are particularly appropriate when the research question centres on the “why” question, where there is no control over behavioural events and when the focus is on contemporary events. Others have claimed that the case study approach is one of the most powerful research methods in terms of creating new insights and developing theory (Voss et al. 2002).

Van de Ven (1992 p 181) suggests that a process researcher should examine the contexts and events leading up to the decision and behaviours under investigation by means of a retrospective case history as well as conducting real time data gathering “*without knowing a priori the outcomes of these events and activities*”.

The previous discussion provides the justification for the selection of the case study approach to learn about the WLD process undertaken within transport companies, the factors that impact on the decision-making process and the implementation of the location decision.

As indicated by Yin (2003) the case study design represents the research plan that guides the process of data collection, analysis and interpretation. The collection and analysis of data is illustrated below in Figure 6. This approach is advocated by Miles and Huberman (1994) and supported by a number of other researchers (Eisenhardt 1989a, Barnes 2001; Voss *et al.* 2002). This model commences with the theoretical framework and research questions, a comprehensive case study protocol consisting of

research instruments, an interview guide and interview questions was prepared in order to facilitate the data collection and analysis.

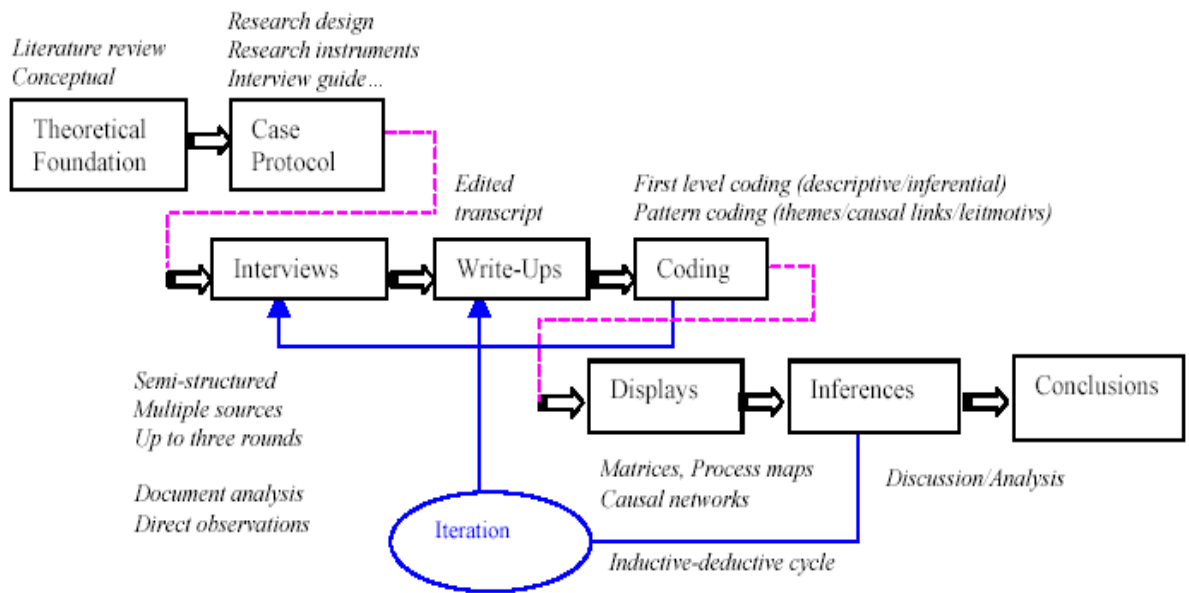


Figure 6: Case study approach used in qualitative analysis

(Kiridena 2004)

The focus of the case studies was to analyse the process that each company used when making its most recent location decision. The case studies provided a breadth of data and understanding of the WLD processes of larger transport companies. It is therefore possible to map and categorise the warehouse location decision-making processes of companies in the Australian transport industry.

As was suggested in Voss *et al.* (2002) an interview guide was developed to gather information from the selected firms. The guide, and a common case study protocol, was developed based on a review of the literature and discussions with a number of executives of firms involved in the study.

While a multiple case strategy was adopted it was restricted to seven companies and covered eight WLDs. Three decisions were made for locations in the south-eastern region of the Melbourne metropolitan area and five decisions were made for locations within the western region. A map of Melbourne is included in Appendix A.

4.7 Unit of analysis

One of the more important elements of the research design is defining the unit of analysis, as this will guide the case selection, the data collection instrument and the data collection strategy. The unit of analysis refers to what, or who, is being investigated. In other words the unit of analysis is the major entity or issue that is examined and analysed throughout the research process and it could be individuals, groups, decisions, programs, events or other subjects (Yin 2003, Miles and Huberman 1994). According to Sekaran (1984) the unit of analysis refers to the aggregation of the data during the subsequent analysis.

Given that the aim of the current research is to explore the location decision-making process of transport companies in Victoria the unit of analysis of the research was the 'decision-making process' undertaken by Victorian transport companies when making a WLD.

4.8 Selection of cases

In the literature there is little consensus on what would be an appropriate number of cases when adopting a multiple case study approach. Eisenhardt (1989a) recommends that the number of cases should be between four and ten. The literature on case study sample size indicates that four cases should be the lower limit (Eisenhardt 1989a) since any less would create difficulty in generating theory with complexity. Miles and Huberman (1994) suggest that more than 15 cases can become unwieldy when dealing with high complexity. Multiple cases are a powerful means to create theory because they permit replication and extension among individual cases (Eisenhardt, 1991). By examining a number of cases, the researcher is able to enquire into events and behaviour in several organisations and gradually test and form theoretical constructs (Leonard and McAdam 2001). The case study method allows the development of theory through comparison; i.e. looking at the same event or process in

different settings or situations (Sitter et al. 1997). Seven companies that encompassed eight WLDs were studied to provide for meaningful analysis and comparison.

As usually happens in case study research (Yin 2003, Eisenhardt 1989a) the choice of the research sample is not random. In this research the population was limited to those companies that could be identified as having moved or opened a new facility over the two-year period, 2003 - 2005. Within the cases identified it was proposed that purposive sampling be used. This form of sampling uses the judgment of an expert in selecting cases or it selects cases with a specific purpose in mind (Babbie, 1998; Neuman, 2000). As Neuman (2000) noted, purposive sampling is appropriate in three situations. First, it is to select unique cases that are especially informative. Second, it is used to select members of a difficult-to reach, specialised population. Third, it is used to identify particular types of cases for in-depth investigation.

This sampling method is particularly suitable for this research for two reasons. Firstly interviewees are executives of selected firms who are relatively difficult to reach through alternative means and secondly the cases that were selected for study cover a range firms that are generally representative of the overall transport industry in Victoria. Additionally the two year time period was chosen to ensure that access to the staff who were involved in the decision making were still available and that the memory and recollections of the WLD process was still current in the minds of the senior management of the companies.

Details of companies that had either changed their location or established a new facility was sought from two separate sources; real estate transaction databases and the Melbourne telephone business directory. The real estate databases provided details of companies that had changed or developed new locations within the previous two years. This data was obtained from either new leases signed or properties that had been sold to transport companies. An examination of the Melbourne telephone business directory (The Yellow Pages) for 2003 and 2005 in the categories

Transport Services and *Warehousing* identified transport companies that had either moved or established a new warehouse in the intervening period.

The data from the two sources was then classified into geographical regions around Melbourne. It was obvious that there were three distinct geographical clusters where transport companies had re-located. The first cluster was in Melbourne's south-eastern suburbs around Dandenong, the second cluster to the north of Melbourne around Campbellfield, and the last cluster to the south-west of Melbourne around Laverton and Altona. A map showing these general areas can be seen at Appendix A.

In total 29 companies were identified that had changed location within the two-year time span referred to above. Nine of these companies were considered specialist in nature (refrigerated goods, grain handling and wool carting) and these were excluded from the sample as discussed earlier in Section 1.8, (p13).

In selecting the companies for the case studies it was necessary to consider a range of firms in the transport industry. In selecting firms to be approached the size of the company, the ownership and management structure, the sophistication of the management of the company and individual management styles were all considered. In order to obtain a variety of cases to study 13 companies were selected from the remaining 20 companies. The companies were grouped according to size and geographical coverage. The geographical coverage was split into national, multi-state operations and local only operations and a deliberate strategy was to ensure that there were companies from each grouping in the research. It can be seen from Table 6.1 that there were three cases (B, C1 & C2) from national firms, three cases (A, D & F) from firms with operations in multiple (but not all States of Australia) and two cases (E & G) from firms that only have operations in Victoria.

Introductions to these companies were sought via the Chartered Institute of Transport or the Supply Chain and Logistics Association of Australia for

access to senior executives of the selected companies. In addition the researcher undertook 'cold calling' where an appropriate introduction could not be arranged. Of the 13 companies approached, six companies declined to participate in the research project. In the companies who declined to participate in the project were one national firm, two firms with multi-state operations and three firms who only operate in Victoria. The selection of cases was limited by the willingness of companies to disclose information relating to decision processes and current strategy.

As the identified population for this project was relatively small it was considered that a postal questionnaire would not have provided a greater response rate than the 35% achieved with the case studies.

4.9 Data Collection

This section discusses a number of issues related to the collection of data for the cases. The first step was the development of a case study protocol, then the interview questionnaire and the process of collection of the data through the fieldwork.

Rather than focus rigidly on the developed questionnaire less formal semi-structured interviews with senior executives of the transport companies were used to gather the data. These semi-structured interviews were conducted as they allowed conversational, two-way communication that was focused around the questionnaire but allowed the discussion to develop in the context of the location decision process under review.

In addition these executives were the source of documents that were collected. The documents obtained were either public documents or those specifically used during the location decision process. Since six of the seven companies remain in private ownership it was not possible to obtain detailed financial information and annual reports. Generally the documentation available was for purely marketing purposes.

4.9.1 Case study protocol

The case study protocol comprised the set of procedures to be followed for each case. This document helped to ensure that consistency was achieved between interviews and provided a high level of reliability for each case study.

The document developed for this research comprised:

- A brief overview of the study aims. This included the broad objectives and a discussion of the issues related to the research.
- A note regarding ethics approval for the study together with a statement regarding confidentiality of the data and providing a University contact should the interviewee wish to follow any of the matters up.
- A consent form to be signed by the interviewee acknowledging and agreeing to the interview.
- An outline of the questions to be asked at the interview was listed in the document.

4.9.2 Interview Questionnaire

A draft questionnaire, the basis for the semi-structured interviews, was developed based on the research questions and contextual material determined during the literature review. In broad terms the questionnaire covered the following areas:

- Organisational background
- Organisation structure
- General decision-making process within the organisation
- Detail regarding the most recent location decision
- Specific WLD process for most recent decision
- Context within which the location decision was taken: competitors, customer relationships, contracts, labour force, etc
- Sources and use of information in making the location decision
- Evaluation of the general and specific location

- Length of time taken for the location decision process
- Hindsight – a reflection on the success of the location
- Documentation available

A copy of the questionnaire used is included as part of Appendix B.

The questionnaire was field tested with a number of senior executives within transport companies and members of the Supply Chain and Logistics Association of Australia. In addition a meeting of fellow doctoral students was used to refine the interview questions. From this testing worthwhile feedback was obtained that led to modification of the questionnaire prior to it being used for the company interviews.

4.9.3 Interviews – collecting the field data

Interviews were arranged with the most senior executive possible. In all of the cases either the general manager or the warehouse and operations manager was interviewed. The venue for the interviews with executives were at their offices and at times convenient to them. The aim was to make the executives comfortable and relaxed. These interviews generally took between one and one and a half hours. The interviews were directed according to the questionnaire which focused on the most recent warehouse location decision taken by the firm and sought information on how the decision-making process was undertaken. In addition to the questionnaire, wide-ranging issues impacting on the transport and logistics industry were covered during general discussion at the end the interview. These general discussions covered more general industry issues included industry consolidation, labour force issues, warehouse layout, inventory management IT systems, road systems and other transport infrastructure, etc.

Data were collected in the form of written notes – only some of the interviews were recorded as some interviewees declined to be taped.

Where the interviews were taped it was possible to go back and add to the written notes to clarify and expand on the responses noted at the time.

4.9.4 Document review

Documents collected at the interviews were maintained and analysed as part of the individual case study reports. Annual reports, marketing and promotional material, business planning documents and samples of the financial analysis and evaluation analysis used during the WLD process were reviewed during the analysis process.

4.9.5 Case study write up

As soon as practicable after the interviews the questionnaire responses, additional notes and other observations recorded were transcribed. These materials were then used for the writing up of the case reports and for the within-case and cross-case analysis.

A common case study report outline was adopted to ensure consistency in the write up of the data and ease of cross-tabulation.

4.10 Analysis of data

Qualitative data analysis refers to the large volume of words obtained from interviews, observations and documents which require describing and summarising. Subsequently the researcher has to look for relationships between the various themes that have emerged throughout the analysis process so that the research questions may be answered. Qualitative analysis also means theoretically interpreting the textual data to transform the raw data into a new and logical interpretation and description of the event being investigated (Thorne 2000). As qualitative analysis deals with words rather than numbers there are few accepted rules and standardised procedures for analysing the data. Any data analysis technique should be

undertaken in the light of the conceptual framework and the research questions posed (Ticehurst and Veal 2000).

Analysing data collected through the interviews, observations and documents provides the basic steps of building theory from case studies (Eisenhardt 1989a) therefore the researcher must have a strategy for reviewing the case study data (Yin 2003). According to Yin (2003) case study data analysis consists of the examination and tabulation of the quantitative and qualitative evidence to address the research problem and the specific research questions. Two main stages of analysis are recommended for multiple case study research; these are within-case analysis and cross-case analysis (Eisenhardt 1989a, Yin 2003).

Within-case analysis entails the analysis of the collected data of each study independently in order to reach findings about the research issues from each individual case. For within-case analysis Yin (2003) describes three main analytic strategies. The first strategy relates to relying on the theoretical propositions of the research that led to the study, the literature review and the research questions. This strategy is appropriate when the research propositions are about cause-effect relationships and when the research questions are 'how' or 'why'. The second strategy is to identify and test rival or contrasting explanations and the final strategy is to develop a detailed description, narrative account, story or report for each single case. The case study report describes and organises all the case study information. This final strategy is appropriate when the research does not include theoretical propositions or when the first and second strategies are hard to employ (Yin 2003). The case study report strategy is the dominant analytical strategy in the field of strategic decision-making and is employed extensively in the existing strategy literature (Eisenhardt 1989a, Mintzberg *et al.* 1976, Nutt 1984). Yin (2003) identified the pattern matching technique as one of the most desirable analytic techniques to be used in within-case analysis. Pattern matching is appropriate for exploratory studies where the technique entails comparing empirically based patterns with expected or predicted ones.

The second stage of data analysis in multiple case study research relates to cross-case analysis. By using cross case analysis the WLD process can be analysed and evaluated by looking for patterns and themes in the data that are common across the cases. The cross case analysis also allows for the analysis of discrepancies across the cases. Eisenhardt (1989a) suggests three major cross-case analysis strategies. The first is to categorise cases based on certain dimensions and then search for similarities and differences among the group of cases. The second is to choose two cases and list the similarities and differences between them. The final strategy is to break up the data by data source such as interview data, observational data and document data.

The general process of mapping the content of the cases followed the three phase data analysis methodology described by Miles and Huberman (1994). The three phases are data reduction, data display and conclusion drawing and verification.

Data reduction implies organising and reducing the large volume of data. As a major element of this phase the data was summarised and coded and themes need to be created in accordance with the predetermined research questions. During the data analysis the researcher is able to bring to mind new senses and meanings from the data and consequently emerging patterns were addressed in the second data display phase.

Data display entails presenting the reduced data in organised and understandable shape to allow the researcher to reach conclusions about the research issues. The data is assembled and organised in such a way that the analyst can see what was happening and either move on to the next step of the analysis or draw conclusions. The data display takes the form of individual case study reports, flow charts and matrices that are used to display patterns of responses to the research questions.

Conclusion drawing and verification implies giving meaning and sense to the analysed data through searching for descriptive patterns in the data. Miles and Huberman (1994) suggest that drawing conclusions means

recognising and evaluating the patterns and meanings in the data and that verification of the meanings emerging from the data needs to be tested for sturdiness and validity.

In the current research both within-case and cross-case analyses were carried out using data from the case studies. The case study report was used as the analysis strategy for the within-case analysis. In the cross-case analysis, categorising the case studies was based on the size of operation, the operation of multiple sites and whether sites were purchased or leased. The categories were used to search for similarities and differences across the cases.

The within-case analysis is performed first followed by the cross-case analysis. The analysis of the data from each case is undertaken immediately after the interviews and data gathering operations and the case study report compiled for each case. Once the within-case analysis was completed a cross-case analysis is undertaken using the data display and conclusion drawing strategies discussed above.

It is important to note that the case study model shown earlier (Figure 6) provides for various iterations to be undertaken as the information from the data collection process is analysed and evaluated.

The analysis of data arising from the case studies is used to answer the research questions. This was achieved by analysing the data using pattern matching. Following this, a series of findings regarding the validity of the research propositions and the model were made. The conclusions are then used to suggest modifications to the model and to suggest areas for future research.

4.11 The quality of case study research

It has been argued that there are limitations on case study research because of the reliance on retrospective accounts (internal validity),

individual bias (construct validity and reliability) and the lack of generalisability (external validity) of findings (Yin, 2003; Meredith, 1998). Another noted disadvantage of multiple case studies is the resource intensity and time needed to undertake data collection and analysis.

The use of case study strategy sometimes also raises concerns regarding the quality of data collection and analysis. Both Yin (2003) and Miles and Huberman (1994) argue that these concerns can be countered by adopting a thorough case study research design, multiple sources of evidence and the development of a case study protocol. All these techniques have been employed in this research.

One of the drawbacks of case studies is that they make it harder to generalise to the whole population. However they are considered appropriate in this research situation because of the limited prior work and the desire to obtain a detailed process model.

A single case study is subject to limits in generality and several potential biases, such as misjudging the representativeness of a single event, exaggerating the salience of data because of its ready availability or biasing estimates because of unconscious anchoring. Multiple cases augment external validity and help guard against observer biases. Yin argues that the logic underlying a multiple case study approach is similar to that guiding multiple experiments and that each case should be selected so that it *“either predicts similar results (a literal replication) or produces contrary results but for predictable reasons”* (Yin 1984 pp 48-49). Since the objective of the research was to produce theory relevant to numerous different managerial situations and capable of explaining the WLD process, a methodology including both literal and theoretical replication was required.

Validity Validity refers to the accuracy and trustworthiness of instruments, data and findings in the research (Bernard 2000). In general validity is concerned with the accuracy and correctness of scientific findings and, in order to maintain it in research, the researcher has to establish the

degree to which the findings successfully reflect the reality of human experiences. There are three main types of validity that need evaluation in any research; construct, internal and external validity. Of these three, construct and external validity, are discussed in the next sections. Internal validity is required in explanatory or causal studies and not in descriptive or exploratory research as was the case in the current research (Yin 2003).

Construct validity Construct validity refers to establishing correct operational measures for the theoretical concepts being investigated by linking the data collection questions and measures to the research questions proposed (Yin 2003). Multiple sources of evidence, if they yield similar results are evidence of the construct's validity (Leonard-Barton 1990, p258). In the current research establishing a case study protocol fulfilled this aspect by using a standard questionnaire and multiple sources of information wherever appropriate.

External validity This refers to the extent to which the research findings can be generalised beyond the immediate case study and applied to other contexts or to other cases in the entire population. The use of multiple case studies on a given topic has more external validity or generalisability than does a single case (Leonard-Barton 1990, p 258). External validity was accomplished in the current study by compiling eight case study reports that provide adequate information on which to judge the appropriateness of the findings to other settings or cases. The researcher is satisfied that the pattern matching through matching and contrasting of the emerging themes from the research during the data analysis is consistent with the themes in the existing literature reviewed in Chapter 2.

4.12 Ethical considerations

The most important issues and concerns that the researcher has to consider are:

- Informing the participants in detail about their involvement in the research (informed consent);

- Allowing free choice;
- Avoiding harm and risk;
- Ensuring privacy and anonymity; and
- Confidentiality.

These issues were all considered in the ethics application that was submitted to Victoria University. As part of the ethics application a consent form and participant information sheet were developed. This ethics application was approved provided that the managers to be interviewed were willing to participate in the project, had the right to withdraw from the interview at any stage and that they were provided with a written statement that the risks of the project had been explained to them and that they consented to the interview.

In respect of confidentiality all managers were identified by their titles only and their companies were given names of Australian coastal merchant ships that bear no relationship to the company name. Only the researcher is privy to the names of the individuals and companies interviewed. The research also adhered to the guidelines of the “National Statement on Ethical Conduct in Research Involving Humans” issued by the Australian National Health and Medical Research Council (NHMRC 1999).

4.13 Summary of the Chapter

This Chapter provides the conceptual framework and research questions for this research project. It then reviews the research method adopted and the process undertaken in this research. It discusses the use of the case study approach and its limitations and the measures undertaken to ensure that the data collected was validated. It explains the development of the case study protocol, the interview questionnaire and the collection and analysis of the data subsequently obtained.

The following Chapter presents the research data derived from the case study projects and makes an evaluation of the decision making process in each of the warehouse location decisions reviewed.

Chapter 5 Case reports

5.1 Introduction

The previous chapter established and justified the methodology and data collection techniques used for conducting the current research. This chapter discusses each of the cases. The findings are a result of the analysis of the data collected via in-depth interviews and from secondary sources such as published documents, company websites and other material collected during the research process. Findings for each case are individually presented in this chapter because each case study represents an independent information rich observations.

This chapter presents patterns of results for eight warehouse location decisions (WLD) examined within seven case studies and the analysis of them for their relevance to the research questions posed in Chapter 3. The chapter reports the WLD process within each of the companies studied. Each case study begins with a brief profile of the company comprising the organisation background and structure and then introduces the specific location decision studied, the people involved and the decision-making processes. The following chapter will discuss the cross-case analysis findings before the final chapter presents the overall conclusions and the 'best practice' strategic decision-making model for a successful WLD.

5.2 Introduction to the case studies

Each of the companies studied are in the general transport industry providing transport and distribution services to a broad range of customers and clients from at least one warehouse location. Three of the companies have their headquarters in the south-eastern region of the Melbourne metropolitan area, three in the central city area and one in the western region of Melbourne. From the seven companies, the eight location

decisions researched consider three new locations in the south-eastern region and five new locations in the western region.

As noted in Chapter 4, each of the companies has been given a code name and any material that may identify the company has been omitted from the write up so as to protect their identities. Detailed notes based on the interviews are included in Appendix C.

In each of the cases there is an estimate of the company turnover. As the majority of the companies are private companies this information is not generally available to the public and the figures used have been estimated from company publications, websites or from public records including those from the Australian Securities and Investments Commission. All the figures are for the 2005/06 financial year.

5.3 The business environment

One of the questions asked of each company was their opinion of the current business environment in which they operate. All firms responded that the environment is highly competitive. It was noted that during the course of the research that there has been some rationalisation in the industry via takeovers and mergers. In many cases this has been due to changing technology requirements and the fact that many smaller businesses have not been able to keep up. Available information technology has led to on-line tendering where, it is reported that, initial margins on some contracts are often fractions of a cent.

One of the two larger companies in the survey (Bombala) reported that the industry is *"highly competitive and that most customers treat logistics (sic) as a commodity. As such customers are always searching for the lowest price"* The other large company (Cooma) reported that customer requirements were often the major driver in most location decision-making. This latter aspect is considered in greater detail later in this chapter.

Some quotes from specific companies describe their view of the nature of the business environment:

“Tight margins” (Aldinga)

“Little customer loyalty” (Cooma)

“The business environment is challenging” (Dimboola)

“Many of the smaller operators compete on cost” (Edina)

“Contract negotiations are generally very intensive” (Flinders)

“Small operators are operating on slender margins” (Gabo)

It is then within this dynamic and tight market that many companies are making WLDs which together with new vehicle requirement, building fit-out and information system requirements amount to tens of millions of dollars.

5.4 Introduction to Case ALDINGA

This private company was established in 1963 within a group of about 30 privately owned companies owned by a multi-generational family in the transport industry. In Victoria the company occupies two warehouse locations – one in the south-eastern area and the other a contract specific warehouse in the western suburbs. Aldinga is a general carrying business that offers both taxi-truck and on-time delivery services from a warehouse in the outer south-eastern suburb of Dandenong. There is also some storage and inventory management services to small to medium sized businesses. This latter area is seen as business growth for the company and is the focus of the company’s recently adopted business model.

The company considers that it is operating in a very competitive environment and there is significant customer resistance to price changes. In discussion it was noted that they had recently lost a contract by a decision that was based on a fraction of a cent – which represented less than 0.7 of 1% of the price bid.

It is estimated that the company turnover was \$30 million in the 2005/06 financial year. Aldinga has about 130 employees in Victoria, South Australia, Queensland and New South Wales. Aldinga has a road vehicle fleet of about 60 vehicles. This number does not include the significant number of contractor drivers who use their own vehicles. The contractor drivers generally have vehicles that are less than 5 tonne capacity. On any one day the company may use up to 40 contractor drivers.

5.4.1 Organisation structure

There is a Group Managing Director (GMD) for Aldinga and General Managers in each of the states in which it operates. Together with the Chief Financial Officer (CFO) and a member from the Board of the parent company they form the Executive Committee of Aldinga. The Board of the parent company is the final stage in decision making for the organisation.

Most planning and decision making is undertaken by the Executive Committee. Depending on the financial implications of a project the decision needs to go to the parent Board for ratification. A decision regarding a new warehouse location needs ratification due to the capital expenditure required for fit-out and equipment and the long-term lease commitment.

Interviews were conducted with both the Victorian General Manager (VGM) and the Warehouse & Operations Manager (W&OM) at the Dandenong South premises of the company. The interviews were focused on organisational planning, the general decision-making process and specific locational decision making processes within the company. The interviews with the Aldinga staff were completed after implementation of the location decision.

5.4.2 The need for a new location (Decision 1)

The discussion below relates to a WLD made recently after a change in the company business model and the loss of an existing contract. The decision to move had been forced on Aldinga due to the loss of a distribution contract. The warehouse premises that they were occupying were sub-let from the company with whom Aldinga had a contract. Having lost the contract they were then forced to seek new premises prior to the end of the contract to maintain services to their other clients. It was therefore critical that they re-locate quickly before the contract was completed and their tenancy terminated.

The initial decision regarding the requirement for a new location was made by the VGM in conjunction with the Executive Committee. The Group Managing Director (GMD), the Victorian General Manager (VGM) and the Warehouse & Operations Manager (W&OM) were all involved in the location decision. Both the VGM and the W&OM have had long experience in the transport industry but have rarely been involved in making location decisions in their current and previous employment.

5.4.3 The regional decision (Decision 1A)

The need for a new location was determined together with the decision to remain within a 5 kilometre radius of their existing premises in the general south-eastern area as it was close to other customers and their work-force. An industrial relations issue relating to transport worker industrial awards also made the 5 kilometre radius a focus. At that time there was a provision contained in the industrial award that if the normal place of work is moved more than 5 kilometres an employee could request a redundancy. The regional decision was thus made at the same time as the decision to seek new premises to house their business.

5.4.4 The site decision (Decision 2)

a. Timing

Timing for the location decision was critical due to impending loss of their current premises. The site selection process commenced within days of the need for a new location being evident. This was necessary due to the short time remaining on their current tenancy. There was a maximum of 6 months available before current sub-lease expired and their occupancy terminated.

From the identification of the need, i.e. the notice to vacate it took about 4 months until Aldinga committed to alternative leased premises.

b. Personnel involved

The personnel involved were primarily the VGM and W&OM who initially developed a checklist of issues that needed to be considered in the search process. Of major importance was the proximity of their other major customers and this clearly influenced the decision. Other factors considered in the evaluation of the WLD were freeway and road access, particularly the ability of drivers to turn left with loaded vehicles, the availability of car parking and work force and contractor availability, The south-eastern region generally offers good access to freeways and arterial roads.

The location of their competitors was not explicitly considered in the search process, but the VGM and W&OM knew of their locations due to the strategic work they had undertaken in determining their changed business model and the need for Aldinga to expand its business operations.

c. Data collection and evaluation

Data regarding available properties and their characteristics was collected primarily by the Operations staff under the direction of the W&OM. The data collected was evaluated by the W&OM against the previously developed checklist.

The company was looking for leased premises, the company policy is not to own real estate assets unless in critical locations. The purchase of real estate requires Board approval due to the long-term financial commitments that would normally extend beyond contract requirements. The time constraints also meant that a lease of existing vacant premises was always the aim.

A business case for the new premises was prepared. This included six year operating financial projections and considered the costs of racking and fit-out, computer systems investment and new forklifts. The documentation was prepared by W&OM with input from CFO.

d. Approvals process

When determining the site there were three or four informal meetings held prior to the formal recommendation being made by VGM and W&OM to the GMD and Executive Committee of Aldinga. Three specific sites were evaluated against their developed checklist and the preferred option decision was for a corner site which provided vehicle access from two streets.

The final approval decision was made by the Executive Committee. It is considered that the decision was a formality as the Executive Committee was fully aware of the circumstances surrounding both the need and search for the new location. The decision subsequently went to the parent Board for ratification after final negotiations on lease terms and conditions had been concluded.

The company did not use any consultants in this location decision process.

5.4.5 The strategic benefits of the new location

The new premises allowed changes to Aldinga's operations that provided for the adoption of the new business model and the development of additional lines of business. The property offers Aldinga better vehicle access that allows ingress/egress separation and higher visibility as it is located on a corner site. However a poor warehouse layout has had a detrimental impact on operational efficiency. Revenue growth was achieved in spite of the lost contract and a break-even financial result was achieved within six months. There are still some operational deficiencies as the racking lay-out was not done properly and this hampers movement within the building.

5.4.6 Evaluation of the decision making process

The decision to re-locate was forced on Aldinga due to its loss of an existing contract. Competitor and customer locations, availability of vacant premises, financial implications for lease commitments and fit-out and operational requirements were all factors considered in the WLD process. The decision champion appears to have been the W&OM who undertook most of the investigation and data collection and had significant impact on the analysis and evaluation of the data.

All decision phases were noted during this WLD process. The identification issue was forced by the loss of a contract and the urgency and limited time period available shortened the development and selection phases. It could be argued that Aldinga was not in a position to negotiate the best leasing deal available due to their business situation in being required to vacate existing premises at relatively short notice.

In Aldinga's case the reason that the new warehouse was required was the loss of the contract that brought their current occupancy to an end. The need to stay locally to maintain good relationships with their existing

workforce and other customers had a major influence on their final location choice.

There were initial concerns as the location decision had to be made quickly. This led to some uncertainty regarding the initial stages of the location decision process. In this respect the prior location decision-making experience of two of the managers was an advantage. Once the decision was made regarding the local area (Decision 1A) this minimised the uncertainty and focused the attention of the personnel involved on the detailed site search and evaluation.

The participants considered that the decision had elements of subjectivity given the constraints imposed requiring remaining within 5 kilometres and urgency of the situation. All interviewed for this case study indicated that the location decision was given the prominence that they felt it deserved and clearly this was due to the gravity of the situation with the impending loss of premises.

5.5 Introduction to Case BOMBALA

Bombala was established as a private company in 1956 and subsequently listed on the Australian Stock Exchange in the late 1960s. In the early 1980s the company's shares were bought back by the founding family and since that time it has been a private company. Bombala undertakes both contract and general cartage activities together with managing a large number of distribution centres under contract for one of Australia's major retailers. The internal environment within the company is good. High morale was evident throughout the company and this is also demonstrated in the company publications. The company considers that the business environment in which it operates is highly competitive and that customer requirements are often the driver in location decisions. Bombala is a market leader in the transport and distribution industry in Victoria.

The company occupies 12 warehouses in Victoria and it is estimated that the company turnover was \$1,500 million in the 2005/06 financial year.

Bombala has a road vehicle fleet of about 4,000 vehicles and there are more than 9,000 employees across the group of private companies.

5.5.1 Organisation structure

As a group of private companies the Board of Directors comprises mainly members of the founding family. The company is organised into a number of operating and administrative divisions. Within the Logistics Division of the group there are operating divisions that cover “Fast moving consumer goods”, “Freight forwarding” and “Retail”. Corporate functions of Bombala are Business Development, Finance and Administration, Fleet and Procurement, Human Resources, IT and Legal departments. Bombala also has a Property Division that provides property based services to all companies in the group and also has a mandate to undertake property development and investment activities in its own right. The Property Division is lead by one of the founder’s sons.

Bombala has a highly structured business planning, budgeting and general decision-making process. Operational decisions are generally delegated to the Divisional General Managers (DGMs). For strategic decisions Bombala requires the development of a business case, investment evaluation and business risk assessments that must go to the Board for approval. The company’s rigorous risk evaluation process is a major part of their decision process to ensure that all risks are considered.

For property related matters, including location decisions, there is a requirement to involve the Property Division in the development of the business case and investment evaluation. Whilst the company has highly formalised processes, most decisions are made on a collegiate, consensus approach once the business development aspects of the project are completed and justify the basis of the decision.

A location decision is treated with significance within Bombala. At least six WLDs have been made in Victoria in recent years and there is an

established decision-making framework within their organisation. These location decisions have been made either because of their major contracts or their recent decision to consolidate some of the smaller general transport warehouses in Victoria. The Logistics Division operations are currently housed in older style buildings that are not conducive to either container operations or able to use the latest racking technologies. These older style buildings are being replaced as larger facilities are being acquired to meet other business expansion opportunities.

A face-to-face interview was conducted with the General Manager – Fast Moving Consumer Goods (GMCG) and a telephone interview was conducted with an executive within the Property Division (PDE).

As noted earlier Bombala has made at least six warehouse location decisions in recent years in Victoria. Bombala considers that most of the new locations it has developed have been successful although the GMCG made the comment that the use of existing buildings is often a compromise with assorted constraints due to older buildings but that purpose built buildings are of a high standard, provide operating efficiencies and economic benefits and allow the company to be market competitive. Bombala looks for both operational and cost efficiency when making a WLD.

The remainder of the discussion will concentrate on the most recent decision that requires a purpose built warehouse to meet both contract and general freight purposes.

5.5.2 The need for a new location (Decision 1)

The drivers for the new location were winning a new general freight contract together with the opportunity to consolidate some of the smaller Bombala facilities, making it a more compelling business decision for Bombala.

The Business Development Manager (BDM) instigated the location decision process after winning a tender for a new transport contract. As part of the bidding process for the new business an internal 'supply chain modelling group' was used to model the vehicle capacity needed to service the contract and identified the requirement for the new warehouse. Once the business case had been developed and the tender won the GMCG became involved regarding the specifics of the location decision. The GMCG has been involved in location decisions within the company for the last 5 years. The GMCG has engineering qualifications and had recently completed a residential management program at a prestigious American university.

As part of the decision making process other divisional staff were involved, together with staff from the Property Division. Bombala has professionally qualified people from a variety of backgrounds including business, property, law, operations research, facilities and project management and construction management. All appropriate staff are used in the property decision process.

5.5.3 The regional decision (Decision 1A)

Winning the new transport contract also drove Decision 1A by being required to locate in the western region close to the manufacturing operations of the customer. The decision to add general freight capacity to the warehouse was made for both longer term capacity planning and the need for consolidation of existing, less efficient, warehouses.

5.5.4 The site decision (Decision 2)

a. Timing

The new contract was won in March 2005 giving sufficient lead time to allow for the construction of a purpose-built facility. The decision to consolidate the other facilities was made at about the same time. In this case Bombala took five months to reach the site specific decision.

b. Personnel involved

The general location criteria were driven by the needs of the new business together with a longer-term need to consolidate some of the other warehouse activities of the Group. The operational managers in conjunction with the business development staff and the 'supply chain modelling group' developed detailed criteria for the new business. The 'supply chain modelling group' is an internal advisory group who provide both modelling and alternative scenario analysis for operational arms of the company. Other issues considered in the detailed criteria were legal and operational matters, existing customer requirements, available sites, workforce issues, and the financial impacts and risk assessment of the alternative proposals.

Other criteria in this decision related to access to road transport infrastructure. Proximity to air transport was a secondary aspect. The longer term need for consolidation ensured that the various locations considered were compatible with existing warehouse operations and close to appropriate markets. The new warehouse will become part of a network of operations for the company in Melbourne and it needs to be an appropriate 'fit' with other warehouse locations.

The company did not use external consultants in the location decision making process but made extensive use of internal planning and analysis resources.

c. Data collection and evaluation

Company staff collected a broad range of data that impacted on the location decision. Data was considered under the following categories; demographics and labour force issues; other potential customers; travel times, vehicle capacity, road capacity and load permits required. Data was collected from state and local government departments, industry sources and direct observation from company records.

The 'supply chain modelling group' and operational staff undertook analysis of the data. The analysis provided much of the input into the business case, investment evaluation and risk assessments. The business development staff of the Division generated the business case, the investment evaluation by Divisional staff with input from the Chief Financial Officer and all involved in the decision process had input to risk assessments. The business case was projected over a ten year period.

As part of the investment evaluation, additional vehicle requirements, building fit-out and inventory management systems were considered and included in the evaluation process. The business case needed to fully consider the extent of the capital expenditure required to service both the contract requirements and the more general aspects of a general warehouse operation.

The location was also driven by the availability of sufficient land to develop the new capacity needed. Three sites were considered at the evaluation stage. Once the preferred site was selected the Property Division handled negotiations for the specific building requirements with the developer.

The company generally does not own operational real estate assets preferring to rent them on lease terms consistent with the business contract allowing them to forego the tenancy if the contract is subsequently lost. In this case Bombala was required to lease the purpose built facility for a 12 year period compared with the contract term of ten years.

d. Approvals process

There were a series of monthly meetings to maintain the momentum of the location decision process. Once the decision was being finalised documents were circulated by email before meetings to give all participants the opportunity to have input to the final decision. The final decision was made by the GMCG and recommended to the CEO for approval and board ratification.

5.5.5 The strategic benefits of the new location

The client is excited about the new location and the developing business relationship. The proximity to the customer for the main contract and for general transport operations provides better coverage to the western region of Melbourne. Staff and contractors have reacted favourably to the new location.

5.5.6 Evaluation of the decision making process

The decision process was thorough and followed a generally well understood approach within the company. The use of the internal 'supply chain modelling group' and Property Division gave the decision the prominence and 'checks and balances' needed in such an important decision. CEO approval and Board level ratification also indicate the gravity of decision.

The decision process took about five months and then a period of about 18 months for the development and construction of the facility.

In this case there were no delays or interrupts noted, possibly due to previous experience within Bombala and the use of its in-house team to drive the data collection and analysis process prior to recommendation for decision. The clients requirements were the over riding issue in respect of the WLD under review.

In the case of Bombala managers have been involved in this type of decision in recent years and have the WLD process well established and capable of being implemented quickly and efficiently.

5.6 Introduction to Case COOMA

Cooma was formed in the early 1980s and went through various iterations before changing its name and being listed on the Australian Stock Exchange in 1996. Cooma claims to lead the Australian market in providing a full range of logistics and supply chain solutions including integrated transport, warehousing and distribution to a number of different market segments. The company has developed businesses that complement each other in an uninterrupted chain of total transport and storage logistics. The company operates rail, road, sea and air transport services across all states in Australia.

The company currently occupies four warehouses in the Melbourne region, two leased in the south-east, one leased in the west and one owned in the west. In recent years business growth has been substantial.

From the published company annual report for 2005/06, segment accounting shows that Cooma has a "Transport, warehouse and distribution" turnover of \$850 million. Over recent years earnings per share grew from 12.9 cents to 21.7 cents. Throughout Australia Cooma has a road vehicle fleet of about 2,800 vehicles and employs about 6,000 people.

During the time period under review the company made two separate WLD in Melbourne. The first, Cooma 1 was a consolidation of existing operations and the second, Cooma 2, was a decision to meet a specific new business opportunity.

5.6.1 Organisation structure

The Company has an independent Board of Directors. In regard to normal operations the Managing Director has three operations directors reporting to him (Director Ports Group, Director Operations & Director Air Group), a Group Financial Controller and General Counsel. Each of the operations

directors has a group of general managers for particular operational functions within the company.

All of these operational staff had previously been involved in location decision making for the company. All have extensive transport industry experience and have a range of tertiary qualifications from degrees in commerce, logistics and economics to graduate qualifications in business administration and project management. An interview was conducted with the Victorian General Manager (Logistics) who reports to the General Manager Logistics who in turn reports to the Director, Operations.

Cooma has a long-term strategic plan to fully utilise its infrastructure assets. Within that strategic plan there is provision for business development to seek new business opportunities. Once an opportunity is recognised a detailed business case is required that incorporates financial projections and plans, particularly if there is a requirement for significant capital expenditure.

General decision making in the organisation is subject to delegation from the Board of Directors with the majority of operational decisions being delegated to the CEO and operations directors. Strategic decisions including the purchase of major capital equipment are made by the Board of Directors. Location decision-making is undertaken in accordance with this decision process. Where properties are leased and the terms and conditions of lease are consistent with business plans and contracts they can be approved by the CEO. The purchase of real estate is required to be approved by the Board.

The company has made two warehouse location decisions in recent times. The first was to purchase a site to develop a new warehouse in the western region (Cooma 1) and the second was to lease a warehouse in the Melbourne port area (Cooma 2). Both warehouses are used for a mix of general freight and specific customer distribution requirements. Both warehouse decisions were recommended and approved within two months.

The discussion for Cooma 1 follows and discussion relating to Cooma 2 commences at 5.6.7 below.

5.6.2 Cooma 1 - The need for a new location (Decision 1)

The warehouse for Cooma 1 was acquired as a strategic investment to allow for business growth and to provide an opportunity to consolidate some existing business operations whilst still remaining close to their existing client base. There was general agreement that the warehouse needed to be in the western region to complement existing facilities and take advantage of Cooma's rail and port infrastructure located around the Port of Melbourne. The company strategic plan has real estate incorporated into it and any acquisition of real estate assets need to be aligned with the business needs.

For Cooma 1 there was a broader range of criteria due to the wider range of potential users. The Business Development group in conjunction with the operations managers determined the location criteria and building specifications to be considered for the new warehouse. The major factor in the decision was the proximity to both the Melbourne freeway system and the port area. A secondary consideration was the proximity to the Dynon Road rail interchange as another division of the company is involved in rail transport. Existing client locations together with potential competitor's locations were plotted on a map and seriously considered during the decision process.

5.6.3 Cooma 1 - The regional decision (Decision 1A)

Cooma had the general region in mind when it decided to establish the new warehouse and set about the search for a specific site. The location of the new warehouse for Cooma 1 is consistent with the company policy to maximise the utilisation of its infrastructure assets.

5.6.4 Cooma 1 – The site decision

a. Timing

Cooma 1 took nearly 12 months to make the decision to acquire the site and then another 15 months to complete the development for use. There were some problems with planning and building permits and then some delays in building after contamination was found on the site. Cooma was surprised by the contamination issue and admits that a different site analysis review should have been used and this aspect has subsequently been incorporated into its proforma checklist.

The site location search took longer than expected but the building project was delayed due to soil contamination issues discovered during initial construction work.

b. Personnel involved

The personnel involved in the WLD were the Victorian General Manager Logistics (VGML), the Victorian Manager Warehousing (VMW), the Business Development Manager for Victoria (VBDM), representatives of the company Property Division and the Strategic Analyst attached to the office of the CEO. Interviews were undertaken with the VMH and an officer of the property division of the company.

In addition to internal staff resources Cooma 1 used two groups of consultants who reported to the VBDM. One of the consultants was a firm of logistics management consultants and the other was a real estate group. Cooma has used both of these groups of consultants for other location work.

c. Data collection and evaluation

The firm of logistics management consultants collected data across Cooma's whole Victorian operations rather than just focus on the particular contract. The review also considered major competitor locations. This

consultancy recommended the consolidation of some existing business operations and the development of a larger facility to house them all.

The VBDM, operations and property group staff reviewed the data provided by the logistics consultants and developed an analysis framework that was subsequently used by the real estate consultants. The real estate consultants were used to identify available sites and to develop an order of preference based on the specifications provided by Cooma. Cooma reviewed six sites on the property consultants list before determining its preferred site.

The analysis framework developed by the VBDM provided a proforma for the financial and operational assessments that were the basis for the financial projections and business case that were prepared by operations and business development staff. After these documents were developed projected profit & loss statements and investment evaluations were prepared by business development staff in conjunction with the CFO staff. The business development staff prepared the formal capital expenditure proposals with the strategic analyst attached to the CEO's office. The business plans and investment evaluations took into account capital expenditure required for information technology, racking and other fit-out required and additional vehicles including forklifts and container stackers.

d. Approvals process

It was originally proposed that Cooma 1 was to be a leased property but the decision changed after the initial logistics consultant report recommended the consolidation of a number of existing businesses. This caused Cooma to seek a vacant site that would allow a building to be designed and developed for its own use. The site chosen had capacity for additional expansion and this fact moved Cooma to a purchase decision. Subsequently part of the site has been developed as a 'dangerous goods warehouse'.

The decision to own the warehouse meant that the approvals process also need to be changed. A decision to purchase real estate is one that needs to be made by the Board of Directors compared with a leasing decision that could be approved within the CEO's delegation.

There were many informal meetings during the planning stages but four or five formal meetings during the approvals process to finalise and agree on the financial analysis and investment evaluation. Victorian Manager Warehouse (VMW) and the Business Development Manager (VBFM) drove the process and the recommendation was based on the business case and the financial analysis. The Victorian State Manager made the final recommendation to CEO and then the decision was forwarded to the Board for approval. For the final decision a relatively short decision meeting was required.

5.6.5 Cooma 1 – The strategic benefits of the new location

The new location for Cooma 1 has been a success, measured by customer satisfaction, increased profitability and operational efficiencies. Operational efficiencies have been achieved due to economies of scale, better access to other company owned facilities and to existing rail and port infrastructure.

5.6.6 Cooma 1 – Evaluation of the decision making process

Staff interviewed considered that the decision-making with respect to Cooma 1 was very objective as there was a major financial commitment involved. There were no apparent interrupts in the location decision process and a broad range of strategic and operational issues were considered in this case. The decision was client driven together with the need to 'add value' to other infrastructure assets.

Cooma uses a formal post implementation evaluation and review process that relates back to the approved capital expenditure proposals and revenue and expense projections. It is evident that there is a well-rehearsed WLD process within the company.

5.6.7 Cooma 2 – The need for a new location (Decision 1)

The second location decision was to lease a warehouse in the Melbourne port area (Cooma 2) primarily to meet a particular client's needs and to provide for expansion capacity for other divisions of the business.

5.6.8 Cooma 2 – The regional decision (Decision 1A)

Like Cooma 1 the major factors in this decision were the client requirements and the proximity to existing clients, the Melbourne freeway system and the port area. A secondary consideration was the proximity to the Dynon Road rail interchange as another division of the company is involved in rail transport.

5.6.9 Cooma 2 – The site decision (Decision 2)

a. Timing

The decision to search for a new location was made when a new contract was obtained and the time available for the search and acquisition of the new premises was about five months after the contract was signed. There was reasonable urgency in finding appropriate space in order to ensure that time was available for building fit-out and to establish the facility before for the commencement of the contract.

b. Personnel involved

The personnel involved in making the recommendations regarding the site selection were the Victorian General Manager Logistics (VGML), the Victorian Manager Warehousing (VMW), the Business Development Manager for Victoria (VBDM), representatives of the company Property Division and the Strategic Analyst, Office of the CEO.

All of these staff were primarily involved in location decision making for the company. All have significant long term transport industry experience and have a range of tertiary qualifications previously described.

c. Data collection and evaluation

For Cooma 2 the brief that listed the client requirements was the driver for the site selection criteria. The data collection process was essentially only a search for suitable vacant space within a particular geographical area. Competitor locations were reviewed to pick the strengths and weakness in their particular locations and to see if there were any lessons that could be learned but Cooma was significantly constrained by the contract.

A firm of property consultants was used to find suitable vacant premises. For Cooma 2 only two specific sites were considered. The site selection decision was straightforward due to detailed client requirements. The site chosen was the one where the landlord was prepared to modify the asking lease term to be consistent with the term of the proposed contract.

The Victorian warehouse manager and his staff were the focus for the primary data collection and analysis. The Business Development staff reviewed the data to ensure that it met the requirements of the contract and undertook a financial analysis over the five-year term of the contract to ensure that it was profitable. The Business Development staff prepared the financial analysis with input from the finance team. Risk assessments were undertaken by operations and business development staff. All of the

analyses were reviewed by the Strategic Analyst attached to the CEO's office.

d. Approvals process

During the approvals process there were a number of meetings held to discuss and fine tune the business plan and analysis before the Victorian General Manager Logistics (VGML) made the specific site recommendation to the CEO. The CEO approved Cooma 2 without it having to go to the Board of Directors' as it was an operational decision within his delegation. The decision had few long-term financial implications.

The approvals process in Cooma 2 differed from Cooma 1. In Cooma 1 approval was required by the Board of Directors because the purchase of the property required significantly greater financial resources for buying and developing the new facility compared to the leasing transaction in Cooma 2 where the terms of the lease were closely matched the contract requirements.

5.6.10 Cooma 2 – The strategic benefits of the new location

The Victorian Warehouse Manager considers that the new location is a success as the Cooma 2 location contributes to business expansion and meets both contract requirements and provides overflow arrangements for other facilities. The location of Cooma 2 meets the particular customer needs and the contract is providing both turnover and profit growth to the company.

5.6.11 Cooma 2 – Evaluation of the decision making process

There is a well rehearsed location decision making process within this company. Staff interviewed considered that the Cooma 2 decision was objective given that it was within business development / client

requirements. The Victorian Warehouse Manager drove the process. Several staff with a wide range of past WLD experience using the specific client requirements and operational data ensured that the decision process was undertaken appropriately. One of the other factors that contributed to the process was the Cooma's interaction and close liaison with its client.

5.7 Introduction to Case DIMBOOLA

Dimboola is a private company which was established in 1991. Initially its primary activity was wharf cartage. In recent years it has acquired another transport business and now it offers a much broader range of transport and warehousing activities. Dimboola currently provides a full suite of warehousing and distribution services, for a client base ranging from sole traders to multi-national companies. The company has an extensive range of vehicles that offer all types of carrying capacity.

The company claims that the principle of offering a full-suite of services has become the preferred business model for its business. Business growth has been significant in recent years by way of acquisition and the ability to attract work away from its competitors. Dimboola has approximately 150 employees across three businesses, initially in wharf cartage and now including distribution of containers and product. It is estimated that the company turnover was \$35 million in the 2005/06 financial year. Dimboola has a road vehicle fleet of about 85 vehicles.

The company occupies two warehouse facilities. The first is a large leased site (approximately 32 hectares) immediately to the west of the Melbourne central business district adjacent to the Melbourne wharves. At the other locations they lease about 9,500 square metres of warehouse space in an adjoining suburb.

The company has recently decided to acquire a major site in the south-eastern region of Melbourne for development into additional space for the

company operations and this location decision is the focus of the discussion in this case.

5.7.1 Organisation structure

The Managing Director (MD) is the owner and there are three divisional general managers who report directly to the MD. The owner has a strategic view of business and this is translated into a business plan that is constantly monitored and updated. The planning process in this company is driven by a constant evaluation of the operating environment and the overall strategic direction of the company. The company uses a sophisticated management information system (MIS) to monitor its operations and evaluate all its business decisions. This MIS allows for detailed vehicle operating data to be collected and used in quantitative modelling of the company's transport operations. The ability to undertake this analysis was a major contributor to the evaluation and decision process in this WLD.

A location decision is treated differently to normal business operations planning but is intrinsically linked due to the need for the location to fit with the general company strategy.

5.7.2 The need for a new location (Decision 1)

The new warehouse proposal came out of the MD's long term view of the transport and distribution industry and his future vision for the organisation. The MD takes a longer-term view of transport and distribution operations, relating to wharf operations and the need to build business as well as to service existing customers. From an operations outlook the MD believes that the company needs to be able to provide enhanced services to their customers in the outer eastern and south-eastern suburbs. Accompanying this operations aspect the MD has a long-term view that Westernport will be developed as the major port for Melbourne.

Location is critical for Dimboola as most of their work currently is from wharf cartage, the subsequent breaking down of containers and then goods distribution. The MD and the executive group made the decision to search for a new site in mid to late 2003. The MD, as sole owner, was the major influence in the decision process.

5.7.3 The regional decision (Decision 1A)

The regional decision was made at the same time as the decision to acquire a new warehouse. The dual drivers for the regional decision were the need to build business and service their existing customers and the MD's strategic view of the future development of Westernport as an alternate port to Melbourne.

5.7.4 The site decision (Decision 2)

a. Timing

Timing was not a critical factor in this case as it was a long term strategic decision that did not impact on their current business operations. There was little pressure for an urgent decision and the search process took over two years for the site selection and acquisition. At the time of the interview the building approvals process had taken nearly twelve months since the site acquisition.

b. Personnel involved

The Managing Director (MD) ran the search process, primarily because it was a land purchase decision rather than an immediate operational requirement. The MD has long experience as an owner-operator in the transport industry and he is well experienced in location decision making as he has previously been involved in location decision making for previous businesses in which he has been employed. The MD used his executive

group as a sounding board at all stages in the search process. All members of the executive group have appropriate technical skills and transport industry experience. The senior executive group have a shared view of where the business should be.

Consultants were used for price and purchase negotiations at the conclusion of the location search.

c. Data collection and evaluation

The Executive group brainstormed to determine the list of location criteria but it was largely driven by the MD's long-term view of the transport and distribution industry. This was part of a matrix of criteria that were considered to meet business needs that is: a readily available workforce, accessibility of the site to transport infrastructure, availability of vacant sites, proximity to major port and proximity to clients. A list of advantages and disadvantages for each site was developed as part of the site specific evaluation.

The locations of existing customers were considered in the process together with the MD's opinions and projections of the customers' current and emerging needs. Competitor locations were also considered in the context of emerging issues in the transport and distribution industry.

Company staff collected information regarding available sites within the target region. The company made evaluations of four sites during the process before settling on the preferred one. The MD and executive group were all involved in the analysis and evaluation of the proposed investment. As well as the property aspects the need for additional vehicles, fit-out and forklift capacity required was integrated into the business case and the decision process.

The specific space requirements for the proposed building was a site that could take about 10,000 square metres (m²) of food grade warehousing and 14,000m² of annex area undercover with maximum clear span and the

ability to use a 70 tonne reach stacker. The critical issue for Dimboola was the availability of a large tract (over 21 hectares) of vacant industrial land in the general search vicinity. The site was acquired and the facility that is now being developed will be owned in an investment vehicle and leased to the operating business. This form of ownership structure was a personal investment decision of the owner.

In addition a business case for the capital expenditure was prepared and used in the discussions regarding financing of the property purchase. All documentation was prepared by company staff.

d. Approvals process

The MD was fully involved in the data gathering and evaluation process and he made the purchase decision.

5.7.5 The strategic benefits of the new location

When the new facility is completed it will nearly replicate the company's existing operations in West Melbourne. Dimboola considers that it will then be in a better position to service their clients in the south-eastern sector and the site will also provide future access to developing port infrastructure at Westernport and changing road networks. The company considers that this new location will give Dimboola a competitive advantage, particularly relating to delivery time.

5.7.6 Evaluation of the decision making process

The MD has a strategic view of his business and investment needs. Real estate is incorporated into, and aligned with, the business needs provided that it meets the MD investment parameters. The broad range of strategic and operational issues for the business and the personal investment

parameters of the MD drove the process. The Owner made the final decision after consultation with senior staff.

In this case the MD and his executive staff exhibited a slow and measured approach to the location decision ensuring that they were in control of the information and evaluation. It is clearly a long term investment and is well placed to take any advantage of the mooted future development of Westernport facilities.

5.8 Introduction to Case EDINA

Edina is a group of private companies comprising a general transport business, taxi trucks, couriers and a warehouse and logistics division. The business was originally established in 1990. The Company has a divisionalised structure that covers all aspects of local transport and distribution. Edina claims that this structure allows it to be closer to its customers to offer personalised service. Edina claims that it has implemented the latest technology to allow it to stay at the forefront of the local courier, taxi truck, fleet management and distribution industry by offering timely and efficient service to all its clients.

The company philosophy is to become a "one-stop shop" for all local transport requirements. The company offers storage and distribution and claims that it can tailor a transport and logistics solution to suit its client's needs. The company has a strategic plan that aligns real estate requirements with business needs.

It is estimated that the company turnover was \$20 million in the 2005/06 financial year. Edina has a road vehicle fleet of about 40 vehicles. The various business divisions comprise about 85 employees in Victoria and this number does not include the significant number of contractor drivers who use their own vehicles; particularly taxi trucks and light delivery vehicles.

The company offers over 12,200 square metres of storage and associated yard facilities and provides pallet and product storage, sorting facilities and distribution direct from its warehouse. The company had recently occupied a second warehouse in South Oakleigh/Huntingdale.

The business environment for the sectors of the market that Edina serves is very competitive. These sectors are made up of many smaller operators, the big players and niche operators. Edina executives claim that most of the smaller operators compete only on cost, but at cost recovery levels, rather than profitability.

5.8.1 Organisation structure

The group of private companies has a Board comprising representatives of the owner's family. Each State operation has a State Manager and there is a National Finance Manager and National Information Technology Manager. There is a 'National Board of Management' that comprises the CEO, State Managers and the National Managers for Finance (CFO) and IT. The 'National Board of Management' provides recommendations to the Managing Director and Board.

Each State Manager has divisional or business managers reporting to him. For operational purposes in Victoria the individual business units are formed into three divisions:

- Same Day Parcel Express/Time critical couriers;
- Taxi trucks and fleet management; and
- Warehousing and distribution.

Each of the three divisions has a manager (DM) who reports to the Victorian State Manager (VSM). The interview was conducted with the Victorian State Manager (VSM).

Generally the company uses a two-tiered approach to planning and decision-making. At the operations level each state uses the State Manager and respective Divisional Managers for most decision making. Decisions on matters other than operational issues are required to be referred to the National Board of Management and, if necessary, the Board of Directors. The general view is that decision-making is a collegiate approach with the Board of Directors having an overview and final say on strategic and resource allocation decisions, if necessary. Location decisions due to their strategic nature and capital commitments are made at the Board of Director level on the advice and recommendation of the National Board of Management (NBM).

It was expressed that the business overall has a good culture of following up and monitoring of performance against business plans and proposals.

5.8.2 The need for a new location (Decision 1)

The trigger for the location decision was the strategic decision to develop and grow the warehouse and distribution business in Victoria. This decision was market driven and adopted as a result of a five year planning exercise conducted by the NBM. The company's emerging business model is one that is moving from a transport only provider to a broader general distribution focus. Once the strategic direction was adopted the responsibility for finding and evaluating the new site was given to the VSM.

5.8.3 The regional decision (Decision 1A)

The decision to acquire a new warehouse location required that it be in close proximity to their existing property in order that it could be managed in conjunction with existing resources. It should be noted that the company's main location is very close to the perceived current geographical centre of the Melbourne in the south-eastern region.

5.8.4 The site decision (Decision 2)

a. Timing

The timing in Edina's case was relatively quick. From the decision to acquire a new location to occupation of the building took about 6 months.

b. Personnel involved

The Chief Executive Officer (CEO), Victorian State Manager (VSM) and the Divisional Manager (Warehousing and Distribution) DM(WD) were primarily involved in searching for an appropriate site within the identified area. The VSM had not previously been involved in location decision making with Edina but had undertaken location searches in his previous transport industry employment. Both the CEO and VSM have long term transport industry experience but no formal qualifications. The company used some real estate consultants to source likely properties.

c. Data collection and evaluation

As part of the preliminary discussion the local management group (CEO based in Melbourne, VSM and DM(WD)) determined a range of other criteria that included good freeway access, buildings appropriate for storage and warehousing, hard standing and parking for vehicles. In addition the new site was also considered as being attractive to a wider range of clients/potential clients as well as provided good growth prospects for existing customers. Whilst Edina was conscious of its competitor's locations these were not considered a high priority in making this location decision.

Data regarding available sites was collected primarily by the DM(WD) under the supervision of the VSM and evaluated against the criteria developed. The staff looked at more than 15 different locations that were sourced from real estate agents in the geographical area of the property search. A list of advantages and disadvantages with respect to each site evaluated was developed by the operations staff.

Once the location criteria had been evaluated the three short-listed sites were then subject to a financial evaluation. The financial evaluation was based on expected revenue streams, freight, storage and packing against the expected fixed and variable costs over a five year period.

Eventually the company found a property with older style buildings that had formerly used as a transport depot. This meant that little fit out was required for the buildings and that there was vehicle access to both the site and the buildings. The company was able to negotiate a rent-free period after occupation to allow for minor changes to the fit-out.

The Warehouse Manager and Victorian State Manager prepared documents with finance input from the CFO as required. In the final business case capital expenditure for additional vehicles, equipment, additional racking and reach forklifts were considered.

d. Approvals process

During the location search there were a number of meetings conducted. These were mainly informal and primarily used for developing the case for the new location.

The Victorian State Manager made the final location recommendation to the CEO and NBM. As it was an operational matter, within the delegation of the CEO, it was only reported as an information item to the Board.

5.8.5 The strategic benefits of the new location

The new facility has provided additional capacity while being attractive to new customers. The new facility has allowed Edina the ability to diversify business to meet its emerging business model. Staff, customers and contractor owner-drivers have reacted well to the new location.

The company aims for sustainable profitability across both locations. The new location is virtually at breakeven after the first year of operations. Edina was able to fix the rental for twelve years with agreed percentage rent increases rather than have increases tied to market reviews throughout the lease.

5.8.6 Evaluation of the decision making process

Essentially the current operational requirements were the major driver of this decision and information pertaining to operations was the major information used. The need to be able to exercise local management control was the key issue in this decision together with meeting emerging customer requirements.

In this case the VSM and the DM(WD) were somewhat tentative as neither of them had been involved in location decision making before. Both executives considered that the decision process was objective and given important consideration within the organisation.

The company considered that the negotiation process was hampered by the involvement of real estate agents and Edina forfeited part of the rent-free period due to delays in negotiation. The negotiation process was protracted by a number of legal issues.

5.9 Introduction to Case FLINDERS

Flinders is a private company that was formed in 1979 and purchased by the current owner in 1992. The owner has long term transport industry experience with other major companies (including 15 years at the Bombala Company) and sought to offer a business service that was different to that being provided by the dominant industry organisations.

The company is organised in five operating divisions. The five divisions are Warehousing and Inventory Management, Contract Fleet Distribution,

Long Haul Transport, Intermodal Terminals and Vehicle Leasing. There is also a small head office function for accounting, personnel and business development. Its market positioning is that it seeks to be an alternative to the major industry players. Flinders occupies over 52,000 square metres of space in premises in Queensland, New South Wales and Victoria. Flinders has a road vehicle fleet of about 600 vehicles. It is estimated that the company turnover was in excess of \$220 million in the 2005/06 financial year.

The company occupies two warehouse locations in Melbourne, its Head office in the south-eastern region and a recently established warehouse in the western region. The discussion in this case is the decision to locate a warehouse in the western region.

Flinders considers that the business environment in which it operates is very competitive and contract negotiations are generally very intense.

5.9.1 Organisation structure

There is a General Manager (GM) of the company who reports to the owner. Each of the five operating divisions has a Divisional Manager (DM) who reports to the GM. The company has an Executive Committee comprising the owner, GM, DMs and the Group Accountant. In this case the Divisional Manager (Warehousing and Inventory) (DMWI) and the Business Development Manager (BDM) were interviewed.

In Flinders strategic decisions are driven by the owner based on his assessment of needs of the business. Thus the business generally makes decisions from a top down approach given the involvement of the owner in most areas of the business. Location decisions are based on either current or anticipated client needs and are generally made by the Executive Committee.

5.9.2 The need for a new location (Decision 1)

The personal relationship between the owner of Flinders and one of the firm's major customers was the driver for their most recent location decision. The customer was expanding his business and needed warehouse and inventory management services and some distribution services to support its growth. The warehouse facility that the client was using for inventory was leased. The lease for the warehouse was due to expire. Flinder's owner saw the opportunity to meet the client's specific needs and develop an increased capability for other customers.

5.9.3 The regional decision (Decision 1A)

Both Decision 1 and Decision 1A were made based on the particular client needs. A new location was required in the western region to meet the expanding needs of the client. It was specified early in the process that the site selected had to be available for other business users and the site was not to become totally client dependent in its operations.

5.9.4 The site decision (Decision 2)

a. Timing

The site specific decision was made in about three months under some urgency due to the client requirements. The initial discussions and negotiation between the owner and the client for the long-term contract took nearly nine months. The delays in finalising the contract negotiations and signing contracts placed some pressure on the specific site search due to the client needs.

b. Personnel involved

An *ad hoc* committee involving the General Manager, Divisional Manager (Warehousing and Inventory)(DMWI) and the Group Accountant was

established to run the location decision process. The DMWI was responsible for the detailed activity regarding the location search. All members of this committee had been involved in making location decisions prior to this decision. Members of the committee have long-term transport industry experience with transport, business and engineering qualifications. Flinders did not use any external consultants in the location search process.

The general location criteria were driven by the client's requirements. The *ad hoc* committee determined specific location criteria for the site from the client's requirements. The specific criteria related to the building configuration, location with respect to transport infrastructure and proximity and access to the client's existing manufacturing operation.

c. Data collection and analysis

The data collection process was undertaken by the DMWI and his staff and was primarily directed as securing existing vacant space due to the time pressure that the client was imposing. The building was required to have a flexible design to allow for both the client specific needs and more general transport access.

Each of the three sites considered was evaluated using a checklist approach with a weighting scheme adopted to assist in determining the best property. Much of the detailed requirements dealt with under ceiling heights, door access and other property specific issues. The DMWI made the comment that it was a *"pretty low tech (sic) in-house search and evaluation"* process. Competitor's locations were included in the search process but they were a low priority due to the primary location decision being focused on the client needs. Other potential clients were identified during the search process.

The primary document prepared for the decision-making process was a business plan that covered the specific requirements for the client and some general assumptions regarding additional business for the balance of

the property. The business plan also considered the need for additional racking and equipment. The business plan was circulated in draft form whilst being developed by the *ad hoc* committee to keep members of the Executive Committee informed.

d. Approvals process

The DMWI and the Group Accountant made the recommendation to the *ad hoc* committee which then ratified and recommended the decision to the Executive Committee. Given that all the members of the *ad hoc* committee are members of the Executive Committee the decision process at the Executive Committee level was seen as a formality. The owner then approved the decision.

Once approval had been given by the owner there was only a short time before the site was occupied. The overall process took just over one year with the majority of the time involved in negotiation with the client prior to the site specific search

As part of the negotiation Flinders was able to negotiate for the property owner to undertake some minor building works to provide for canopy areas and upgrade some of the hard stand area. This did not have a major impact on the overall decision process but was considered in the financial aspects of the business case.

5.9.5 The strategic benefits of the new location

The business case showed a potential revenue increase and a satisfactory return on capital over the initial client contract. There was staff resistance to the new location until staff saw promotion opportunities. The additional facility enabled some minor promotions for existing staff who were prepared to move their work location. The major client is extremely satisfied with the new facility and the service it offers. In addition the facility offers some

broader options to other clients and this has allowed some additional flexibility and options for Flinders in the western region.

The new location also provided facilities that allowed Flinders to achieve some business diversification. Up until this move Flinders had been predominantly an east side business but now that it has opened the Laverton warehouse there is better access to clients in the western region.

5.9.6 Evaluation of the decision making process

The general location decision in this case was clearly driven by the owner's personal relationship with the client being translated into a business relationship. The decision was given prominence and urgency due to the relationship with the client. The site specific location was clearly influenced by the client specific requirements but also enough consideration was given to other potential users of the site.

In hindsight some more general enquiry regarding available sites should have been commenced prior to the formal search process while contract negotiations with the client were in progress. The time involved just over a year in total from the time negotiations started with the client. Primarily this decision was customer focused together with the strategic view of developments within the transport industry.

This case shows the ability of experienced managers to react quickly to a new business opportunity and undertake the research, planning and implementation within a short time frame.

5.10 Introduction to Case GABO

GABO was set up in 1992 when a young man who had two trucks won a small delivery contract. He originally established the business from a vacant block of land in Eltham (about 25 kilometres north-east of the

Melbourne CBD) and after four or five years of good business growth he leased some more vehicles and moved to a larger site in Thomastown (about 15 kilometres north of the Melbourne CBD) in late 1997. At that stage he was running a successful transport operation with twelve trucks. He was always looking for additional business opportunities. In 1999 one of the companies for whom the business had been doing some casual transport work offered him a contract that would soon generate about 40% of his total business. At that stage his business grew to nearly 30 vehicles and he had about 40 people working for him and life was pretty good, if hectic.

But the yard and shed in Thomastown was becoming very crowded. Gabo was able to work as a general delivery transport business from Thomastown. The site offered reasonably good access to the Hume Freeway (going north) but poor access to the Eastern (east/south-east), Monash (south-east) and Geelong Freeways (west). In 2002 Gabo's major customer (providing about 40% of the revenue) asked whether Gabo would like to take-over some warehousing of its inventory in addition to the transport and distribution aspects of the business. The client company has operations in both Eastern and Western regions of Melbourne.

The inventory management component worked for a short time but Gabo didn't have much room at its Thomastown depot to look after the inventory. At that stage the business was split into two separate companies – a warehousing company to manage the inventory, and which would also do the picking and packing, and a transport company to undertake the distribution to wholesalers and retailers.

The owner admits that the company is a small player in the industry and it is driven by the CEO's strategic view of his business's capacity. It is estimated that the company turnover was \$30 million in the 2005/06 financial year. Gabo has about 70 employed staff and a road vehicle fleet of about 50 vehicles. This number does not include the significant number of owner-driver contractors who use their own vehicles. Gabo's workforce is about half employed staff and half owner-driver contractors. Many of the

owner-drivers are on medium term contracts (up to two years). This means that the CEO has to be out and about scouting for business, trying to develop new business to keep them employed.

The owner lives in the north-eastern suburb of Ivanhoe (about 10 kilometres north-east of the Melbourne CBD) which explains the Eltham and Thomastown locations early in the company's business life. The new location allows the CEO to get to work at Laverton North fairly easily either via the Eastern Freeway or across the Western Ring Road.

5.10.1 Organisation structure

The owner of the business, who owns all 12 shares in both companies, is the CEO. He then has an operational General Manager for each of the two companies and together with the CFO they form an *ad hoc* Management Committee for decisions other than the day-to-day operational activities of the group. The CEO is very active in the transport and logistics industry and chases most of the business development opportunities and is a point of reference for the two operational general managers for decisions for issues greater than the day-to-day operational activity. The Chief Financial Officer (CFO) controls all the accounting activities for the group. Clearly a WLD is outside the normal operations of the two companies and the Management Committee took on the task.

An interview was conducted with the GM of the transport company. During the interview the researcher was introduced to the CEO. The company (owner) makes decisions relatively informally. If he likes it, it happens.

5.10.2 The need for a new location (Decision 1)

The trigger for the most recent location decision as discussed earlier was the winning of an additional contract with an existing customer. The business growth from the additional work meant that they had then

outgrown their old premises. In addition the growing inventory management component of the business required a greater amount of covered storage space.

The decision to seek new premises was then an easy one to make. The two Gabo companies had a requirement for about 10,000 to 12,000 square metres of space although they could do that with 7,000 square metres of enclosed space and up to 5,000 square metres of canopied area. The Management Committee decided on a list of criteria they required for a new location. The criteria were primarily related to the type and extent of buildings required rather than a specific location.

Clearly the new location had to be in close proximity to freeways and other infrastructure but the regional decision (Decision 1A) was not decided at the time when they made the decision that they required new premises. Gabo was relaxed regarding the region provided that the real estate provided the space that they needed.

5.10.3 The regional decision (Decision 1A)

In their search for a new location they spent a lot of time, in total about 18 months, researching the south-eastern and western regions.

Early in 2004 the owner, now into his early thirties, married. His wife had a beach house at Point Lonsdale. (Point Lonsdale is a coastal town about 95 kilometres south west of Melbourne.) At that time the owner decided that in order to minimise travelling to the beach house that it would be appropriate to locate the new warehouse in the western region. Subsequent investigation narrowed the area down to Laverton or Altona North.

The owner's personal preference was the major catalyst for the regional decision.

5.10.4 The site decision (Decision 2)

Once the search was focused on the western region there was more structure in the location search process. Gabo briefed some real estate consultants on its requirements. The consultants produced for Gabo a list of properties that might meet the requirements. The locations of its competitors were not considered in their decision process.

a. Timing

When it got to the specific site decision clearly it was straight forward and the management group was able to do that quickly. There was a short period when the consultants were doing their research and once their report was received it was about a month to undertake the site specific analysis and then another period of about three months to negotiate the lease and undertake fit out works. The company eventually moved in after having the building fitted out in 2005.

b. Personnel involved

The people involved in the location search were primarily the CEO in conjunction with the two operational general managers. Gabo used a firm of real estate consultants to undertake research on both vacant sites and improved buildings that met Gabo's criteria in the preferred region. The consultants had been recommended to the CEO by someone he had met at an industry function.

c. Data collection and evaluation

The management committee of Gabo determined a list of criteria (see Table 6.5 for detail) for the new location based on both their client's requirements and desirable features from their current operations. The consultants produced a short list of sites that they felt met Gabo's criteria. Gabo looked at five different properties before narrowing it down to two

sites in the Laverton area before eventually settling on the property at Laverton North.

The evaluation primarily centred on the suitability of the buildings for Gabo's use. Due to the decision to rent the property rather than to purchase it, Gabo did not prepare a lot of documentation. The increase in rental at the new property over the existing Thomastown property was more than covered by the expected growth in revenues. The bank required a business case from Gabo in order to fund the building fit-out. The CFO prepared the business case and that was the extent of the documentation prepared. Rather than purchase additional vehicles Gabo used the flexibility of owner-driver contractors for the initial small increases in vehicle capacity required.

d. Approvals process

As the owner was involved throughout the search and evaluation process the final decision was made relatively informally.

5.10.5 The strategic benefits of the new location

The strategic benefit of their new location has been the ability of Gabo to service the needs of their major client. With the major client having operations in the western region Gabo has been able to slightly adjust the work that it was doing, so that now it is concentrating in the west region. In part Gabo has picked up some additional transport work from its major client for some interstate transport into South Australia and western Victoria from the Laverton North site, so that has been beneficial to it too.

Gabo claims not to have lost any contracts/business other than the smaller amounts of work that it did not want to maintain. The company still generates about 50% of its total revenue from its business in general cartage, picking up jobs from the wharf, etc and that has always been part

of the CEO's mode of operation. The CEO is good at networking and building business relationships.

5.10.6 Evaluation of the decision making process

The WLD process for Gabo was time consuming and the factor that provided the most impact on their regional decision was the CEO's personal requirements. There was a more formal search and evaluation process in place for the site specific decision. It was beneficial that its existing contractual arrangements were flexible enough to allow it to move either to the south-eastern or the western region.

Clearly in the early part of its regional search there was a significant amount of wasted time. It could be said that it was not being very serious about the location process. Once it focused on the western region it then probably took about a three to four months research process, a couple of weeks for the site specific analysis and then a two to three month negotiation process before the fit out could be completed before it started paying rent. The process was longer than anticipated due to their early search efforts not being focused, Gabo's owner and executives couldn't make their minds up about a region so that search was a time consuming process as they were continuing to run the existing business and the three of them did not have a lot of time to focus on the search.

The company felt that the consultants used in the site specific search were very useful and would recommend them to others.

This case exhibits all stages of the decision process. For Gabo there is an identification stage that is forced on it, to some extent, by its business growth. The development phase on the search for new premises was present but was interrupted due to lack of resources employed and to a lesser extent a lack of focus. Essentially it floated along for a while and the selection process was elongated until Decision 1A was made due to factors

outside the normal business practice. Interrupts and delays were certainly noted during the decision process.

5.11 Conclusions

This chapter has presented the findings of the within-case analysis for each case study in detail. Each case formed an independent, information rich, experiment. These findings concerned eight warehouse location decisions within seven companies. Each case reveals differences in the WLD process followed. These differences are due to the size of the organisations, the organisation structure, the experience of executives in making WLD and the established practices and procedures within organisations.

The following chapter, Chapter 6, presents the cross-case analysis and results through summarising and discussing the similarities and differences between the case studies in relation to the research questions.

These differences together with the common features of each of the cases are discussed in the following chapter.

This page is left intentionally blank.

Chapter 6 Cross-case analysis of results

6.1 Introduction

The preceding chapter introduced each of the individual cases. This chapter analyses the cases presenting their similarities and differences. Matrixes and tables are used during this discussion to compare and contrast the themes that emerge from the case analysis, all developed by the author from the current research. In the analysis the categorising of the cases was based on the type and size of operation, the operation of multiple sites and whether sites were purchased or leased. These categories were used to search for similarities and differences across the cases.

In the next chapter the case findings are combined to answer the research questions and form the basis of the 'best practice' model of WLD developed as a result of this research.

6.2 Analysis and findings

The following sections provide a summary of detail from each of the cases grouped into various areas. These sections cover the business characteristics, drivers of the need for a new facility, what drove the regional decision and factors considered in the location search, the site selection and evaluation process and then the decision and authorisation processes.

In each of the tables the companies are referred to by the first letter in their names: **A** is for Aldinga, **B** is for Bombala, **C** is for Cooma, **D** is for Dimboola, **E** is for Edina, **F** is for Flinders and **G** is for Gabo. The tables are organised from left to right with the largest firm (by turnover) in the left hand column.

6.2.1 Business Characteristics

The following table consolidates the general business characteristics of each of the cases studied. Of the seven companies only one company, Cooma, is a public listed company. All of the other businesses are held within private company structures. Multi-generation family groups own Aldinga and Bombala. Individuals own Dimboola, Edina, Flinders and Gabo.

With the exception of Gabo all companies operate multiple warehouse operations in Victoria. Bombala has a large number of warehouses some of which are specialised operations tailored to a major contract with one of the largest supermarket operators in Australia. For the purposes of this research project these single-use specific warehouse are outside the scope of the research.

Only Gabo has its head office operation in the western region of Melbourne, all others are either in the central or south eastern regions. From the interviews conducted the residential preferences of other owners were based in the eastern and southern suburbs of the Melbourne metropolitan area. As was discussed in the previous chapter Gabo's head office location was influenced by the location of a leisure property owned by the wife of the firm's owner.

The locations of the new warehouses, the subject of the interview process, were split between the western region (5 new warehouses) and the south-eastern region (3 new warehouses). This was to be expected as the larger landholdings needed for warehouse and distribution facilities are becoming rarer, and much more expensive, in the inner and central areas.

Table 6.1 Business characteristics

	B	C1	C2	F	D	G¹	A	E¹
Number of warehouse locations in Victoria	12	4	4	2	2	1	2	2
Location of local head office ²	C	C	C	S/E	C	W	S/E	S/E
Location of new warehouse	W	W	W	W	S/E	W	S/E	S/E
Number of employees (Australia wide ⁴)	9000	6000	6000	800	150	70 ³	130 ³	85 ³
Number of road vehicles in transport fleet (Australia wide ⁴)	4000	2800	2800	600	85	50 ³	60 ³	40 ³
Transport, warehouse and distribution turnover, \$ millions (est ⁵)	\$1500	\$850	\$850	\$220	\$35	\$30	\$30	\$20
Warehouse location decisions in Victoria in previous 5 years	>6	3	3	1	1	2	1	1

Notes

- 1** E & G only have operations in Victoria – all others have transport operations in multiple states.
- 2** S/E South Eastern region of Melbourne – 25 – 30 km from the city.
C Central region of Melbourne – close to central city area.
W Western region of Melbourne – 8 – 25 kilometres from the city.
- 3** Use a significant number of contractor drivers using their own vehicles.
- 4** Figures for **A, B, D, E, F & G** are from the interviews and confirmed with material provided to the Australian Bureau of Statistics on a national basis. Figures for **C1 & C2** are from the company annual report.
- 5** Estimated from Company records, where available, or from other public records including the Australian Securities and Investments Commission.

From the table it is seen that Edina and Gabo only operate within Victoria whilst all the other companies have multi-state operations. The two largest companies Bombala and Cooma also have international operations.

Aldinga, Dimboola, Edina and Flinders have each only made one new warehouse decision in the last 5 years, Bombala, Cooma and Gabo have

made multiple location decisions in recent years. Gabo's multiple decisions have seen the firm move its total operation three times since 2000.

Table 6.1 indicates that Bombala and Cooma are very large companies and that they employ significant numbers of employees and operate substantial transport fleets. Three of the other companies (Aldinga, Edina and Gabo) use large numbers of contractor employees and their vehicles to operate their business. The use of contractors allows the smaller firms some flexibility in their cost structures by being able to readily add or subtract vehicles from their fleet as operational needs dictate rather than have vehicles and employees stood down when business is quiet.

6.2.2 Internal characteristics of the companies

Table 6.2 emphasises that the larger companies (Bombala and Cooma) have highly structured, formal planning processes whilst the smaller organisations have less formal planning processes. The owner of Flinders was previously a senior executive of Bombala, who had resigned from Bombala as he felt that his career progression was inhibited due to him not being a member of the owning family. This prior business experience helps to explain why Flinders adopted and developed some reasonably formal planning processes.

In four companies, Aldinga, Dimboola, Edina and Gabo, it is clear that the management in those organisations does not have a lot of experience in making location decisions. Most companies studied used consultants for one or more purposes. Bombala and Cooma used logistics consultants in modelling their transport and warehouse operations. Bombala has an established internal consulting and operations modelling group that uses data that is captured from vehicle operating logs to assist in their decision-making. Dimboola, Edina and Gabo made use of external property consultants to assist in their search processes. Aldinga did not use

consultants as it was under significant time pressure to make and implement a decision due to its loss of contract and premises.

Table 6.2 Internal characteristics of the companies

	B	C1	C2	F	D	G	A	E
Planning processes ¹	HS	HS	HS	M	M	L	L	L
Decision Process Formal (F) / Informal (Inf)	F	F	F	Inf	Inf	Inf	Inf	Inf
Executives/Managers accustomed to WLD	Y	Y	Y	Y	N	N	N	N
Established location search team	Y	Y	Y	N	N	N	N	N
'Ad hoc' location search team	N	N	N	Y	N	Y	Y	Y
Use of consultants ²	Y ¹	Y ²	Y ³	N	Y ³	Y ³	N	Y ³

Notes: 1. Planning process:

L = low level, generally owner's estimates only

M = medium level generally operational / budget planning,

HS = highly structure with detailed strategic planning

- 2** Y¹ Used internal consulting / modelling group
 Y² Used property consultants and independent logistics consultants
 Y³ Used property consultants
 N No consultants used

The Table also shows that only three firms (Bombala, Cooma & Flinders) had management teams who had previous WLD experience and were accustomed to making this sort of decision. The researcher believes that where management teams were experienced in making location decisions, that experience had a positive affect on the decision-making phases and managerial actions. This experience showed in the assessment of the drivers for a new location and on the formulation of the location factors or criteria adopted in the search process. Adequate prior knowledge and experience in location decision making helped the organisation search strategies, information acquisition and decision- making stages of the process. Such prior experience appears to have had an impact on the whole process and contributed to the successful implementation.

In Bombala and Cooma there were established teams of staff available to undertake a location search. In the case of Dimboola the owner was the main driver in the search process using his executives for advice on occasion. Each of the other firms (Aldinga, Edina, Flinders & Gabo) established an *ad hoc* "location search team" to find the new warehouse location. The location search teams were set up for the specific project with a mix of skills and experience that crossed organisational lines. It is felt that the consultation and cross-disciplinary discussions in these teams also had a beneficial impact on the WLD.

Like Bombala, Dimboola commenced the collection of detailed vehicle operating data to assist in future decision-making. The other companies did not have systematic data collection of vehicle operations and therefore were not in position to use any of the logistics and distribution mathematical models (referred to in Chapter 2) that had been developed over recent years. Since the opening of their new warehouses Flinders and Gabo have commenced a more detailed and formal operational data collection process which will assist future decision making.

The most common use of consultants was for finding properties that met the stated criteria and subsequent lease or purchase negotiation. The external consultants were helpful in the provision and assessment of information, the narrowing down of the available options and negotiation once the final decision had been made. It was noted earlier that Bombala used an internal property division to source, develop and manage its internal property needs.

6.2.3 Drivers for a new location

Warehouse location decisions in the cases studied were a response to multiple factors that could be broadly classified as either long-term planning or operational drivers. In most cases the strategic aim of the business was to either retain or expand business operations. In many cases this latter option was via either a new business opportunity or an expansion of their

existing business. In the cases of Edina and Gabo it was also because they had outgrown their existing locations.

The most prevalent drivers were strategy, business opportunity and business expansion. Seven of the eight cases studied indicated at least two location drivers.

Table 6.3 Drivers for new location

	B	C1	C2	F	G	D	A	E	Sum
Long term planning	Y	Y		Y		Y		Y	5
Existing business expansion		Y	Y		Y	Y		Y	5
New business opportunity	Y		Y	Y	Y				4
Outgrown existing location					Y			Y	2
Consolidation of existing operations	Y	Y							2
Loss of existing contract / maintain other operations							Y		1
Expansion needs of client				Y					1
Long term real estate investment						Y			1
Total	3	3	2	3	3	3	1	3	21

In five of the decisions studied it was clear that there was significant longer-term strategic intent. Bombala wanted to consolidate the number of existing smaller facilities in addition to the opportunities created by new business. For Cooma 1 the decision was based around the consolidation of their existing operations located in smaller, less efficient warehouses into a location that allowed the company to utilise its other transport infrastructure. Cooma also operates rail systems and the location of the new warehouse was close to their rail terminal.

For Dimboola the company's owner has a long-term view of the transport and distribution industry in Victoria and the location decision made by

Dimboola is based on the anticipated development at the Port of Hastings as a deepwater port and logistics hub. For Edina the strategic decision was made to develop and grow their warehousing and distribution business and for Flinders the strategic decision was based on both a new business opportunity and a geographic diversification strategy.

6.2.4 The regional decision

In the hierarchy of decisions required for a new warehouse location the second decision (Decision 1A) required is that of the specific region. The table below indicates the drivers for the regional decision.

Table 6.4 What drove the regional decision

	B	C1	C2	F	D	G	A	E	Sum
Decision due to contract	Y		Y	Y		Y	Y		5
Current locations		Y					Y	Y	3
Strategic view of industry		Y			Y				2
Personal preference						Y			1

In the majority of cases studied the regional decisions were made either based on the business development opportunity being pursued or the company's existing location. It can be seen that in only three cases were there other factors that contributed to the decision. In Cooma 1 and Dimboola it was the long-term view of the transport industry and in Gabo it was the personal preference of the owner.

6.2.5 Location factors considered

Table 6.5 below lists the major location factors that are considered in the literature. This list formed part of the interview questionnaire. The table shows each company's responses to these factors in their search for a new

warehouse location. Factors were ranked by the interviewees as either critical (C), important (I) or of medium importance (M). Where a cell has been left blank it indicates that the factor was either generally not important or not considered in the decision under review.

Table 6.5 Location factors considered

	B	C1	C2	F	D	G	A	E	Sum
Freeway access	C	C	C	I	C	C	C	C	8
Car parking	I	C	C	I	I	I	I	C	8
Proximity to existing clients	C		I	C	I	I	C	M	7
Available workforce	I	M	I		I		C	I	6
Proximity to prospective clients	C	I		M	I	I		M	6
Building quality, configuration and flexibility of design	C*	C#		I	C#	I		M	6
Cost			C		C	I	C	C	5
Competitor locations		I		M	I			M	4
Land available for expansion	M	I			C	I			4
Proximity to Rail network		I	I		C				3
Proximity to existing location/ facilities		I					C	C	3
Customer specific requirements	C		I	M					3
Proximity to Port		C	I		I				3
Proximity to Airport	I								1
Total factors considered	9	10	8	7	11	7	6	9	67

- Notes**
- C Critical
 - C* purpose built facilities for long-term lease.
 - C# designed purpose built facilities on purchased land.
 - I Important
 - M Medium importance

It can be seen from the table that the critical or most important factors considered by the companies are access to freeways closely followed by the availability and access to car parking facilities. These factors are further discussed below. Bombala whilst a relatively small company

appears to have considered the widest range of location factors but it is noted later (Table 6.7) that they were not subject to any time restrictions. It would seem that Dimboola and Cooma the two largest companies had the most extensive requirement lists based on their previous location decision experience.

As indicated above the common critical factor relates to freeway access. In a number of the interviews senior managers stressed the operational requirement of a loaded vehicle being able to “turn left” on leaving the warehouse. The “turn left” idea is that a vehicle can merge with traffic rather than having to turn across traffic. From a standing start a fully laden vehicle requires considerable time and distance available to be able to turn across traffic. This is therefore an issue of time and also a safety factor in heavy vehicle operation.

This “turn left” principle is consistent with the development of industrial areas in the south east and western regions of the city. In the south eastern region most warehouse development has occurred to the south of existing freeways and in the western region most of the development has been to the west of the prevailing road network. In both cases this allows loaded vehicles to do left hand turns for the majority of their operational requirements. Managers expressed less of a concern of turning an unladen vehicle to the right when returning to warehouses and depots.

The second most important feature was the availability of car-parking. In this respect it was an important consideration that car-parking has separate and segregated access from that of the heavy vehicle operation. Other critical factors considered were the proximity of the location to their existing client base, together with proximity to potential clients. Four of the eight cases considered that it was important to understand their competitors’ locations when making a warehouse decision.

Other significant factors included the cost of occupation and the building quality and flexibility of design to provide for efficient use. Five of the eight decisions involved the use of existing buildings and a common comment

was that the use of existing buildings is often a compromise based on the need to achieve high rates of efficiency working within the constraints imposed by existing buildings.

The availability of a suitable workforce was also an important factor for most firms. Statutory land use controls are also important considerations in the location decision process.

In all companies the options were often developed intuitively by the location team based on industry experience, prior knowledge of the location being considered or impressions gained from site visits. However the location team at Gabo was inexperienced and that proved to be a critical factor for the lengthy delays in their making a decision. Due to on-going operational requirements they were not able to devote the time required to the location search. The researcher believes that there was some procrastination involved due to uncertainty regarding such a major decision.

Managers indicated that the sources of the information on which the WLD was based were many and varied. Of particular importance was information obtained from local authorities (often bidding to increase their industrial base), information from the various consultancies commissioned and from the location team's prior knowledge and experience. A number indicated that they had undertaken an internet search for available property prior to involving external consultants.

All cases confirmed the importance of the information acquisition and assessment phases and its integration into the WLD process.

6.2.6 Selecting the final location

In determining the specific site or location most firms considered a number of locations. The use of the real estate consultants may have also meant that some firms did not consider all the available sites as some sites having limited appeal or not meeting all the criteria might have been eliminated by the consultants. This assisted the firms in their final evaluation by

narrowing the final evaluation process to those sites which clearly met the majority of the established criteria.

Table 6.6 – Selecting the final location

	B	C1	C2	F	D	G	A	E
Number of sites considered	3	6	2	3	4	5	3	>15
Time critical	Y	N	Y	Y	N	N	Y	N

If the time constraints on the firm were critical then, generally, fewer specific sites were evaluated. Contact and communication within the *ad hoc* teams regarding the developed criteria and the availability of suitable sites meant that in most cases a consensus as to the best available location was reached quickly before the formal approvals process was commenced.

6.2.7 Time taken for the decision process

Table 6.7 below shows the time taken for the decision process from the time that the decision was taken that a new warehouse was needed (Decision 1) to the time that the final site location was determined (Decision 2).

In the cases studied there were four location decisions which were time critical; two due to client operational requirements (Bombala and Cooma 2), one due to the clients impending lease expiry (Flinders), and the other was due to the termination of the transport company's own lease (Aldinga).

Of the decisions that were not time critical, two of them, Dimboola and Gabo, took longer than two years. In the Dimboola case the time was taken to fully identify and evaluated the options available for both an operational view and also a longer-term real estate investment view for the owner. In the Gabo case the time was quite long due to the inexperience of the management team and their inability to spend sufficient time to focus

on the strategic issue rather than day-to-day management matters. In fact it was the personal preference of the owner that finally focused their search. This initial lack of focus contributed to the delay experienced.

The table shows that the time of the decision process in these decisions were the shortest.

Table 6.7 Length of the decision process

	B	C1	C2	F	G	D	A	E
Time critical	Y	N	Y	Y	N	N	Y	N
Client contract – operational	Y		Y					
Loss of contract / sub-lease expiry – self							Y	
Lease expiry – client				Y				
Time from identifying the need (Decision 1) to implementing Decision 2. Months	5	12	5	3	>24	>24	4	5
Did the whole process take shorter (S) or longer (L) than initially expected (E)	L	L	E	S	L	L	S	L

With regard to the time expected, Cooma 2 was the only decision investigated where the time from the Decision 1 – the need for new premises, to Decision 2 – the identification of the actual site took about the time expected.

Two decisions, both time critical, took less time than expected. In the Aldinga case it was pressures due to the notice of termination of their existing occupancy that drove the urgency and for Flinders some of the client specific issues helped shorten the search process.

For three of the cases there were problems during the subsequent implementation process with building approvals and building delays including site contamination issues (Bombala, Cooma 1 and Dimboola). In the other cases, Edina's delays were in the time taken to complete the

warehouse fit out and for Gabo were the delays due to managerial in-experience detailed earlier.

6.2.8 Documentation prepared

Table 6.8 below reflects the internal characteristics of the businesses shown earlier in Table 6.2 regarding the formality of the various companies decision processes. In all cases some form of business case was required although for Gabo this was only for external purposes in obtaining bank approval for the leasing of addition racking required for the building fit-out.

Table 6.8 Documentation prepared

	B	C1	C2	F	D	G	A	E	Sum
Business case	Y	Y	Y	Y	Y	Y*	Y	Y	8
Financial proj period – Years	10	10	5	10	10	5	6	5	
CapEx# - fit-out required	Y	Y	Y	Y		Y	Y	Y	7
CapEx - additional plant		Y	Y	Y	Y		Y	Y	6
Investment evaluation	Y	Y	Y		Y		Y		5
CapEx - vehicles	Y	Y			Y			Y	4
CapEx – info systems	Y	Y					Y		3
Risk assessment	Y	Y	Y						3
Operational modelling	Y			Y	Y				3
CapEx - building improvements		Y			Y				2
Consultant reports – logistics specialists		Y							1

Notes

Y* Business case required only for bank approval of a finance lease for additional racking.

CapEx# Capital expenditure required

With the exception of Gabo (noted above), all of the companies employed some quantitative financial assessment as part of a cost benefit analysis of the new premises. The cost benefit analysis compared the initial capital cost with the expected costs and benefits of the operation of the property for warehouse purposes. Clearly the cost estimates for additional plant, vehicles and information systems are critical in the business case development for the approval process. The ability to amortise fit-out and building improvements over the lease term is also an important factor in the decision process. In most cases the projection period of the financial assessment was allied to the expected term of the contract for the major client or customer expected to provide the main business at each of the facilities.

The more sophisticated organisations identified earlier (Bombala and Cooma) both undertook risk assessments as part of their documentation process. The approvals process in Cooma also required that both the financial and risk assessments were subject to additional scrutiny at Head Office level before being submitted for approval.

6.2.9 Final approval

Significant differences are shown between the authorisation processes of the firms. The authorisation process is contingent on the size and ownership structure of the firm. The smaller firms, where the location team executives often included the owner/s of the companies, did not seem to use a formal authorisation process for implementing the WLD choice as each of the owners were involved in the information search and evaluation processes. In these circumstances the decision was made and approved virtually instantaneously by the owners. In the larger firms formal authorisation was required by Board of Directors or Chief Executive Officer.

As noted earlier in 6.2.6 consensus regarding the best available site was generally reached well before the formal approvals process was commenced.

Table 6.9 below describes at what level in the organisation that final approval was given for the new warehouse location and how many meetings had been conducted prior to the recommendation being submitted for approval.

Table 6.9 At what level was final approval given

	B	C1	C2	F	D	G	A	E	Sum
Owner				Y	Y	Y		Y*	4
Board of Directors	Y	Y					Y		3
General Manager / CEO			Y						1
No. of meetings before recommendation to the approving party	5 ¹	5 ¹	4 ¹	3 ²	>8 ²	>6 ²	4	>6	

- Notes**
- 1** Shows that there had been wide circulation of documents by email prior to meetings.
 - 2** Owner was participant in most meetings
 - Y*** Whilst Edina has a National Board of Management the owner has final approval.

It is important to note the different level of approvals in the two Cooma cases. In Cooma 1 the decision was a significant strategic decision regarding consolidation of other operations and the purchase of the new facility. As a significant real estate investment was also involved the Board of Directors need to approve the decision. Yet for Cooma 2 which was a more operational decision and did not require the purchase of real estate the final decision came within the ambit of the Chief Executive Officer's delegation.

In three of the four organisations in single ownership (Dimboola, Flinders and Gabo), the owner participated as part of the team undertaking the information gathering and evaluation processes prior to the final approval of

the new location. In the Edina case the owner has little day to day involvement in the business, and as a consequence relies on his appointed management team whilst retaining a final approval role.

6.2.10 Real estate decision

One of the matters considered in all the warehouse location decisions was the form in which to hold the occupancy of the premises. Only in two cases, essentially those longer-term strategic decisions in Cooma 1 and Dimboola, did the organisations actually buy the real estate. In all other cases the property was leased, generally for a term consistent with the length of the contract with the major client.

In six cases companies chose to lease premises for their additional warehouse requirements. The other two (Cooma 1 and Dimboola) bought vacant land and designed the buildings to meet their specific business requirements. In the other case (Bombala) where the building was designed specifically for the tenant the transaction was done on a long term lease with a real estate developer who subsequently on-sold the securely leased property into a listed real estate investment trust.

Table 6.10 Real Estate Decision

	B	C1	C2	F	D	G	A	E	Sum
Rent	Y		Y	Y		Y	Y	Y	6
Lease Term – years	12		5	10		10	6	12	
Rent reviews – Market review /fixed \$ / fixed %, term	Fixed \$ 2 yr		Mkt, 2 yr	Fixed \$ 2 yr		Mkt, 2 yr	Mkt, 2 yr	Fixed % 3 yr	
Buy		Y			Y				2
Existing buildings			Y	Y		Y	Y	Y	5
Purpose built buildings	Y	Y			Y				3

The decision to build rather than rent is an important one. If the decision is taken to build it focuses the search process as the search is generally then for a vacant site compared with a rent decision where the search is for a building that is available and suitable for use. The use of an existing vacant building will often be a compromise as there may be few, if any, that might meet all of the specific requirements of the potential user.

As a risk minimisation strategy three of the cases fixed their rents for the term of the lease – either through fixed percentage increases or fixed dollar amount increases. The other three companies have exposed themselves to the market changes over the term of their lease. Five of the six cases that are leasing have rental reviews on a two yearly basis and the other is on a three yearly basis. Generally the lease period taken was consistent with the term of the contract with the major user of the warehouse.

Whilst not identified in the cases studied it is possible that the real estate decision could influence the search process as it is considered that an organisation looking to own its premises might be prepared to look wider than someone who was proposing to lease premises and therefore make a short term compromise. This aspect of the decision process deserves future scrutiny and could be the basis of further research in this area.

6.3 Steps evident in the location decision process

The conceptual model that was proposed in Chapter 3 comprised the following three decisions.

- Decision 1 – is the decision that a new warehouse is required
- Decision 1A – the decision regarding the region where the warehouse is to be located
- Decision 2 – the decision regarding the specific site within the region

This model was not generally found in practice. For seven of the cases studied it was evident that the regional decision (Decision 1A) was not a separate decision but was made as part of the determination of the need for

a new warehouse. Only in one case (Gabo) was there a specific regional search and evaluation process but in the end this regional search was terminated and the regional decision based on the personal preferences of the owner.

Table 6.11 Steps Evident in the Location Decision Process

Decision step	B	C1	C2	F	D	G	A	E
Identification of need for a new warehouse location	Y	Y	Y	Y	Y	Y	Y	Y
Regional determination in the need identification process	Y	Y*	Y	Y	Y	N	Y	Y*
Determining location criteria or factors	Y	Y	Y	Y	Y	Y	Y	Y
Site specific information gathering and assessment	Y	Y	Y	Y	Y	Y	Y	Y
Comprehensive financial evaluation/business case	Y	Y	Y	Y	Y	N	Y	Y
Selecting the final location	Y	Y	Y	Y	Y	Y	Y	Y
Approval for final location choice	Y	Y	Y	Y	Y	Y	Y	Y
Implementation of selected location choice	Y	Y	Y	Y	Y	Y	Y	Y
Effectiveness evaluation	N#	N#	Y	Y	N#	Y	Y	Y

Notes Y* managerial decision to remain in close proximity to existing facilities / other company infrastructure.

N# Initial interviews were held prior to the completion of the implementation phase – follow up telephone discussions reveal that all had subsequently undertaken an evaluation on completion.

In all cases after the decision was made to acquire a new warehouse location there was a process in which executives of the company determined the relevant location criteria and factors to be considered in the search process. In each case these factors were considered in the

information gathering and assessment of each of the specific sites reviewed.

These main managerial processes were identified from the literature and the cases studied as those required for a comprehensive WLD. Each case study addressed these processes in slightly different ways as previously discussed in this chapter.

In the context of the three phases of a decision (refer Figure 2, page 23) the following key comments are offered on each phase:

Identification The findings demonstrated that the identification of a business opportunity, problem or need and the situational analysis of this requirement by a management team experienced in location decision making is the first main phase of the decision process. The current research shows that the drivers for a new warehouse location arise from the firm's overall business strategy and the specific location strategy for each case is then determined based on the business development opportunities and the client requirements.

As noted earlier within the cases studied the identification of the need for a new warehouse was driven by new business opportunities. Table 6.3 indicated that seven of the eight cases were either driven by a new business opportunity or expansion of existing business. The prospect of new business expansion raised other strategic options regarding the consolidation of existing warehouse facilities to take advantage of operational economies of scale or better use of other company facilities or infrastructure.

Development This research shows that search and development is the second phase in the location decision process. The development of primary and secondary location factors were

identified by Haigh (1990), Blair and Premus (1987) and Schmenner (1982, 1994) in their examination of the site selection process.

In seven of the eight cases, firms used teams to develop the characteristics and criteria required by the new location (Table 6.2). Only the two larger firms, Bombala and Cooma, had formal location search teams and processes in place as the norm. In these two firms (three cases) it was considered that the existence of these established teams had a positive effect on the decision-making phases and management actions. In the other four cases where '*ad hoc*' search teams were established it is felt that the consultation and cross-disciplinary interaction within the teams had a beneficial impact on the WLD process.

The results reveal that information acquisition and the assessment of location options is an important phase of the decision making process and that three factors provide considerable contribution to the assessment process. These are (1) the experience of the location team, (2) the knowledge about potential locations developed by the location search team and (3) consultation with external business experts. With the information gathered from these three aspects the assessment, evaluation, internal consultation and decision-making can then follow an orderly process.

Selection The selection phase was mainly driven by the availability of suitable property having the characteristics that provided the best fit to the previously identified location requirements.

In all cases at least two sites were considered in the final site analysis. The analysis indicated that fewer sites were subject to full evaluation where the time element was critical. This implies that decision makers were prepared to accept a site that gave a satisfactory solution rather than potentially an optimum solution.

From the cases it is observed that the practice of decision-making does not progress sedately through the classical phases of the theoretical process. In reality the process itself is lengthy, complex, recursive, disjointed, discontinuous and subject to constant change. To paraphrase Mintzberg et al. (1976) this is not the classic decision-making under uncertainty, but decision-making under ambiguity where the information available is limited and sometimes contradictory.

6.4 Reflection and hindsight

This last section reviews the evaluation of the location decision. As noted at the foot of the Table 6.11 in all cases there had been a post implementation evaluation conducted to determine the effectiveness of the new location.

Reviewing the outcomes and effectiveness of location decisions is shown to be a critical component of the implementation process. A review of the WLD process is important in order to determine whether operational efficiency has been maintained or increased, business profitability has been enhanced and to learn lessons for the organisation for future location decision-making. The literature review noted that this post implementation review is often not fully evaluated and reported.

In each case the interviewees were asked to evaluate the success of the new location and comment on a range of qualitative and quantitative measures. In all cases it was reported that revenues had increased although Aldinga did not consider that the move had been a success due to an overall decline in business efficiency due to poor warehouse layout and IT problems. It was difficult to determine whether the increased revenue was in line with projections from the business case as managers were reluctant to confirm or deny this. In two cases (Cooma 1 & 2) there was an independent evaluation of the outcomes compared to the original business plan and financial projections.

Table 6.12 Hindsight

	B	C1	C2	F	D	G	A	E
Has new location been a success?	Yes	Yes	Yes	Yes	Yes	Yes	Not sure	Yes
How measured? - Revenue - Customer satisfaction - Business efficiency	Rev	Rev Eff↑	Rev Cust	Rev Cust	Rev	Rev Cust	Rev Eff↓	Rev Cust Eff↑
How have staff / contractors reacted to the new location?			Well	Well		Fair	Well	Well
How have customers reacted to the new location?			Well	Well		Well	Well	Well
In your opinion how subjective was the decision process?	VO	VO^{&}	VO^{&}	O	VO	S	S-N	O
In your opinion was the decision given the prominence it deserved?	Y	Y	Y	Y	Y	Y	Y	Y
Did the whole process take shorter (S) or longer (L) than originally expected (E)	L	L	E	S	L	L	S	L

Notes

Rev Revenue increased
Cust Customer satisfaction levels increased
Eff General business efficiency – increased ↑, decreased ↓
VS very subjective, **S** subjective **N** neutral
O objective **VO** very objective
VO[&] subject to independent review compared to original business plan and financials.

In each case interviewees were asked to make an assessment of the subjectivity of the decision process and whether the decision was given the prominence and importance that such a major investment decision warranted. In all cases there was agreement that the location decision had been given the prominence that it deserved and that seven of the eight cases indicated that the new location has been a success. It is obvious from Table 6.11 that the two companies where there an indication that there was subjectivity in the decision are two of the smallest companies from the cases studies both with informal decision making processes and a low level

planning process. Refer Table 6.2 to review the internal characteristics of the respective businesses.

6.5 Conclusions

This chapter has provided a cross-case analysis through outlining similarities and differences with the location decisions studied in each case.

In all cases it was identified that a new warehouse was required and in seven of the eight cases this initial step also determined the region in which the new warehouse was required. Only one case went through a separate regional research process.

After the determination of the requirement for a new warehouse it was common ground that either a designated person or a '*ad hoc* project group' was given the task to co-ordinate the information required on which to base further elements of the decision. The 'project group' or designated manager then undertook a consultation process within the firm to determine the location criteria and the factors that were to be considered in the search process. It is considered that the experience of the individual manager or project team is very important factor in efficient search processes. Where a manager had made a location decision before that experience meant that there was a greater focus on the search process. It was also evident from the cases that the larger firms, which had staff who were experienced in making location decisions, generally had a developed process to deal with a new WLD.

Data gathering and searching for location options was then undertaken to assess the options available. Whilst in-house knowledge is important there is also a need to find additional information about many of the short listed sites in many cases. In some of the cases external consultants undertook the data gathering and the initial evaluation process. In both circumstances the data was generally assessed and evaluated against the previously established criteria. It is critical that detailed knowledge about each of the sites is known when making this a warehouse location decision

Once the preferred site has been selected detailed documentation including business plans and financial evaluations were completed as part of the approvals process. The preparation of these documents was generally undertaken by operational staff and recommendations made through to senior managers and directors for approval and authorisation of the expenditure required to establish the new warehouse.

In the following chapter the findings are discussed within the present theoretical framework and integrated into a comprehensive 'best practice' model for successful warehouse location decision-making.

This page is intentionally left blank.

Chapter 7 Results and Conclusions

7.1 Introduction

This investigation was designed to provide insights into the managerial processes when transport companies make a Warehouse Location Decision (WLD). Chapter 1 presented the groundwork for the investigation covering the purpose and scope of the research problem and the rationale and motivation for undertaking the research.

Chapters 2 and 3 reviewed the existing theoretical framework of the research problem; gaps in the extant literature were identified as well as a discussion of the proposed research methodology. The literature review reviewed the literature on location theory, together with that of decisions and decision-making within organisations. It is evident from the discussion on decision classification that making a location decision is a major milestone in the life of many organisations with far reaching business and financial consequences. It is also clear that the location of a business, particularly a transport company, can lead to a sustainable competitive advantage in its business environment.

Chapter 4 presented the problem in its conceptual framework and the research questions and propositions used in the research were developed from this. Subsequently the chapter explained the choice of the research method, the research approach and framework for conducting this research.

Chapter 5 presented the individual case reports developed from the results of the data collected via the in depth interviews and from secondary sources. Chapter 6 provided a cross case analysis based on the case reports.

This concluding chapter commences with a discussion of the empirical findings and the related propositions in the context of the literature reviewed

in Chapters 2 and 3 on strategic decision-making and location decision-making. There are then some general conclusions about the overall research problems before a subsequent discussion focused on the specific research questions and the findings are integrated into a conceptual model for a successful warehouse location decision for a transport company that is accompanied with a recommended action list for managing the warehouse location decision process.

The contribution of the research findings to theory methodology process and practice are addressed as well as the boundaries and limitations of the research. Finally recommendations and directions for future research and some concluding remarks are made.

7.2 The research process

The research process followed a traditional approach of problem identification, the literature review and development of a conceptual framework. The propositions and research questions followed from this framework. Transport companies who had either moved or opened additional locations between 2003 and 2005 were identified from public records. Senior staff from seven companies were interviewed and the interviews covered eight warehouse location decisions that had been made within the previous two years.

In preparing each case study a semi-structured interview of relevant executives in each company was undertaken. Data was collected in each case that focused on the research questions and propositions developed in Chapter 4. The data from the interviews together with the analysis of document collected from each case formed the basis of the case study reports in Chapter 5. Cross case analysis was undertaken in Chapter 6.

7.3 Responses to the research questions

In the context of strategic decision making the literature review identified two central theoretical approaches to making strategic decisions; that is, the prescriptive and descriptive models. The prescriptive approach describes how decisions should be made and this approach assumes that the decision maker behaves rationally when making decisions. This implies that the decision maker should have a well-defined and clear problem and be certain about the alternative responses available and their expected consequences. The decision maker will then select the best alternative solution with maximum payoff or utility. Furthermore it relies on the credibility of the information collected and assumes that gathering additional information reduces ambiguity and uncertainty associated with the decision problem. It also assumes that the decision criteria are established and that the factors are such that the likelihood for bias is reduced and that the decision can be made as objectively as possible.

On the other hand the descriptive model that illustrates the bounded way in which decisions are really made, dominates most of the strategic decision making literature (Bourgeois and Eisenhardt 1988, Eisenhardt 1989a, Eisenhardt and Zbaracki 1992, Harrison 1999, Harrison and Pelletier 1997, 2000, March and Simon 1958, Mintzberg, Raisinghani and Theoret 1976, Nutt 1984, Simon 1996, 1998). The descriptive model asserts that the rational decision theory is appropriate only when the problem is repetitive, structured and well defined and does not entail any kind of risk or uncertainty. According to the descriptive model alternative solutions need to be researched. Information regarding the consequences of alternative solutions is seldom 'given' and the evaluation of alternatives is not commonly made in terms of a single clear criterion like profit. As other intangible criteria need to be considered; and the decision maker is usually concerned with finding a satisfactory alternative, a solution that will achieve a specified goal and at the same time satisfy a number of assisting conditions will be chosen.

As a result this descriptive model assumes that decision makers in firms define their managerial objectives and collect information about these objectives from various sources. The information collected is used within the organisation to identify a set of appropriate alternatives from which to make a satisficing choice. The amount of information collected and consequently the number of alternatives considered are bounded: first by the lack of complete information, secondly by the inevitable time and cost constraints and finally by the cognitive limitations of the decision maker.

As a consequence the location decision maker should consider these constraints because they significantly affect the success of the strategic direction in any organisation. It is thus not surprising that this research project strongly confirms the dominant satisficing or bounded rational approach. The findings reveal:

- The warehouse location decision problem is unstructured, strategic and charged with high levels of risk and uncertainty and therefore is not well defined. It is seen that in the majority of cases aspects of defining the problem were influenced by client requirements.
- In most cases an *ad hoc* location team was established within the firm to carry out the search for alternative locations. Members of the teams were selected on a variety of basis; their seniority in the company, their previous location decision-making experience and knowledge of the transport industry. Some firms used external consultants to assist in gathering information and evaluating various alternatives at this point in the process. In most cases only a few potential locations were seriously considered.
- A range of tangible (objective) and intangible (subjective) criteria or factors were identified by the location teams to guide their development of suitable prospective locations. The tangible criteria or factors concerned vehicle access,

building specification and cost issues whereas the intangible factors covered issues related to risk in various forms and the personal preferences of the owner or senior executives. Many of the tangible factors may be classified as either mandatory or desirable requirements in the preferred location or facility.

- Information was collected by companies and their consultants in relation to the previously established criteria. The information was sometimes limited and incomplete due to the time constraints imposed.
- Only two of the companies were using mathematical modelling as part of the development phase of their decision process. It was evident that 4 of the seven companies were not collecting the detailed quantitative data needed for the modelling. This is further discussed in Section 7.5.4 below.
- The assessment process for the alternatives developed involves both objective factors and subjective matters related to business risk factors and the travel preferences of decision makers.
- The findings show that the selected location choices were seen as sound and good choices rather than optimal or perfect choices.

The findings provide additional empirical support for the effectiveness and appropriateness of the satisficing decision theory in the field of strategic decision-making and in location decision-making.

After this general introduction it is time to address the specific research questions posed in Chapter 4.

7.3.1. Research Question 1

Are warehouse location decisions made within a framework of three distinct steps; and within each step are there identification, development and selection phases?

All firms exhibited the distinct phases suggested in the literature with respect to making location decisions. However within each case the boundaries between individual phases of the decision were sometimes blurred. Consistent with Proposition 1 each decision required in the WLD process goes through three phases, identification, development, where alternatives are searched for or designed, and a selection phase at the end of which a choice is made. The development phase of the decision-making process is the most active and prolonged of all phases and the literature suggests that conflict often occurs amongst participants during this time as information and opinions are obtained and alternative sites identified and considered. In this research none of the cases identified any conflict during the WLD process.

The cases studied indicate that a strategic WLD is influenced by a number of dynamic factors that affect the process by stopping it; delaying it and then restarting it again. In confirming Proposition 2 it is suggested that these dynamic factors relate to a lack of adequate definition of both business and client requirements and the availability of existing facilities that meet the assessed needs. Despite this the process can be described in one model.

Due to the many uncertainties surrounding a strategic decision it is difficult to impose a tightly structured framework around the nebulous phenomenon of location decisions. Schmenner (1994) and others (Haigh (1990), Blair and Premus (1987) suggest that weightings likely to be given to various criteria and elements of the decision will vary from firm to firm and over time. These variations come from the nature of the facility required, the urgency of the requirement and the size and type of company requiring the new location.

Once the decision is made to seek a new warehouse location the next step is to determine in which particular region the warehouse should be located. In seven of the eight cases studied the regional decision was made as part of the decision to acquire a new warehouse. Once the regional decision is made there needs to be an inventory of the sites or facilities that are available within the region. These sites and facilities then need to be evaluated against the pre-determined criteria to determine their suitability and acceptability. The final selection of an existing facility is often a trade-off or compromise due to the unavailability of a facility that meets all the needs of the business and its 'wish list' of criteria. If there are no suitable facilities currently available then the alternative might be to acquire a suitable vacant site for a warehouse to be purpose built for the company and client requirements.

Subjective factors usually only surface at the final stages when particular location issues impacting on specific executives come into play. Incentive and non-business factors play significant part in the final site selection process.

The research confirms that for WLDs there are two major location selection decisions required. Firstly, the region and, then, secondly a specific site within that region. The site decision is chosen via the traditional approach of evaluating each site against an established list of criteria. In seven of the eight cases the decision regarding the region was taken at the same time as the decision regarding the requirement for a new warehouse location often as part of the client requirements (five of the seven) or based on the company's current facility infrastructure or locations (three of the seven).

7.3.2 Research Question 2

What contingent factors affect the WLD process?

In the search for a new location there is potential for significant interruptions. Client requirements may change during the search process and impact on the range of criteria previously determined. There may be insufficient or incomplete knowledge regarding the alternative facilities available and the facilities available may not meet the stated needs. As stated in the interview with Bombala the choice between alternative facilities is often a compromise that is made to facilitate the early commencement of a contract. In a number of the decisions uncertainty and unfamiliarity by less experienced managers was exhibited.

Whilst there are three distinct phases in the decision process most of the decisions studied were made by means of unstructured iterative processes due to their complexity, the lack of definitive information, continual re-definition of both the company and client needs, uncertainty regarding the potential service and financial outcomes and the likelihood of the process being influenced by more than one individual manager. In many cases the decision process extended over a considerable period of time and in hindsight five cases indicated that the process took longer than expected (Table 6.7).

7.3.2.1 Research Question 2a

What is the effect of interrupts and delays on the warehouse location decision-making process?

In five cases the decision process took longer than expected. In two cases (Gabo and Dimboola) it took more than two years. Gabo showed significant delays during the research process due to the initial lack of resources deployed and the fact that they did not have a good focus on which region that they were looking for or the type of facility required. The

location team at Gabo was inexperienced and that proved to be a key factor for the lengthy delays in their search process. In the other case, Dimboola, the need for a decision was not time or operation critical and the length of time taken reflected the owner's desire to achieve both operational results and personal investment requirements.

In searching for a specific location the predicament that commonly arose was that there was not an established property that met all of the search criteria. This created the dilemma of compromising on an existing property in order to meet time and contract requirements or deciding whether there was sufficient time available for the development of a new facility to meet the specific criteria.

The cases also showed delays during the implementation phase. In this respect the delays noted were due to a number of factors. With respect to established property there were delays during the lease negotiation phase and during the building fit out process. For facilities that were being purpose built the delays were in the development approvals process and during the construction stage when site contamination was identified.

7.3.2.2 Research Question 2b

What information and knowledge was used in making the warehouse location decision?

All cases confirmed the importance of the information acquisition and assessment phases and its integration into the location decision-making process. Whilst Schmenner (1994), O'Mara (1999) and Townroe (1971) indicate that information gathering is important, in practice the information gathering was often seen as *ad hoc* and decisions were sometimes made on incomplete information. One of the good sources of information commonly referred to by the interviewees was from local government authorities who are often competing to increase their industrial and revenue base. Other information came from the various consultancies

commissioned and from the location team members own prior knowledge and experience.

Information considered critical (Table 6.5) by more than three of the cases in the warehouse location decision is:

- Road infrastructure and freeway access
- Building quality, configuration and flexibility
- Cost
- Location of existing or prospective clients
- Car parking for staff

The following information was considered important but less than critical in three or more of the cases:

- Work force availability with appropriate skill base
- Competitor location
- A site with land available to expand facilities
- Proximity to rail infrastructure
- Proximity to port infrastructure
- Existing company facilities

All of these items were all expected to be important factors, having been identified in prior industrial location research. The development of these locations factors were identified by Haigh (1990), Blair and Premus (1987) and Schmenner (1982, 1994) in their examination of the site selection process.

7.3.2.3 Research question 2c

What factors in the business environment provided the most impact on a warehouse location decision?

A large number of factors can influence the success or failure of a new location. Many of these factors are qualitative and subjective in nature (for instance ease of access, car parking availability or quality of life issues for

workers). Therefore it is difficult for the decision maker to establish a clear link between the choice of a particular location and the associated level of profit. Decision makers often turn to their own experience, or the experience of other comparable firms, for pointers about the location they should choose. The location decision appears as a learning process through which decision makers try to gain intimate and specific knowledge about geographic places. The aim is not to maximise profit, rather to minimise the uncertainties associated with the location decision they are making.

It was, however, noted in more than half of the cases studied that the location decision process was substantially influenced by the client requirements. This was either due to a new business opportunity or an expansion of an existing business. The results provide strong evidence in that the choice for a particular location is not only determined by locational characteristics but is also crucially affected by firm and industry competitive drivers. This provides confirmation for Proposition 4 which suggested that decision makers explicitly consider the external environment in their search processes.

The economic rationale of location decision-making thus appears to be blended between important constraints on choice, due either to cognitive limitations or to external pressures on the firm. In contrast with the neo-classical view of location decisions decision-makers have limited and uncertain information and exhibit bounded rationality, they try to limit the risks associated with locating new warehouses by either choosing locations with which they have firm-specific knowledge or those locations, which meet a particular client's identified need. In one case, Gabo, the regional decision for the business location was influenced by the owner's holiday house location. It is also found that firms are attracted to locations where decision makers have a network of personal or professional relationships.

7.3.2.4 Research question 2d

What are the typical behaviours of managers when making a warehouse location decision?

The results showed that in seven of the eight cases the members of the location teams had broad business experience. In some cases the firms had made multiple warehouse location decisions within recent years. The importance of managers' accumulated experience, which is regarded as executive intuition or 'gut feeling' is acknowledged among organisational strategy scholars and consistent with behavioural decision theory. Intuitive decision-making refers to bringing together the experience and perceptions of senior managers to solving problems that has been gained throughout many years of related business employment in arriving at sound decisions. It is considered that the experience of the individual manager or project team is a very important factor in efficient search processes. Where a manager had made a location decision before there was less hesitation and a greater focus on the task.

The current results confirm that in all the cases location decision-making is a group decision-making experience, generally performed by a location team comprising experienced managers and owners. Continuous consultations helped the exchange of information, refining the criteria and development of data relevant to the location decision. In addition, consultation with appropriate external advisors was found to be instrumental in the location selection process.

The research established that there were some differences amongst large and small firms about their behaviour. The large firms have more formal channels of communication and authorisation for decisions. In Bombala, Cooma 1 and Cooma 2, managers have been involved in a number of WLDs in recent years and have the WLD process well rehearsed and capable of being implemented quickly and efficiently. In these two organisations confidence about the process was evident from the discussions. Both Bombala and Cooma used internal specialist staff as

consultants, all of whom had previously been involved in making location decisions.

In contrast the location decision process of the small firms was more informal and depended more on the experience of the executive and ownership groups. As a result these conclusions agree with previous lines of research in the general field of strategic decision-making which asserts that differences between small and large firms are evident (Papadakis, Lioukas and Chambers 1998; Papadakis and Barwise 1998). This difference is often due to the larger firms having generally made more of these sorts of decisions and therefore having a level of knowledge and experience in the location decision making process. Both of these factors are seen in this research.

Smaller firms studied exhibited a number of management behaviour characteristics that are consistent with previous research. There were elements of uncertainty (Aldinga), tentativeness (Edina), overwhelmed and confused (Gabo), measured and precise (Dimboola) and the ability to act quickly (Flinders).

As suggested in Proposition 5 the organisational characteristics of firms was seen to play a predominant role in determining the location decision-making process and the research also showed that the participation and involvement of the firm's employees in strategic decisions contributed to the investigative process, information gathering, and strategy formulation and implementation aspects of the location decision.

With respect to Proposition 3 it is confirmed that decision makers operated within a framework of bounded rationality and exhibited a number of signs of satisficing behaviour particularly in the narrowing down of their search area and with some of the compromises that were taken in their choice of final location depending on the availability of buildings that met their specific requirements.

7.3.3 Research Question 3

What process is most effective in warehouse location decision-making?

In regard to warehouse location decision making for transport companies there is limited research as indicated in Section 3.4 of the literature review. Schmenner's (1994) study on site selection by a wide range of service industry firms found that the site selection process incorporates 2 stages; the selection of the general region or area and then the selection of a particular site. This 2 stage model was developed into the conceptual framework in Chapter 4 (Figure 4) where the three decisions required are:

- Decision 1 – the need for a new location
- Decision 1A – the regional location decision
- Decision 2 – the site specific decision

This model provides an overall plan for location decision-making. However each firm, due to its own characteristics, will modify the model for their own particular circumstances and the personality and management style of the owner / manager. The current research finds that the location processes adopted in the cases incorporated each of the three major decisions. As a result the case outcomes are closely allied to the former general decision making model and emphasise the importance of managerial actions in developing effective strategic decision-making processes. A significant factor established from the cases was that the regional decision (Decision 1A) was often made in conjunction with the need for a new warehouse (Decision 1). This was due to the fact that most of the decisions for new warehouses were made in response to client requirements through new contracts or expansion of existing business.

The present investigation found that a bounded rationality approach was adopted by the firms in their location decision-making processes. The prior knowledge and accumulated experience of the decision makers were all significant aspects of the cases studied. In spite of some minor differences in the process adopted all cases provided evidence that selecting the two

fundamental location choices (region and site) using a methodical process is a critical managerial phase in any successful warehouse location decision.

From the cases studied the conceptual model can be extended (for completeness) to include the approval and implementation process. Table 7.1 following provides the best practice model developed from this research.

Table 7.1 Best Practice Warehouse Location Decision Model

Stage	Outcome	Determinants
Decision 1	There is a need for a new warehouse.	Business and strategic drivers.
Decision 1A	In which region should it be located?	Developed criteria; Client requirements; Other facilities; Infrastructure; or Information gathering; and Evaluation.
Decision 2	What is the best site within the region?	Developed criteria; Client requirements; Information gathering; and Evaluation.
Approval	Approval for the choice is sought from the appropriate authority.	Business case. Investment case and capital expenditure requirements.
Implementation	Establish the new facility	Negotiation and financial commitment. Set up facility. Commence operation

The model is further discussed in the following section.

7.4 Implications for location decision making by transport companies

The research findings and the developed decision model have practical managerial implications for transport firms engaged in seeking a new warehouse location. The developed decision model (Table 7.1) allows for improved decision-making approaches in other companies in the transport industry. More specifically the findings of the current research assist business in gaining a better understanding of the significant managerial procedures as well as the critical success factors involved in determining a new warehouse location. Through the identification of the drivers and locational factors the results may help practitioners not to overlook suitable alternatives. Managers should gain a better understanding of the strategic requirements of location analysis and hence learn how to determine a location that will deliver sustained competitive advantage.

The following table (7.2) provides a list of recommendations that have been developed from the case findings put into the context of the decision model proposed above. This table substantially extends the Schmenner (1982) list shown earlier in Section 3.4.1 at page 55 and describes the management activity required at each stage of the decision process.

Table 7.2 Recommendations for Managers Making a WLD

Decision	Activity
Decision 1	1. Determine the need for a new warehouse location.
	2. Assess the resources required and the internal capacity of the firm to make a warehouse location decision.
	3A. Select an experienced consultative team comprising a team leader who has previous location decision-making experience (if possible) and other appropriate staff with relevant experience. AND / OR 3B. Investigate the appointment of appropriate consultants for specific tasks depending upon the level of inside

	knowledge and resources to undertake the task
	4. The selected team should evaluate carefully the drivers for the new warehouse requirement against the firm's overall strategy, financial and human resource capabilities and the financial and human resource commitments required for the new location.
	5. Consultatively, the location team should develop a list of primary and secondary location criteria (for both regional and site specific factors) and mandatory and desirable building characteristics taking into account the drivers of the decision, the organisation's overall strategy and the geographical spread of its current operations.
	6. Determine appropriate financial criteria on which to base the WLD.
	7. Gather appropriate quantitative data from internal operations for use in mathematical modelling.
	8. Gather appropriate (and adequate) information relevant to the developed regional criteria from appropriate state and local government departments and through external consultations with business experts.

Decision 1A (Regional)	9. Review the regional decision consultatively with location team members and operations management. Once the regional decision has been agreed, obtain authorisation, if required, for pursuing the remaining parts of selection process.
----------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Decision 2 (Site specific)	10. Use appropriate mathematical modelling techniques to assist in the identification of specific areas within the region selected.
	11. Search for appropriate facilities within the region and assess them against the established location criteria and required building characteristics. This step should also involve operations staff.
	12. Evaluate the available facilities within the region against the modelling undertaken and the financial criteria required. Develop an appropriate business case.
	13. If no suitable facilities are available it may appropriate that a suitable site be found for the development of a purpose built facility. This choice has significant time implications.

	14. Select the most appropriate site within the region that meets the locational, operational and financial criteria.
	15. Prepare documentation for the approvals process, this may include undertaking a full feasibility study to determine the extent of the benefits and costs associated with establishing the new facility.
Approval	16. Submit recommendation and business case for approval to relevant authority within the company.
Implement	17. Conduct lease or purchase negotiations.
	18A. Undertake existing building fit out. OR 18B Commence planning for purpose built property.
	19. Commence operations.

WLD processes take place in an environment that consists of diverse and complex organisations and, as it has been shown, a location decision can be multifaceted. In following the activities listed in Table 7.2 managers should be confident that they would consider all relevant matters when coming to a location decision.

7.5 Additional findings

The following paragraphs discuss other findings from the case studies.

7.5.1 Left hand turns

In a number of the interviews senior managers stressed the operational requirement of a loaded vehicle being able to “turn left” on leaving the warehouse. The “turn left” idea is that a vehicle can merge with traffic rather than having to turn across traffic. From a standing start a fully laden vehicle requires considerable time and distance available to be able to turn across traffic. This is therefore an issue of time and also a safety factor in heavy vehicle operation.

In the south eastern region most warehouse development has occurred to the south of existing freeways and in the western region most of the development has been to the west of the prevailing road network. In both cases this allows loaded vehicles to do left hand turns for the majority of their operational requirements.

7.5.2 Time consuming

Comprehensive WLD processes are time consuming and therefore in a time sensitive project there is a less rational approach taken. In these circumstances there is limited search for alternatives undertaken. For example Table 6.6 indicates that for companies where time was a critical issue the number of specific sites evaluated was generally less than for those companies where time was not a critical issue.

7.5.3 Integrated decision

As the transport industry evolves and companies change the way that they service their clients they need to consider their longer-term real estate needs. A warehouse location decision cannot be seen in isolation from a companies competitive strategy but in the first instance most decisions are based on operational requirements that meet business development needs and customer requirements. As such they are not seen as being strongly based on the traditional view of strategic decisions.

In the cases studied it was seen that a number of companies subsequently used warehouse location decisions, that were initially based on client requirements, as a trigger for other strategic, longer-term development opportunities. Bombala and Cooma 1 used their client requirements for large warehouses as an opportunity to consolidate other smaller, less efficient and desirable facilities to obtain greater overall business efficiency.

7.5.4 Quantitative data and calculations

There is a significant range of material in the literature (refer Section 3.4) that refers to the use of mathematical modelling in location decision-making. This research shows that only the two largest firms made any use of the mathematical models available. Bombala has a significant internal modelling group who uses, *inter alia*, data captured from vehicle operating logs. Cooma used a firm of logistics consultants to model their transport operations as part of their WLD. It is evident that most firms don't collect the type of quantitative data that is needed for the efficient operation of the mathematical models. It is noted that Dimboola has commenced the collection of this type of quantitative material for future use in decision-making within the company.

7.6 Implications for theory

This research examined the managerial activities involved in a strategic decision making processes relating to the location of a new warehouse. The research was undertaken using an organised qualitative research approach in the context of transport companies in Victoria. The research findings were consistent with the comprehensive conceptual model developed for an effective warehouse location decision-making process. This conceptual model was further developed in this Chapter together with a list of suggested management process steps.

The contribution of the current research is the conceptual model that links two fields of management research: the wider field of strategic decision-making to that of decision making for warehouse locations by transport companies. The model links and relates managerial procedure of the decision making process to the critical success factors in the selection of an appropriate site for a new warehouse. Therefore the current research makes a contribution to both the fields of strategic decision-making and location decision-making processes by understanding how a sample of transport companies in Victoria make WLD.

7.6.1 Contribution to strategic decision making

It is argued that the majority of research on strategic decision-making has been conducted in the United States of America and little attention has been paid to the discipline in other countries (Schwenk 1995). It is asserted by experienced strategy scholars that the strategic decision-making literature is small, mostly theoretical and empirically untested (Eisenhardt and Zbaracki 1992: Mintzberg 1978) as it adopts the prescriptive approach which described how decisions should be made rather how decisions are actually made. The case studies developed in this research describe how transport companies have made warehouse location decisions.

The present research explores and gains deeper and comprehensive understanding about how strategic location decisions are made in transport companies in Victoria, Australia. The current research findings and the model developed provide new contributions about how Victorian transport companies should address the highly complex, strategic decision to selecting a warehouse location. It is argued that this research could readily be applied to urban situations in other developed countries.

The research shows that the location decision-making behaviours of Victorian transport companies fits into the established satisficing or bounded rational theory. In addition it reinforces the importance of previous experience to effective strategic decision-making. Consequently the satisficing decision making approach and the positive impact of previous location decision making on the outcomes of strategic decision making have been strengthened and extended and proved to be most appropriate in achieving successful warehouse location decisions.

The research findings corroborate the value of group decision making as a technique for gaining outcomes of a strategic nature and to add a new aspect to the existing literature through providing a clearer picture about the

role and nature of group decision making, participation and consultation. Information from the cases indicates that wide and continuing consultation is an important tool in achieving effective group decision-making. Consultation refers to sharing and exchanging knowledge and information about the decision problem among highly experienced and knowledgeable senior managers that result in a collective and consultative decision. The benefits of group decision-making are shown by the collegiate approach shown in the cases regarding data collection and evaluation and the preparation of documentation required for the approvals process.

In most cases a multi-disciplinary internal team, supplemented by appropriate external consultants, was involved in the information gathering and evaluation process.

7.6.2 Contribution to location decision-making

Most past research on location decision-making processes has concentrated on site selection by firms in the retail and manufacturing sectors. This research looks at a different sector in a service industry where little research has previously been undertaken. It showed that in some of the cases, involving large companies, a well-established procedure was in place for making a WLD. In other cases, generally the smaller companies there was a more hesitant, often *ad hoc*, approach to making the WLD.

7.6.3 Methodological contributions

The reasons this research adopted multiple case studies is that they allow the analysis of data across companies, which in turn enables the identification of context specific constraints in the implementation process and outcomes. As pointed out by Miles and Huberman (1994), multiple cases, adequately sampled, provide understanding and explanation, as they help point out specific conditions under which a finding will occur, and also help to form more general categories of how these conditions may be related. In this

way, a multiple case design allowed for a replication logic, in which each case study serves to confirm or disconfirm inferences drawn from previous ones (Yin, 1994).

The current research has made a contribution by using the case method methodology for warehouse location decisions. The multiple case study approach enabled the researcher to bring together the knowledge and experience of location decision makers in seven firms. The interviews provided credible and valuable information about the nature of the warehouse location decision-making process in transport companies.

The present research was designed to explore and gain deeper and comprehensive understanding about how strategic location decisions are in reality made within the Victorian context. The current research findings and the developed model provide new contributions and implications about how Victorian transport companies address the highly complex and strategic decisions in relation to selecting a warehouse location. The use of the material in Table 7.2 will enable companies to make better decisions.

In summary, the use of case studies were considered appropriate to this research problem as they provide grounds for investigating implementation in its real-life context.

7.7 Implications for Government Policy

There are a number of issues that come out of the research that may have implications for government policy. One of the requirements is the governments need to understand the requirements of the broader logistics industry and the requirements for infrastructure maintenance and development. The implications from this are summarised in the next paragraphs.

There is a need to ensure the availability of suitable serviced land to meet the requirements of the transport and logistics industry. This is mainly due

to changing technology in the warehouse industry that means that larger facilities are required to benefit from economies of scale.

One of the findings of the research was that many companies used information provided by local government authorities in their data gathering stage. Timely and relevant economic data should be provided to meet the broader needs of the logistics industry and allow for fast and accurate decision-making. Understanding the factors that determine a warehouse location would assist in improving the provision of this information and aid in targeting and reaching key decision makers.

Statutory land use controls are also important considerations in the location decision process. As transport operations become physically larger, the inner city areas having narrow streets and smaller sites become less attractive to transport companies. Traditional inner city industrial locations have become gentrified and the sites have become more valuable as residential or retail development sites and their cost to transport companies has become uneconomic. This has encouraged transport firms to seek to move their warehouses to larger, greenfield sites at the extremities of the urban region where the availability of larger sites at a substantially lower cost has attracted the transport and logistics industry. Those state and local government bodies undertaking statutory land use planning should continue to ensure that there is appropriately zoned land in areas close to freeways and other transport infrastructure that are attractive to transport operations.

Upgraded, and new, road infrastructure have been some of the reasons that have allowed transport companies to change locations and move from the inner city. The opening of a new bypass to the north of the city, the upgrading of bypass roads in the western region and the development of a new north-south freeway to the east of the city have all contributed to location mobility of transport firms. In the last five years improved road infrastructure and its interface with other transport resources have opened up additional land areas in the south-eastern and western regions. This

has meant that companies have a wider range of locations from which to choose for their new warehouse.

For all levels of government increasing the understanding of the location decision-making processes of key industries, including noting the difference processes between firms, would assist government in developing appropriate strategies to attract and retain business and enable them to provide suitable infrastructure, facilities and offer a better range of services to meet business needs.

7.8 Limitations of the research

This research has made contributions to the knowledge of strategic decision-making, warehouse location decision-making, management practice and process but is limited as follows:

As the research utilised the case study strategy built on the location decisions of seven firms the most distinct problem associated with this approach is that of generalisation. However given that "*the purpose of the case study is not to represent the world but to represent the case*" (Stake, 1994) it is argued that this research can be applied, with care, to urban situations throughout the world similar to Victoria.

Analytical generalisations means to what extent are the findings of the case studies replicated and constant (Yin 2003). The greater the replication identified in the cases the greater rigour with which the findings of the research might be applied. The research was conducted in a limited geographical and industry focus. It is solely based on transport companies in Victoria. It is likely that the findings are applicable to similarly firms in other states or countries.

Another limitation relates to 'interviewee response bias' or 'retrospective bias' as many of the location decisions investigated occurred sometime in the past which may have resulted in some information not being recalled

correctly by informants or in a different context in which the events occurred. However as noted by Mintzberg *et al.* (1976 p248) the “*best trace of the completed process remains in the minds of those people who carried it out*”.

It is considered that there was little, if any, bias in this research. The questionnaire had been designed and tested with industry participants and other doctoral students in a seminar so it was felt that it properly covered the research questions and propositions. Information from the companies was sourced from more than one party and the questionnaire had a number of cross-checking questions .

A final potential limitation refers to the number of interviews in qualitative research in general and in case study research in particular. In this study the informants regarding an organisation’s strategy were selected carefully to ensure they possessed the most credible and valuable information about the issues being investigated. Seven firms provided the detail for eight case studies undertaken during this present research and that number meets the methodological guidelines suggested by Eisenhardt (1989a) and others (Yin, 2003; Perry 1998). Hence the work is considered to be sufficiently broadly based to be usable in analogous situations.

7.9 Summary and identification of areas for further research

The current research adopted the case study strategy as a theory-building approach to explore the strategic decision making process related to selecting a new location for warehouse operations. As a result, derived from the research findings and propositions, a conceptual model has been developed which pinpoints some areas for potential further research.

Future research in the area of warehouse location decision-making process using in-depth case studies should be carried out in other Australian states to investigate whether warehouse location selection decisions are made using similar processes. It would also be beneficial to check whether the

same process is used in other countries, in other industry sectors and with other types of warehouses, such as company finished product warehouses. An alternative research approach might be to test the conceptual model developed in this research on a broader population using a postal survey instrument.

Another avenue considered worthwhile exploring is research into the transport industry's use of mathematical modelling. This proposed research might take a number of forms. For example future research might:

- a. Investigate those companies who are already using modelling techniques and show how the results of the analysis are integrated in the companies decision-making process,
- b. Investigate whether companies systematically collect the sort of data that are needed for the modelling techniques;
- c. Investigate whether transport company managers are familiar with, and understand the benefits and limitations of these types of modelling techniques

In the current research it was shown that in-house and external consultants were used in the decision making process. As a result prospective research might well investigate the consulting process in addition to the influence that different types of consultants have in making a warehouse location decision. Another point might be to investigate the differences, if any, between internal and external consultants and their relative influence on the decision making process. Other related research might establish the important skills and attributes required of the consultants in location decision-making situations.

Other research might focus on the real estate decision and how the decision to own rather than lease a warehouse or to use an existing property compared with developing a purpose build facility might influence the warehouse decision process used by transport companies.

7.10 Concluding remarks

This Chapter has completed the current exploratory investigation. The conclusions reached by this study extend those reached by previous researchers working in the area of general decision making in industry and commerce: the process often commences with a lack of understanding of the decision situation, little knowledge of the alternative solutions and very little idea as to how to evaluate them and make the final choice.

Firstly the empirical findings and propositions within the context of the academic literature were discussed. The conclusions relating to the overall research questions were discussed and the findings incorporated into a model that describes the best practice observed from the case studies. Subsequently the implications and contributions of the research findings and the developed model to theory, methodology, policy and practice were addressed, as were the limitations of the research. Finally implications and directions for future research were recommended.

The aim of this research was to show how the outcomes can improve decision making processes for transport companies when making location decisions; encourage a more informed understanding of decision making for participants, and facilitate better strategic decision-making. While the research points the way, it is not a manual for practice, and cannot therefore achieve this aim entirely on its own. Since there is always “a better way”, and there is always new knowledge to be won, the aim itself must be on going.

Bibliography

Aghezzaf, E, 2005, 'Capacity planning and warehouse location in supply chains with uncertain demands', *Journal of the Operational Research Society*, No 56, pp 453 – 462.

Allison, GT, 1971, *Essence of Decision: Explaining the Cuban Missile Crisis*, Little Brown, Boston.

Amtoft, M, 1994, 'Storytelling as a support tool for project management', *International Journal of Project Management*, Vol 12, No 4, pp 230 – 233.

Anderson, PA, 1983, 'Decision making by objection and the Cuban missile crisis', *Administrative Science Quarterly*, Vol 28, pp 201 – 222.

Anthony, RN, 1965, *Planning and control systems: a framework for analysis*, Harvard University, Graduate School of Business Administration, Boston, MA.

Babbie, ER, 2001, *The practice of social research*, 9th Edition, Wadsworth Thomson Learning, Belmont CA.

Badri, MA, Davis, DL & Davis, D, 1995, 'Decision support models for the location of firms in industrial sites', *International Journal of Operations and Production Management*, Vol 15, No 1, pp 50 – 62.

Badri, M, 1999, 'Combining the analytical hierarchy and goal programming for global facility location-allocation problem', *International Journal of Production Economics*, Vol. 62 No.3, pp 237 – 248.

Ballou, RH, 1999, *Business Logistics Management*, 4th Edition, Prentice Hall, New Jersey.

Ballou, RH & Masters, JM, 1993, 'Commercial software for locating warehouses and other facilities', *Journal of Business Logistics*, Vol 14, No 2, pp 71 – 107.

Ballou, RH & Masters, JM, 1999, 'Facilities location commercial software survey', *Journal of Business Logistics*, Vol 20, No 1, pp 215 – 233.

Barnard, C, 1938, *The Functions of the Executive*, Harvard University Press, Cambridge.

Barnes, D, 2001, 'Research methods for the empirical investigation of the process of formation of operations strategy', *International Journal of Operations and Production Management*, Vol 21, No 8, pp 1076 – 1095.

Beckmann, MJ & Thisse, JF, 1986, 'The location of production activities', in Nickname, P, (ed) *Handbook of urban and regional economics*, North Holland, Amsterdam.

Berman, B. & Evans, JR, 1983, *Retail management: a strategic approach*, 2nd edition, New York: Macmillan Publishing.

Bernard, HR, 2000, *Social Research Methods: Qualitative and quantitative approaches*, Sage Publications, Thousand Oaks.

Bhutta, KS, 2004, 'International facility location decisions: a review of the modelling literature', *International Journal of Integrated Supply Chain Management*, Vol 1, No 1, pp 33 – 50.

Blaikie, N, 1993, *Approaches to Social Enquiry*, Blackwell, Cambridge.

Blair, JP & Premus, R, 1987, 'Major factors in industrial location: a review', *Economic Development Quarterly*, Vol 1, No 1, pp 72 – 85.

Bretschger, L, 1999, 'Knowledge diffusion and the development of regions', *Annals of Regional Science*, Vol 33, No 3, pp 251 – 268.

Brim, O, David, GC, Glass, C, Lavin, DE and Goodman, N, 1962 *Personality and Decision Processes*. Stanford University Press, Stanford, CA.

Browne, M, 1993, *Organizational Decision Making and Information*, Ablex, Norwood, NJ.

Brush, TH, Maritan, CA & Karnani, A, 1999, 'The plant location decision in multinational manufacturing firms: An empirical analysis of international business and manufacturing strategy perspectives', *Production and Operations Management*, Vol 8, No 2 pp 109 – 132.

Canel, C & Das, SR, 1999, 'The uncapacitated multi-period location problem with profit maximization', *International Journal of Physical Distribution and Logistics Management*, Vol 29, No 6, pp 409- 433.

Canel, C & Das, SR, 2002, 'Modelling global facility location decisions: integrating marketing and manufacturing decisions', *Industrial Management and Data Systems*, Vol 102, No 2, pp110 – 118.

Caputo, AC, Pelagagge, PM & Scacchia, F, 2003, 'Integrating transport systems in supply chain management tools', *Industrial Management & Data Systems*, Vol 103, No 7, pp 503 – 515.

Carn, NG, Black, RT & Rabianski, JS, 1999, 'Operational and organisation issues facing corporate real estate executives and managers', *Journal of Real Estate Research*, Vol 17, No 3, pp 282 – 299.

Carter, E, 1971, 'The behavioural theory of the firm and top level corporate decisions', *Administrative Science Quarterly*, Vol 16, pp 413 – 428.

Cavinato, JL, 1999, 'A general methodology for determining a fit between supply chain logistics and five stages of strategic management', *International Journal of Physical Distribution and Logistics*, Vol 29, No 3, pp 162 – 180.

Christaller, W, 1933, '*Central places in southern Germany*', translated 1966 CW Baskin, Prentice Hall, Englewood Cliffs, NJ

Christensen, MF, Wisener, B & Campos, DJ, 1997, 'Attributes of tomorrow's warehouse structures', *Real Estate Review*, Vol 27, No 3, pp 51 – 57.

Clarke, I. 1995, Deconstructing retail location decisions. Working paper presented to the *Second Recent Advances in Retailing & Services Science Conference*, Broadbeach, Gold Coast, Australia, July 11–14.

Clarke, I, Bennison, D & Pal, J, 1997, 'Towards a contemporary perspective of retail location', *International Journal of Retail and Distribution*, Vol 25 No 2 pp 56 – 69.

Cohen, MD, March, JG & Olsen, JP, 1972 'A garbage can model of organizational choice', *Administrative Science Quarterly*, 17, pp. 1 – 25.

Cohen, N, 2000, *Business Location Decision Making and the Cities: Bringing Companies Back*, Brookings Institution.

Cooper, L, 1963, 'Location-allocation problems', *Operations Research*, Vol 11, pp 331 – 343

Cyert, R & March, JG, 1963, *Behavioural Theory of the Firm*, Prentice Hall, Englewood Cliffs, NJ.

Cyert, R & March, JG, 1992, *A Behavioural Theory of the Firm*, 2nd Edition, Blackwell, Oxford.

Davies, M & Clarke, I, 1994, 'A framework for network planning', *International Journal of Retail and Distribution Management*, Vol 22 No 6, pp 6 – 10.

Dawson, P, 1994, *Organisational Change: A Processual Approach*, Chapman Publishing, London.

Dawson, P, 2003, *Reshaping Change: A processual perspective*, Routledge, London.

Dean, JW & Sharfman, MP, 1996, 'Does decision process matter? A study of strategic decision making effectiveness', *Academy of Management Journal*, Vol 39, No 2, pp 368 – 396.

Diaz, J, 1990, 'How appraisers do their work: A test of the appraisal process and the development of a descriptive model', *Journal of Real Estate Research*, Vol 5, No 1, pp 1 – 15.

Diaz, J, 1993, 'Science, engineering and the discipline of real estate', *Journal of Real Estate Literature*, Vol 1, pp 183 – 195.

Diaz, J, 1999, 'The first decade of behavioural research in the discipline of property', *Journal of Property Investment and Finance*, Vol 17, No 4, pp 326 – 332.

Drucker, P, 1967, *The Effective Executive*, Harper & Row, New York.

Duhaime, IM & Baird, IS, 1987, 'Divestment decision making: The role of business unit size', *Journal of Management*, Vol 13, pp 483 – 498.

Dutton, JE & Duncan RM, 1987, 'The creation of momentum for change through the process of strategic issue diagnosis', *Strategic Management Journal*, Vol 8, pp 279 – 295.

Edwards, LE, 1983, 'Towards a process model of office location decision making', *Environment & Planning A (sic)*, Vol 15, No 10, pp 1327 – 1342.

Eisenhardt, KM, 1989a, 'Building theories from case study research', *Academy of Management Review*, Vol 14, No 4, pp 532 – 550.

Eisenhardt, KM, 1989b, 'Making fast decisions in high-velocity environments', *Academy of Management Journal*, Vol 32, pp 543 – 576.

Eisenhardt, KM, 1990, 'Speed and strategic choice: How managers accelerate decision making', *California Management Review*, Vol 32, No 3, pp 39 – 54.

Eisenhardt, KM, 1991, 'Better stories and better constructs: the case for rigor and comparative logic', *Academy of Management Review*, Vol 16, No 3, pp 620 – 627.

Eisenhardt, KM & Bourgeois, LJ, 1988, 'Politics of strategic decision making in high velocity environments', *Academy of Management Journal*, Vol 31, pp 737 – 770.

Eisenhardt, KM & Zbaracki, MJ, 1992, 'Strategic decision making', *Strategic Management Journal*, Vol 13, pp 17 – 37.

Eisenhardt, KM & Howe, K, 1990, 'Standards for qualitative and quantitative research: a prolegomenon', *Educational Researcher*, Vol 19, No 4/5 pp 2 – 9.

Ellram, LM, 1996, 'The Use of the Case Study Method in Logistics Research', *Journal of Business Logistics*, Vol 17, No 2, pp 93 – 138

Ernst & Young and International Association of Corporate Real Estate Executives (NACORE), 1992, *Reshaping America - the migration of corporate jobs and facilities*, monograph, Survey by Ernst & Young and NACORE International.

Evers, JJM, Loeve, L & Lindeijer, DG, 2000, 'New Logistic Control: Concepts, Architecture and Logistics Programming', paper presented to the 3rd International Meeting for Research in Logistics, Trois-Rivieres, Canada.

Feraud, GJS, 1998, 'Improving strategic decision making in logistics information management - a framework', *Journal of Logistics Information Management*, Vol 11, No 4, pp 232 – 243.

Ferguson, WC, Hartley, MF, Turner, GB & Pierce, EM, 1996, 'Purchasing's role in corporate strategic planning', *International Journal of Physical Distribution & Logistics*, Vol 26, No 4, pp 51 – 62.

Fitchett, TK, 1973, *Down the Bay: the story of the excursion boats of Port Phillip*, Rigby Ltd, Melbourne.

Fitchett, TK, 1976, *The Vanished Fleet: Australian Coastal Passenger Ships 1910 – 1960*, Rigby Limited, Melbourne.

Forza, C, 2002, 'Survey research in operations management: a project-based approach', *International Journal of Operations and Production Management*, Vol 22, No 2, pp 152 – 194.

Fredrickson, JW, 1984, 'The comprehensiveness of strategic decision processes: Extensions, observations, future direction', *Academy of Management Journal*, Vol 27, pp 445 – 466.

Fredrickson, JW, 1985, 'Effects of decision motive and organizational performance level on strategic decision processes', *Academy of Management Journal*, Vol 28, pp 821 – 843.

Fredrickson, JW & Mitchell, TR, 1984, 'Strategic decision processes: Comprehensiveness and performance in an industry with an unstable environment', *Academy of Management Journal*, Vol 27, pp 399 – 423.

French, N, & French, S, 1997, 'Decision theory and real estate investment', *Journal of Property Valuation and Investment*, Vol 15, No 3, pp 226 – 232.

Fuente, D de la & Lozano, J, 1998, 'Determining warehouse number and location in Spain by cluster analysis', *International Journal of Physical Distribution and Logistics Management*, Vol 28, No 1, pp 68 – 79.

Gallimore, P, Hansz, JA & Gray, A, 2000, 'Decision making in small property companies', *Journal of Property Investment and Finance*, Vol 18, No 6, pp 602 – 612.

Gallupe, RB, Dennis, AR, Cooper, WH, Valacich, JS, Bastianutti, LM & Nunamaker, JF, 1992, 'Electronic brainstorming and group size', *Academy of Management Journal*, Vol 35, No 2, pp 350 – 369.

Gavetti, G, Levinthal, DA, & Rivkin, JW, 2005, 'Strategy making in novel and complex worlds: the power of analogy', *Strategic Management Journal*, Vol 26, pp 691 – 712.

Geoffrion, AM & Powers, RF, 1995, 'Twenty years of strategic distribution system design: an evolutionary perspective', *Interfaces*, Vol 25 No 5, pp 105 – 127.

Ghosh, A & McLafferty, SL, 1987, 'Location strategies for retail and service firms', Lexington Books, Lexington, Mass.

Gibson, VA & Lizieri, CM, 2001, 'Friction and Inertia: Business Change', *Journal of Real Estate Research*, Vol 22 Nos 1/2, pp 59 – 79.

Giddings, AP, Bailey, TG & Moore, JT, 2001, 'Optimality analysis of facility location problems using response surface methodology', *International Journal of Physical Distribution and Logistics Management*, Vol 31, No 1, pp 38 – 52.

Gill, A & Ishaq Bhatti, M, 2007, 'Optimal model for warehouse location and retailer allocation', *Applied Stochastic Models in Business and Industry*, No 23, pp 213 – 221.

Glaser, B & Strauss, A, 1967, *The Discovery of Grounded Theory*, Aldin, Chicago.

Gonzalez, EP & Fernandez, MAR, 2000, 'Genetic optimisation of a fuzzy distribution model', *International Journal of Physical Distribution & Logistics Management*, Vol 30, No 7/8, pp 681 – 696.

Gore, WJ, 1962, 'Decision-Making Research: some prospects and limitations', in Mailick, S and Van Ness, EH, (Eds) *Concepts and Issues in Administrative Behavior*, Prentice Hall, Englewood Cliffs NJ.

Graaskamp, JA, 1982, 'A guide to feasibility analysis: update', monograph reprinted in Jarchow, SP, (ed), 1991, *Graaskamp on Real Estate*, Urban Land Institute, Washington.

Gunasekaran, A & Ngai, EWT, 2003, 'The successful management of a small logistics company', *International Journal of Physical Distribution & Logistics Management*, Vol 33, No 9, pp 825 – 842.

Haigh, R, 1990, 'Selecting a US Plant Location: The management decision process in foreign companies', *Columbia Journal of World Business*, Vol 25 No 3 pp 22 – 31.

Harrington, JW & Warf, B, 1995, *Industrial Location*, Routledge, London.

Harrison, EF, 1996, 'A process perspective on strategic decision making', *Management Decision*, Vol 43, No 8, pp 46 – 53.

Harrison, EF, 1999, *The Managerial Decision-Making Process*, 5th Edition, Houghton Mifflin, Massachusetts.

- Harrison, EF & Pelletier, MA, 1997, 'Managerial attitudes towards strategic decisions: maximizing versus satisficing outcomes', *Management Decision*, Vol 35 No 5, pp 358 – 364.
- Harrison, EF & Pelletier, MA, 2000, 'The essence of management decision', *Management Decision*, Vol 38 No 7, pp 462 – 469.
- Hassard, J, 1993, *Sociology and Organisation Theory: Positivism, paradigms and postmodernity*, Cambridge University Press, Cambridge.
- Hayter, R, 1997, *The Dynamics of Industrial Location: The factory, the firm and the production system*, John Wiley, Chichester.
- Healey & Baker, 1994, *The Good Office: Management and staff requirements*, Healey & Baker, London.
- Healey, MJ & Ilbery, BW, 1990, *Location and Change*, Oxford University Press, Oxford.
- Heilbrun, J, 1987, *Urban Economics and Public Policy*, St. Martin's Press, 3rd Edition, New York.
- Heller, FA, 1984, 'The role of longitudinal method on management decision-making studies' in Hunt, JG, (ed), *Leaders and Managers*, Pergamon, New York.
- Hernandez, T, & Bennis, D, 2000, 'The art and science of retail location decisions', *International Journal of Retail and Distribution Management*, Vol 28, No 8, pp 357 – 367.
- Heracleous, LT, 1994, 'Rational decision making: Myth or reality', *Management Development Review*, Vol 7, No 4, pp 16 – 23.
- Hickson, DJ, Butler, RJ, Cray, D, Mallory, GR & Wilson, DC, 1986, *Top Decisions: Strategic Decision Making in Organisations*, Jossey-Bass, San Francisco.
- Ho, PK & Perl, J, 1995, 'Warehouse location under service sensitive demand', *Journal of Business Logistics*, Vol 16, No 1, pp 133 – 162.
- Hoover, EM, 1937, *Location Theory and The Shoe and Leather Industries*, Cambridge, MA: Harvard University Press.
- Hoover, EM, 1948. *The Location of Economic Activity*. New York: McGraw-Hill.
- Hrebiniak, LG, 1978, *Complex Organizations*, West Publishing Company, St Paul, Minnesota.
- Husen, T, 1988, 'Research paradigms in education', in Keeves, JP, (ed.) *Education Research, Methodology and Measurement: an international handbook*, Pergamon Press, Oxford.

Isard, W, 1956, *Location and Space-Economy*, MIT Press, Cambridge, USA.

Jayaraman, V, 1999, 'A multi-objective logistics model for a capacitated service facility problem', *International Journal of Physical Distribution and Logistics Management*, Vol 29, No 1, pp 65 – 81.

Johnson, BE, Lorenz, E & Lundvall, B-E, 2002, 'Why all this fuss about codified and tacit knowledge', *Industrial and Corporate Change*, Vol 11, No 2.

Karakaya, F & Canel, C, 1998, 'Underlying dimensions of business location decisions', *Journal of Industrial Management & Data Systems*, 98/7, pp 321 – 329.

Kennelly, RA, 1955, 'The localization of the Mexican steel industry', *Revista Geografica*, Vol 15 pp 105 – 129, Vol 16, pp 199 – 213, Vol 17, pp 60 – 77 (original not sighted, quoted in Healy and Ilbery, 1990).

Kiridena, S, 2004, 'Operations management theory building research: The case study approach and some methodological issues', paper presented at the Academy of Management Conference, Melbourne University, Melbourne.

Kuhn, HW & Kuenne, RE, 1962, 'An efficient algorithm for the numerical solution of the generalised Weber problem in spatial economics', *Journal of Regional Science*, Vol 4, pp 22 – 33

Laios, LG & Moschuris, SJ, 2001, 'The influence of enterprise type on the purchasing decision process', *International Journal of Operations & Production Management*, Vol 21, No 3, pp 351 – 372.

La Londe, BJ & Masters, JM, 1994, 'Emerging logistics strategies: blue print for the next century', *International Journal of Physical Distribution and Logistics Management*, Vol 24, No 7, pp 35 – 47.

Lambert, DM & Stock, JR, 2001, *Strategic Logistics Management*, Irwin McGraw Hill, Boston, 4th Edition.

Lambert, DM, Cooper, MC, Pagh, JD, 1998, 'Supply chain management: implementation issues and research opportunities', *International Journal of Logistics Management*, Vol 9, No 2, pp 1 – 19.

Lambooy, JG, 1988, *Regionale economische dynamiek*, Coutinho, Muiderberg, Holland.

Lee, CY, 1993, 'The multiproduct warehouse location problem: Applying a decomposition algorithm', *International Journal of Physical Distribution and Logistics Management*, Vol 23, No 6, pp 3 – 13.

Leonard-Barton, D, 1989, 'A dual methodology for case studies: synergistic use of a longitudinal single site with replicated multiple sites', *Organization Science*, Vol 1, No 3, pp 248 – 266.

Leonard, D & McAdam, R, 2001, 'Grounded theory methodology and practitioner reflexivity in TQM research', *International Journal of Quality and Reliability Management*, Vol 18, No 2, pp 180 – 194.

Lindberg, O, 1953, 'An economic-geographical study of the localization of the Swedish paper industry', *Geografiska Annaler*, Vol 35, pp 28 – 40.

Lösch, A, 1943, *The Economics of Location*, New Haven, Yale University Press – translation by Woglom, WH, 1952.

Love, LL & Crompton, JL, 1999, 'The role of quality of life in business (re)location decisions', *Journal of Business Research*, 44, pp 211 – 222.

Love, R, Morris, J, & Wesolowsky, G, 1988. *Facilities location: Models & methods*, New York, NY: North-Holland.

Luttrell, WF, 1962, *Factory Location and Industrial Movement*, Vol I, National Institute of Economic and Social Research, London.

MacCormack, AD, Newman, LJ & Rosenfeld, DB, 1994, 'The new dynamics of global manufacturing site location', *Sloan Management Review*, Vol 35, No 4, pp 69 – 80.

McDermott, P & Taylor, M, 1982, *Industrial Organisation and Location*, Cambridge University Press, Cambridge, UK.

McNee, R. B. 1960. 'Towards a More Humanistic Economic Geography: The Geography of Enterprise', *Tijdschrift voor Economische en Social Geografie* Vol 51:201-205.

Manning, C, Rodriguez, M & Ghosh, C, 1999, 'Devising a corporate facility location strategy to maximise shareholder wealth', *Journal of Real Estate Research*, Vol 17, No 3, pp 321 – 340.

Manning, C. & Roulac, S, 2001, 'Lessons from the past and future directions for corporate real estate research', *Journal of Real Estate Research*, Vol 22, No 1 / 2, pp 7 – 57.

March, JG & Simon, HA, 1958, *Organizations*, Wiley, New York.

Markheath, 1992, 'Moving out: Relocation trends amongst London's largest companies', London Chamber of Commerce and Industry, London – original not sighted, quoted in Gibson, VA & Lizieri, CM, 2001, 'Friction and Inertia: Business Change', *Journal of Real Estate Research*, Vol 22 Nos 1/2, pp 59 – 79.

Mathieson, RS, 1967, *Patterns of Industries*, Nelson, Sydney, Australia.

- Mayhew, R, 1997, 'Geography and literature in historical context: Samuel Johnson and eighteenth-century English conceptions of geography', Research Paper no.54 Oxford: University of Oxford, School of Geography.
- Meepetchdee, Y & Shah, N, 2007, 'Logistical network design with robustness and complexity considerations', *International Journal of Physical Distribution & Logistics Management*, Vol 37, No 3, 201 – 222.
- Meredith, J, 1998, 'Building operations management theory through case and field research', *Journal of Operations Management*, Vol 16, pp 441 – 454.
- Meshkat, H & Ballou, RH, 1996, 'Warehouse location with uncertain stock availability', *Journal of Business Logistics*, Vol 17, No 2, pp 197 – 216.
- Miles, M & Huberman, A, 1994, *Qualitative Data Analysis – an expanded sourcebook*, 2nd Edition, Sage Publications, London.
- Mills, J, Neely, A, Platts, K, & Gregory, M, 1998, 'Manufacturing strategy: a pictorial representation', *International Journal of Operation and Production Management*, Vol 18, No 11, pp 1067 – 1085.
- Mills, J, Neely, A, Platts, K, Richards, H, & Gregory, M, 1998, 'The manufacturing strategy process: incorporating a learning perspective', *Integrated Manufacturing Systems*, Vol 9, No 3, pp 148 – 155.
- Mintzberg, H, Raisinghani, D & Theoret, A, 1976, 'The structure of 'unstructured' decision processes', *Administrative Science Quarterly*, Vol 21, No 2, pp 246 – 275.
- Miyazaki, AD, Phillips, JK & Phillips, DM, 1999, 'Twenty years of JBL: an analysis of published research', *Journal of Business Logistics*, Vol 20, No 2, pp 1 – 19.
- Neuman, WL, 2000, *Social Research Methods – Qualitative and Quantitative Approaches*, (4th ed.), Allyn and Bacon, Needham Heights, Massachusetts.
- Newell, A, Shaw, JC & Simon, HA, 1958, 'Elements of a theory of human problem solving', *Psychological Review*, Vol 65, pp 151 – 166.
- NHMRC, 1999, *National Statement on Ethical Conduct in Research Involving Humans*, National Health and Medical Research Council, Canberra, retrieved from <http://www7.health.gov.au/nhmrc/publications/synopses/e35syn.htm>.
- Nourse, H & Roulac, S, 1993, 'Linking real estate decisions to corporate strategy', *Journal of Real Estate Research*, Vol 8, No 4, pp 475 – 494.
- Nutt, PC, 1984, 'A dynamic theory of organizational knowledge creation', *Organizational Science*, Vol 5, No 1, pp 14 – 37.

- Nutt, PC, 1989, *Making Tough Decisions*, Jossey-Bass, San Francisco.
- O'Loughlin, A & McFadzean, E, 1999, 'Toward a holistic theory of strategic problem solving', *Team Performance Management*, Vol 5, No 3, pp 103 – 120.
- O'Mara, MA, 1999, 'Strategic drivers of location decisions for information-age companies', *Journal of Real Estate Research*, Vol 17, No 3, pp 365 – 386.
- Owen, SH, & Daskin, MS, 1998, 'Strategic facility location: a review', *European Journal of Operational Research*, No 111, pp 423 – 447.
- Papadakis, V & Barwise, TP, 1998, *Strategic Decisions*, Kluwer Academic, Dordrecht, Germany.
- Papadakis, VM, Lioukas, S & Chambers, D, 1998, 'Strategic decision-making processes: the role of management and context', *Strategic Management Journal*, Vol 19, pp 115 – 147.
- Patton, M, 1990, *Qualitative Evaluation and Research Methods*, Sage Publications, London.
- Pawson, R & Tilley, N, 1997, *Realistic Evaluation*, Sage Publications, London.
- Pedersen, EL & Gray, R, 1998, The transport selection criteria of Norwegian exporters, *International Journal of Physical Distribution and Logistics Management*, Vol 28, No 2, pp 108 – 120.
- Perry, C & Coote, L, 1994, 'Processes of a new case study research methodology: tool for management development?', Australian and New Zealand Association for Management (ANZAM) Conference, Victoria University of Wellington, Wellington.
- Perry, C, 1998, Process of a case study methodology for postgraduate research in marketing, *European Journal of Marketing*, Vol 32, No 9/10, pp 785 – 802.
- Pinfield, LT, 1986, 'A field evaluation of perspectives on organizational decision making', *Administrative Science Quarterly*, Vol 31, No 3, pp 365 – 388.
- Platts, KW & Gregory, MJ, 1990, 'Manufacturing audit in the process of strategy formulation', *International Journal of Operations & Production Management*, Vol 10, No 9, pp 5 – 26.
- Porter, ME, 1985, *Competitive Advantage*, The Free Press, New York.
- Porter, ME, 1998, *The Competitive Advantage of Nations: with a new introduction*, The Free Press, New York.

Porter, ME, 2000, 'Location, competition, and economic development: local clusters in a global economy', *Economic Development Quarterly*, Vol 14, No 1, pp 15 – 34.

Pred, A, 1967, *Behaviour and location; foundations for a geographic and dynamic location theory: Part 1*, University of Lund, Lund Studies in Geography, B No 27.

Predöhl, A, 1925, *Das Standortsproblem in der Wirtschaftstheorie*, *Weltwirtschaftliches Archiv*, Vol XXI, pp 294 – 331 original not sighted, quoted in Isard, 1956, *Location and Space-Economy*, Cambridge, MIT Press.

Predöhl, A, 1928, 'The theory of location in relation to general economics', *Journal of Political Economy*, Vol XXXVI, pp 371 – 390.

Rabianski, JS, DeLisle, JR & Carn, NG, 2001, 'Corporate Real Estate site selection: A community specific information framework', *Journal of Real Estate Research*, Vol 22, No 1/2 pp 165 – 197.

Rajagopalan, N, Rasheed, AMA & Datta, DK, 1993, 'Strategic decision processes: Critical review and future directions', *Journal of management*, Vol 19, No 2, pp 349 – 384.

Renner, GT, 1947, 'Geography of industrial localization', *Economic Geography*, Vol 23, pp.167 - 189.

Richardson, B, 1994, 'Comprehensive approach to strategic management: leading across the strategic management domain', *Management Decision*, Vol 32, No 8, pp 27 – 41.

Richardson, B, 1995, 'How to manage your organisation scientifically', *The TQM Magazine*, Vol 7 No 4, pp 42 – 56.

Rosenfield, DB, 1987, 'The retailer facility location problem: A case study', *Journal of Business Logistics*, Vol 8, No 2, pp 95 – 114.

Roulac, SE, 1999, 'Real estate value chain connections: tangible and transparent', *Journal of Real Estate Research*, Vol 17, No 3, pp 387 – 404.

Roulac, SE, 2001, 'Corporate property strategy is integral to corporate business strategy', *Journal of Real Estate Research*, Vol 22, No 1/2, pp 129 – 152.

Rushton, A & Saw, R, 1992, 'A methodology for logistics strategy planning', *The International Journal of Logistics Management*, Vol 3, No 1, pp 46 – 62.

Schilit, WK & Paine, FT, 1987, 'An examination of the underlying dynamics of strategic decisions subject to upward influence activity', *Journal of Management Studies*, Vol 24, pp 271 – 293.

Schmenner, RW, 1982, *Making Business Location Decisions*, Prentice Hall, Englewood Cliffs, NJ

Schmenner, RW, 1994, 'Service firm location decisions: some Midwestern evidence', *International Journal of Service Industry Management*, Vol 5 No 3, pp 35 – 56.

Schwardt, M & Dethloff, J, 2005, 'Solving a continuous location-routing problem by use of a self organizing map', *International Journal of Physical Distribution & Logistics Management*, Vol 35, No 6, pp 390 – 408.

Schwenk, CR, 1988, *The Essence of Strategic Decision Making*, Lexington Books, Lexington.

Schwenk, CR, 1995, 'Strategic Decision Making', *Journal of Management*, Vol 21, No 3, pp 471 – 493.

Sekaran, U, 1984, *Research Methods for Managers: a skill-building approach*, John Wiley & Sons, New York.

Shilton, L & Stanley, C, 1999, 'Spatial patterns of headquarters', *Journal of Real Estate Research*, Vol 17, No 3, pp 341 – 364.

Silverman, D, 2001, *Interpreting Qualitative Research: a guide for researchers in education and the social sciences*, Sage Publications.

Simon, HA, 1957, *Models of Man, Social and Rational: Mathematical essays on rational human behaviour in a social setting*, Wiley, New York.

Simon, HA, 1959, 'Theories of decision making in business organisations', *The American Economic Review*, Vol XLIX, No 3, pp 253 – 283.

Simon, HA, 1960, *The New Science of Management Decision*, Harper Row, New York.

Simon, HA, 1962, The decision maker as innovator. In S. Mailick and E.H. van Ness (Eds.), *Concepts and issues in administrative behaviour*, pp. 66-69. Englewood Cliffs, NJ: Prentice-Hall.

Simon HA, 1965, 'Administrative decision making', *Public Administrative Review*, 25 pp 31 – 37.

Simon, HA, 1976, *Administrative Behavior*, 3rd Edition, Free Press, New York.

Simon, HA, 1978, 'Rationality as process and product of thought', *Journal of the American Economic Association*, Vol 68, pp 1-16.

Simon, HA, 1979, 'Rational decision making in business organisations', *The American Economic Review*, Vol 69, Issue 5, pp 493 – 513.

Sitter, L, Hertog, J & Dankbaar, B, 1997, 'From complex organisations with simple jobs to simple organisations with complex jobs', *Human Relations*, Vol 50, No 5, pp 497 – 535.

Soelberg, PO, 1967, 'Unprogrammed decision-making', *International Management Review*, Spring, pp 19 – 39.

Stake, RE. 1994. Case Studies. In NK Denzin & YS Lincoln (Eds.) *Handbook of Qualitative Research* (pp. 236-247). Thousand Oaks, Sage Publications.

Stank, TP & Golsby, TJ, 2000, ' framework for transportation decision making in an integrated supply chain', *Supply Chain Management: An International Journal*, Vol 5, No 2, pp 71 – 77.

Stock, GN, Greis, NP & Kasarda, JD, 1999, 'Logistics, strategy and structure, a conceptual framework', *International Journal of Physical Distribution and Logistics*, Vol 29, No 4, pp 224 – 239.

Strauss, A & Corbin, J, 1990, *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Sage Publications, Newbury Park.

Stuart, I, McCutcheon, D, Handfield, R & Samson, D, 2002, 'Effective case research in operations management: A process perspective', *Journal of Operations Management*, Vol 20, No 5, pp 419 – 433.

Tan, KC, Lyman, SB & Wisner, JD, 2002, 'Supply chain management: a strategic perspective', *International Journal of Operations and Production Management*, Vol 22, No 6, pp 614 – 631.

Taylor, JC & Closs, DJ, 1993, 'Logistics implications of an integrated US-Canada market', *International Journal of Physical Distribution and Logistics Management*, Vol 23, No 1, pp 3 – 13.

Thompson, JD, 1967, *Organizations in Action*, McGraw-Hill, New York.

Thorne, S, 2000, 'Data analysis in qualitative research', *Evidence-Based Nursing*, Vol 3, No 1, pp 33 – 46.

Ticehurst, G & Veal, A, 2000, *Business Research Methods: a managerial approach*, Pearson Education, Frenchs Forest.

Townroe, P, 1971, *Industrial location decisions*, Occasional paper No 15, Centre for Urban and Regional Studies, University of Birmingham.

Townroe, PM, 1976, *Planning Industrial Location*, Leonard Hill Books, London.

Townroe, PM, 1991, 'Rationality in industrial location models', *Urban Studies*, Vol 28, No 3, pp 383 – 392.

- Toyne, P, 1974, *Organisation Location and Behaviour*, The Macmillan Press, London.
- Tyagi, R & Das, C, 1995, 'Manufacturer and warehouse selection for stable relationship in dynamic wholesaling and location problems', *International Journal of Physical Distribution and Logistics Management*, Vol 25 No 6, pp 54 – 72.
- Van Dijk, J & Pellenburg, PH, 2000, 'Firm location decisions in The Netherlands: An ordered logit approach', *Papers in Regional Science*, Vol 79, pp 191 – 219.
- Van de Ven, AH, 1992, 'Suggestions for studying strategy process: a research note', *Strategic Management Journal*, Vol 13, Special Issue, pp169 – 183.
- Vecchio, RP, Hearn, G & Southey, G, 1992, *Organisational Behaviour: Life at Work in Australia*, Harcourt Brace Jovanovich, Sydney.
- Von Thünen, JH, 1826, *Der isolierte Staat in Beziehung auf Landwirtschaft und Nationalökonomie*, translated by Wartenberg, Carla M, edited with an introduction by Hall, P. (1966), Pergamon Press, Oxford.
- Vos, B, 1997, 'Redesigning international manufacturing and logistics structures', *International Journal of Physical Distribution and Logistics Management*, Vol 27 No 7 pp 377 – 394.
- Voss, C, Tsikriktsis, N & Frohlich, 2002, 'Case research in operations management', *International Journal of Operations & Production Management*, Vol 22, No 2, pp 195 – 219.
- Waddell, P & Ulfarsson, GF, 2003, 'Dynamic Simulation of Real Estate Development and Land Prices within an Integrated Land Use and Transportation Model System', Presented at the 82nd Annual Meeting of the Transportation Research Board, Washington, D.C.
- Walters, D, 1999, 'The implications of shareholder value planning and management for logistics decision making', *International Journal of Physical Distribution and Logistics*, Vol 29, No 4, pp 240 – 258.
- Weber, A, 1909, *Theory and the Location of Industries*, Chicago, University of Chicago Press, translated with an introduction and notes by Friedrich, CJ, 1929.
- Welsh, MA & Slusher, EA, 1986, 'Organizational design as a context for political activity', *Administrative Science Quarterly*, Vol 31, pp 389 – 402.
- Weiss, HJ & Gershon, ME, 1993, *Production and Operations Management*, 2nd Edition, Boston MA, Allyn & Bacon.

Williamson, OE, 1975, 'Markets and hierarchies, analysis and anti-trust implication: a study in the economics of industrial organisation', Free Press, New York.

Witte, E., 'Field Research on Complex Decision-Making Processes – The Phase Theorem', *International Studies of Management and Organization*, 2(2), 1972, 156–182.

Wolpert, J, 1964, 'The decision making process in a spatial context', *Annals of the Association of American Geographers*, Vol 54, pp 537 – 558.

Wrigley N, 1996, *Sunk costs and corporate restructuring: British food retailing and the property crisis*, in 'Retailing, Consumption & Capital: Towards the New Retail Geography', Eds N Wrigley, M Lowe, Longman, Harlow, Essex pp 116 – 136

Yang, JQ & Lee, H, 1997, 'An AHP decision model for facility location selection', *Facilities*, Vol 15 No 9/10, pp 241 – 254.

Yeung, H, 1995, 'Qualitative personal interviews in international business research: some lessons from a study of Hong Kong transnational firms', *International Business Review*, Vol 4, No 3, pp 313 – 339.

Yin, RK, 2003a, *Case Study Research: Design and Methods*, 3rd Edition, Sage Publications, Thousand Oaks.

Yin, RK, 2003b, *Applications of case study research*, 2nd Edition, Sage Publications, Thousand Oaks.

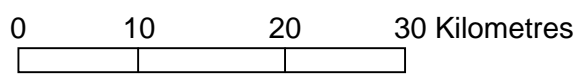
Zhao, M, Droge, C & Stank, TP, 2001, 'The effects of logistics capabilities on firm performance: Customer focused versus information focused capabilities', *Journal of Business Logistics*, Vol 22, No 2, pp 91 – 108.

Appendices

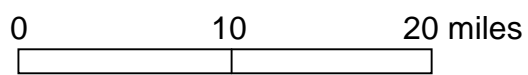
Appendix A	Map of the Melbourne metropolitan region
Appendix B	Research protocol
Appendix C	Case study questionnaires and notes
Appendix D	Origin of the case names

This page is left intentionally blank.

Map of Melbourne Metropolitan Area



Scale



Appendix B:

1. Participant's Consent form
2. Case Study Protocol and Interview Guide
3. Interview Questionnaire

1. Consent Form for Participants Involved in Research

INFORMATION TO PARTICIPANTS:

We would like to invite you to be a part of a study into the decision-making processes that transport companies use when in selecting the location of their warehouses.

This study will investigate recent warehouse location decisions made by larger transport companies to determine:

- what processes did the company use in its most recent location decision?
- what information and knowledge did the company use in making the decision?
- what was the context in which these location decisions were taken? i.e. people involved, organisation structure, policies and procedures, internal political environment, etc?
- what length of time did the most recent location decision-making process take?
- what, if any, validation processes are involved during the process?
- whether transport companies follow similar processes in regard to their warehouse location decision making?

CERTIFICATION BY PARTICIPANT

I,

of.....

certify that I am at least 18 years old and that I am voluntarily giving my consent to participate in the project entitled: **An investigation into the decision-making processes that transport companies use when selecting a warehouse location** being conducted at Victoria University of Technology by:Mr Robert Webster, Dr Ian Sadler and Professor Anona Armstrong.

I certify that the objectives of the project, together with any risks to me associated with the procedures listed hereunder to be carried out in the project, have been fully explained to me by Mr Robert Webster and that I freely consent to my participation in this project.

Procedures:

Semi structured interview with the researcher and provision of relevant company documents (if available) to the researcher for analysis.

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this project 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: 200

Dr Sadler can be contacted on 9919 1279 if there are queries about this project.

2. Protocol

2.1 Introduction to the Case Study and the Purpose of Protocol

The purpose of the current research is to explore *'how transport companies in Victoria make warehouse location decisions'*. In order to resolve this research problem, a number of case studies will be undertaken of transport companies who have been identified as changing a warehouse location within the last two years.

The field data is to be mainly collected through in-depth interviews, questionnaires and document review when available. This case study protocol is an important instrument for planning and guiding data collection procedures. The field data of all the case respondents will be collected using this protocol. In this way the consistent approach to data collection increases the reliability of the case study research. Using this protocol, the researcher solves the research problem through answering the exploratory research questions derived from the literature review (Chapter 2) and conceptual model (Chapter 3) found in the thesis.

These research questions are:

R1 Are warehouse location decisions made within a framework of three distinct steps; and within each step are there identification, development and selection phases?

R2 What contingent factors affect the WLD process?

- R2a What is the effect of interrupts and delays on the warehouse location decision-making process?

- R2b What information and knowledge was used in making the warehouse location decision?

- R2c What factors in the business environment provide the most impact on a warehouse location decision?

- R2d What are the typical behaviours of managers when making a warehouse location decision?

R3 What consolidated process is most effective in transport companies warehouse location decision-making?

2.2 Data Collection Procedures

Field procedures in relation to data collection are highly important in case study research in contrast to the experimental research as the researcher has no control over the data collection environment (Yin 1994, 2003). Therefore, patience and flexibility are necessary skills for any case study researcher to overcome some difficulties associated with field research such as the refusal of interviewees to cooperate fully. For that reason, the researcher needs to obtain knowledge of the individual case organisations prior to starting the data collection process.

The data collection process will normally begin with a telephone conversation with the selected case organisation to explain the research purpose to the participant and determine a date, time and venue for the interview. Arranged dates and times should then be confirmed with the participant a couple of days prior to the arranged date. The researcher through telephone contacts with the business executive should attempt to create a relaxed, yet professional, atmosphere with them.

Field visits are made to the company premises to interview the appropriate informant (generally the most senior executive involved in the warehouse location process). The interviews are recorded using handwritten field notes taken during the visits to the firms' sites and during the interview sessions. Interview sessions should be tape recorded where possible but it is acknowledged that there is likely to be some reluctance by many of interviewees.

Subsequent to each interview session, the researcher is to record any additional details and impressions regarding the interview immediately after leaving the site. The consent form, the questionnaire and any documents relating to the company are maintained in a separate case file for each company.

After the interviews, a follow-up telephone contact is to be made to clarify any issues that relate to the warehouse location decision-making process that were not clear from the notes of the interview. The in-depth interview data from each case study, in conjunction with any documentary material and other data sources, are to be analysed and the final individual case study report findings are prepared.

It is appropriate that the case study reports are discussed with the participants to ensure that the reports are valid. The participants are able to make changes when necessary.

2.3 Skills and Techniques for Conducting the Case Study Method

It is important that the researcher should be aware of the skills required to conduct a case study.

In this case only the researcher will be involved in collecting the field data from the identified companies. The researcher has considerable professional

experience and good interviewing skills. The following are important techniques which with the researcher should familiarise himself to improve his data collection skills.

2.3.1 Comprehension of the Research Background

The researcher needs to control the phenomenon under study by thoroughly comprehending the academic literature dealing with decision-making theories and location theories and by controlling the situation when conducting the case study. This will require the researcher to review the research questions thoroughly and to follow the prepared interview guide questions. This should ensure that all areas should be comprehensively covered during the interview. The questions should allow the researcher to gain insight into all aspects of how the firm makes its location decisions. The questionnaire has been field tested with other executives known to the researcher to ensure that the questions follow a logical order and have an internal consistency about them.

The field-testing of the questionnaire enabled the researcher to test and alter the prepared semi-structured interview guide prior to collecting the field data for the case studies from the selected transport companies. The consistency of this approach also increases the researcher's confidence in conducting the case studies.

2.3.2 Conducting the Interviews

Before conducting the interviews, the researcher needs to have developed some experience with the questionnaire – in this project that was developed during the field-testing of the questionnaire with other business executives with who the researcher was acquainted. This allowed the researcher to develop the skills of reflective questioning, summarising and controlling an interview. To conduct a good interview, the interviews need to appear unbiased, be systematic and thorough, and offer no personal views. The researcher needs to be well informed about the purpose of the interview and well-prepared and familiar with the interview questionnaire. The researcher needs to be a good listener and ask questions relevant to the research questions and purpose of the research. The interviewer should also be alert to the fact that the informant may offer additional information than just the answer to the specific question. This additional information needs to be captured and where appropriate followed up with supplementary questions.

Phrasing and paralinguistics are required to ask the right questions during the interview (voice tone and pitch, stress on particular words or phrases). Avoiding interview bias is a very important aspect and the researcher will not bring his personal perceptions into discussion by allowing the interviewee to express his opinion freely without interference and by knowing when to wait and when to prompt when asking questions. The interviewer bias could also happen in the phrasing of questions, the use of prompts and selecting which responses to explore further. The interviewer should always focus on what the interviewees are saying and clarifying what they mean. The more

time spent on active listening and the less time the interviewer spends talking, the less directive the interview will be and the less bias being introduced to interview. Some helpful techniques in conducting an interview are as follows:

- Don't interrupt; let the informant finish their thoughts.
- Follow up leads; i.e. respond to answers given, some answers will lead onto the next question.
- Ask about both sides of issue, in other words ask the same question twice in different ways to validate the answers.
- Use reflective comments that give the respondent permission to continue to discuss and consider a particular topic.

2.3.3 Body Language

It is important that the researcher pays attention to the respondent's non-verbal signals while conducting the interviews. The researcher should look at the respondent's attitude; are they relaxed and comfortable or sitting perched on the edge of their seats? Body language may indicate that there is more important information to come. The researcher's body language is also important in making the respondents feel comfortable by responding to their verbal and non-verbal signals and the researcher should give an indication of being totally immersed in the interview.

2.3.4 Silence

Silence may be very telling in a qualitative interview. The researcher needs to give the respondent the opportunity and time to reflect and add supplementary information to the specific question asked.

2.3.5 Recording Data

Whilst it is desirable that the interviews be audio-taped it will be a most common response that informants will resist this recording process. If an informant agrees to the recording the researcher should use a recorder with the capacity to record up to three hours of interview. A digital recorder should be used where approval is given to record an interview. If recording is allowed this ensures that the whole interview can be captured and provides complete data for analysis so signals or cues that were missed during the interview can be recognised when listening to the recording. It is considered that tape-recording interviews reduces the risk of interviewer bias compared with note taking.

2.3.6 Closing the Interview and Post Interview

One of the most important and difficult issues in the interviews is how to close it. Therefore, the researcher may need to develop a range of signals to indicate the end of the interview. This is generally obvious as the end of the questionnaire is reached but there needs to be the option for the respondent to provide final or concluding comments to round off the interview. After

completing the interviews, the researcher will write a brief 'thank you' letter or email to the respondents. This provides for the maintenance of a good relationship and facilitates the researcher's access to the respondent for follow up questions or clarification should the need arise.

2.4 Case Study and Interview Questions

The data will be collected via in-depth interviews using a semi-structured interview guide that includes broad open-ended questions and some closed questions. The questions of the case study interview guide are mainly open-ended, broad and indirect questions (Haigh 1990) and designed to collect rich, deep and comprehensive information about the strategic decision-making processes carried out by the selected transport firms in selecting their new warehouse location.

As regards the open-ended questions, some questions cover principal issues related to the background of the initial decision to seek a new warehouse location. Other questions address the steps and phases involved in the location decision-making process. Likewise, some open-ended questions are incorporated in the interview guide to address critical factors in determining a new warehouse location. Few questions are organised to capture any suggestions and recommendations by the participants to improve the effectiveness of future location decision-making and to learn from their experiences. The final type of open-ended question was formed to triangulate and validate some answers to the former open-ended questions. Conversely, most of the closed questions are asked during the interview sessions to gain accurate and deep picture relating to the issues raised from answering the broad open-ended questions. The case study interview questions are appended in the next section of this protocol.

With respect to the source of data and informants selection, the interviews will be conducted with the appropriate senior managers involved in the warehouse location decision-making process. In most situations this will be with a member of the senior management team of the company.

2.5 Outline of Case Study Report and Within Case Analysis

1. Introduction to the company
2. Organisation structure
3. The need for a new location
4. The regional decision
5. The site decision
6. Strategic benefits of the new location
7. Evaluation of the decision making process

2.6 Outline of the Cross-case analysis

1. Business characteristics
2. Internal characteristics of the companies
3. Drivers for the new location
4. Drivers for the regional decision
5. Location factors considered
6. Selecting the final location
7. Time taken for the decision process
8. Documentation prepared
9. Final approval
10. The real estate aspects of the decision
11. Steps evident in the location decision process
12. Review and hindsight

3. Interview Questionnaire

1. Organisation Background:

Organisation type	listed company private company other
Number of employees	
How long has the business been established	
How many warehouse locations does the business occupy in Melbourne/Victoria (?)	
Have any other warehouse location decisions have been made by the firm in the past 5 years?	
How many?	
Were they successful? (How success measured?)	
Measure of size of the operation, e.g. turnover, tonnes, pallets shipped, transactions, customers,	
Business growth in recent years? Indication by way of %p.a. increase in turnover, increase in profit etc	

2. Documentation (if available)

General company documentation, annual reports, etc
Specific documentation regarding the location decision, investment analysis, feasibility studies, board papers, etc
Organisation chart/structure

3. Detail regarding the most recent location decision.

Who raised the prospect of needing a new location? or Who was the proposer for a move?	
Who made the initial decision regarding the need for a new location? Can you provide an approximate date for that?	
What were the driving forces in seeking a new location?	
Is the existence of the facility driven by the business or the facility location? <i>Find location build business or business growth causes need for new location.</i>	
What business is being carried on in the warehouse?	
Is this business affected by its location?	
When was the (re)location completed?	Within the last 6 months 6 months to 2 years ago Over 2 years ago
What was the primary business stimulus for the relocation? Please check only ONE option. <i>(Where any others important)</i>	Cost Value for money Image Growth/expansion Market growth Merger Acquisition Consolidation Labour force A need to be closer to clients A need to be closer to suppliers Other:
Was the business stimulus (above) combined with a particular push trigger?	NO YES - Lease related push (e.g. lease renewal) YES - Location/building no longer suitable YES - Building no longer supported the Business/met requirements Other:

4. What decision-making processes did your company use in its most recent location decision? What is the level of sophistication of business planning, developed policies and procedures, etc

4A General:

How does the business generally make decisions on major issues?	
How does the business make <u>strategic</u> decisions?	
What are the general steps in making a decision in the organisation?	
Does the organisation have/use a formal business planning process?	
If yes, how do location decisions fit into that process?	

4B Specific:

Who ran the location search process? <i>Name / title</i>	
Have they been involved in location decision making before for your company?	
Who was involved in the location decision process? <i>(position titles rather than names)</i>	
Where do they fit within the organisation structure?	
What is their education, experience background?	

How many meetings were held?	
What documents were circulated to the final decision makers? (Who prepared them)	
Who made the final recommendation regarding the location decision? At what level in the organisation was the final decision taken; i.e., when the commitment was made to acquire the new location?	Office Partner/Manager Head of real estate Finance director CEO/Managing director Board of directors Other:
In your opinion had the decision been made informally before the final meeting?	
How long did the meeting take to make the decision regarding the choice of site?	
In the decision process were there other factors being considered? Equipment, vehicles, etc – which drove which?	
In your opinion was the location decision influenced by any particular person?	
Were there any informal alliances formed during the decision-making process?	

5. What information and knowledge did your company use in making the location decision?

What information was used in making the location decision? (a checklist of potential items is over the page)	Government/municipality/development agency Chamber of Commerce Websites Accountancy firm Real estate agent/consultants Management consultancy firm Other:
Who collected the information?	
How was it analysed?	
Who undertook the majority of the analysis?	
Did the firm have a general, geographic location in mind at the start of the process?	
How many alternative specific locations were considered before selecting the 'best'?	
What primary decision making processes were used to evaluate potential locations?	List of questions Brainstorming List of criteria Advantages and disadvantages Spreadsheet Requirement brief Visit a few locations to gather information Extensive matrix of criteria Benchmark based analysis If Benchmarked, what to?
Were consultants involved in the search process?	NO YES - Management Consultant YES - Accountancy Firm YES - Property Consultants YES - Inward Investment/Government Agency YES - Specialist Relocation Consultants YES - other
What was the extent of the consultants' involvement?	
Was the consultants' involvement helpful? Would you use them again?	

Checklist items

<p>CRITERIA 1 LABOUR FORCE, POPULATION AND DEMOGRAPHICS</p>	<ul style="list-style-type: none"> a - Age Profile of Workforce b - Attitude to Work / Staff Loyalty c - Readily Available Workforce d - Appropriate skill sets e - Population Growth
<p>CRITERIA 2 PHYSICAL REAL ESTATE</p>	<ul style="list-style-type: none"> a - Quality / Flexibility of Design b - Cost c - Availability d - Technological Specification e - Accessibility f - Car Parking
<p>CRITERIA 3 INFRASTRUCTURE</p>	<ul style="list-style-type: none"> a - Proximity Of Major Port or Airport b - Rail Links c - Freeway / Car Access d - Public Transport
<p>CRITERIA 4 BUSINESS ENVIRONMENT</p>	<ul style="list-style-type: none"> a - Positive Reputation as a business location b - Business Diversity c - Competitive Environment d - Synergy with other companies e - Proximity to Clients/Suppliers/Market
<p>CRITERIA 5 SECURITY & RISK</p>	<ul style="list-style-type: none"> a - Threat of Corporate Crime b - Personal Safety/Level of Crime c - Psychologically attractive/deterrent
<p>CRITERIA 6 QUALITY OF LIFE</p>	<ul style="list-style-type: none"> a Quality and availability of housing b Entertainment and culture c Access to recreation d Health & Environment e Security and personal well being
<p>CRITERIA 7 ANY OTHER ISSUES CONSIDERED?</p>	

6. What was the context in which these location decisions were taken, i.e. competitive environment, customer relationships, etc?

<p>Do you consider that the business environment in which you operate is very volatile?</p> <p>If “Yes” in what ways?</p>	<p>Yes No</p>
<p>How were customers considered in the process of analysing the location decision?</p>	
<p>Were major competitors locations considered during the analysis process?</p>	
<p>Is the new location part of a network in Melbourne/Victoria?</p> <p>If “Yes” - was the new location “filling a gap” in the existing network or a consolidation of the organisations operations?</p>	

7. What length of time did the decision-making process take the company?

<p>Time taken for the specific location decision to be made – from decision that new location was needed to commitment</p>	<p>How long did the process take, from initial decision to (re)locate, to actual move?</p> <p>Up to 3 months 3 months to 6 months 6 months to 12 months 12 months to 2 years Over 2 years</p>
<p>Was it longer than anticipated?</p>	
<p>If so, what were the factors that contributed to the delay?</p>	

8. What, if any, evaluation processes were used during the process?

What measures were used to determine effectiveness of the new location – return on capital, cost effectiveness, increase in transactions, revenue growth, customer growth, etc	
Was there a strategic benefit in moving to the new location?	
Where did financial or other benefits of the new locations flow to?	
What primary decision making technique was used to evaluate the potential properties?	Simple visit to a few selected properties. Cost driven decision e.g. NPV, IRR etc. Full criteria based audit/matrix Full strategic plan, with real estate incorporated into and aligned with the business needs Benchmarking exercise Benchmarking to what?

9. Legals regarding the new location

Tenure of the new facility – owner occupied or leased – did this impact on the decision process?	Owned – Business name Owned – Trust Owned – other Leased (other than from related party)
What was the preferred tenure?	Term / options Rent reviews Leasehold Freehold No Preference
Did the choice of tenure change during the investigation period?	
If property is leased did the terms and conditions of the lease and options available impact on the location decision? If “Yes” – how?	
Was the facility designed specifically for the organisation or was a completed development acquired?	

10. Hindsight

<p>Has the new location been a success?</p> <p>How is success measured?</p>	
<p>Would anything have been done differently?</p>	
<p>How have staff, sub-contractors reacted to the new location?</p>	
<p>How have customers reacted to the new location?</p>	
<p>Did the whole process take a shorter or longer time than anticipated?</p> <p>Why?</p>	<p style="text-align: center;">Shorter Longer</p>
<p>In your opinion, how subjective or objective was the decision process?</p> <p>Please provide reasons for your answer.</p>	<p>1 Very Subjective 2 Subjective 3 Neutral 4 Objective 5 Very Objective</p>
<p>In your opinion was the decision given the prominence or importance that it deserved?</p>	

Other comments, etc

Appendix C Transport Company cases

Introduction to cases	3
Research strategy and methods	3
Cases	
C1 Aldinga	5
C2 Bombala	17
C3 Cooma 1	28
C4 Cooma 2	39
C5 Dimboola	49
C6 Edina	59
C7 Flinders	69
C8 Gabo	80

1. Introduction to cases

This Appendix sets out the detailed report from the interview process. The interviews were conducted with senior officers of each company. In each case the interview was based on the developed questionnaire covering the process that each company had used to determine the location for a new warehouse or a relocation of an existing operation within the last three years. In addition some documentation on the companies was also collected as part of the research project.

Each case report provides comment regarding the company, its operating environment and the process by which their most recent location decision was made. In addition matters regarding the information used to make the decision and the analysis and evaluations that were undertaken in support of the location decision.

Each individual report concludes with comments regarding the decision process in hindsight and an overall assessment of the warehouse location decision-making process in the company in the context of the specific research questions posed.

2. Research strategy and methods

These cases form part of the research being undertaken for the dissertation component of a Doctor of Business Administration degree at Victoria University. All interviews were undertaken by the research student and material discussed as appropriate with academic supervisors.

Each of the companies was selected based on the fact that they had either moved or opened additional warehouse facilities between July 2003 and June 2005.

The method of data collection in these cases was by structured interviews with company officers and the analysis of documents collected in the course of the interviews.

Each of the companies interviewed were assured of confidentiality and the cases have been written to ensure that this confidentiality is respected. Any data that might specifically identify a particular company has been omitted from the case reports.

Each of the companies has been given a name that corresponds with merchant ships that served the Australian coastal trade. Only the researcher and Supervisors know the original identity of the cases.

The cases are attached as sub-appendices.

C1 Organisation Background: ALDINGA

Organisation type	Private company – part of “Whitsundays” group of over 30 private companies. General carrying business, some storage and inventory management services to small business.
Number of employees	<i>About 130 in Vic, NSW, SA & Qld</i>
How long has the business been established	<i>Since 1963</i>
How many warehouse locations does the business occupy in Melbourne/Victoria (?)	<i>1 in Dandenong South and 1 on a contract to BP in western suburbs</i>
Have any other warehouse location decisions have been made by the firm in the past 5 years?	<i>Yes – moved when we lost a contract last year</i>
How many?	<i>1</i>
Were they successful? (How success measured?)	<i>Been chasing our tail ever since – some revenue growth. Picked up a number of small customers not giving economies of scale.</i>
Measure of size of the operation, e.g. turnover, tonnes, pallets shipped, transactions, customers,	<i>Generally measure in either weight or pallets. Other one uses bulk liquid as measure. Not prepared to go into detail.</i>
Business growth in recent years? Indication by way of %p.a. increase in turnover, increase in profit etc	<i>Been OK, new business model reckons up to 6% revenue increase pa is sustainable.</i>

2. Documentation (if available)

General company documentation, annual reports, etc **Not available**
Specific documentation regarding the location decision, investment analysis, feasibility studies, board papers, etc **Not available**
Organisation chart/structure

General manager and State Managers form executive committee with one Board member.

3. Detail regarding the most recent location decision.

<p>Who raised the prospect of needing a new location? or</p> <p>Who was the proposer for a move?</p>	<p><i>Lost contract and thus accommodation.</i></p> <p><i>General manager in conj with Exec committee.</i></p>
<p>Who made the initial decision regarding the need for a new location?</p> <p>Can you provide an approximate date for that?</p>	<p>2003 due to expansion into taxi truck and other on time delivery business. Some third party logistics</p> <p><i>Prior to 2003 were mainly contract providing logistics management services</i></p>
<p>What were the driving forces in seeking a new location?</p>	<p><i>Expansion and change in the business model and loss of contract that required us to quit former premises.</i></p>
<p>Is the existence of the facility driven by the business or the facility location? <i>Find location build business or business growth causes need for new location.</i></p>	<p><i>Geographic - based on past contracts and experience in the area</i></p>
<p>What business is being carried on in the warehouse?</p>	<p><i>Storage and packing</i></p>
<p>Is this business affected by its location?</p>	<p><i>Not specifically – if a couple of bids that are out are successful then may need to look at alternative locations to adequately service new business.</i></p>
<p>When was the (re)location completed?</p>	<p><i>6 months to 2 years ago</i></p>
<p>What was the primary business stimulus for the relocation?</p> <p>Please check only ONE option.</p> <p><i>(Where any others important)</i></p>	<p>Other:</p> <p>LOSS OF CONTRACT</p>
<p>Was the business stimulus (above) combined with a particular push trigger?</p>	<p>NO</p> <p>YES - Lease related push (e.g. lease renewal)</p> <p>YES - Location/building no longer suitable</p> <p>YES - Building no longer supported the Business/met requirements</p> <p>Other: LOSS OF CONTRACT</p>

4. What decision-making processes did your company use in its most recent location decision? What is the level of sophistication of business planning, developed policies and procedures, etc

4A General:

How does the business generally make decisions on major issues?	<i>General manager in conjunction with State Managers, CFO and Bd member as executive committee</i>
How does the business make <u>strategic</u> decisions?	<i>Through executive committee to Board.</i>
What are the general steps in making a decision in the organisation?	<i>Operational issues to develop and build business plan – Gen Manager – Exec Committee – Board for final approval</i>
Does the organisation have/use a formal business planning process?	Uses budgets as planning process
If yes, how do location decisions fit into that process?	<i>Largely driven by new business and contracts that are then driven by customer requirements</i>

4B Specific:

Who ran the location search process? <i>Name / title</i>	<i>See above – GM and Exec Committee, operationally the W&OM.</i>
Have they been involved in location decision-making before for your company?	<i>Yes – both in current position and previously in other companies in the industry</i>
Who was involved in the location decision process? (<i>position titles rather than names</i>)	<i>GM, State Managers, Warehouse & Operations Manager. Senior positions in company with direct access to Board via the Executive committee (which has board member on it)</i>
Where do they fit within the organisation structure?	Self evident
What is their education, experience background?	<i>Both GM and Warehouse and Ops mgr have long experience in logistics and transport. No formal qualifications.</i>

How many meetings were held?	<i>Many – mainly informal, 3 or 4 formal in determining final recommendation Exec Comm. to Board.</i>
What documents were circulated to the final decision makers? (Who prepared them)	<i>All in-house – business case and investment evaluation - including a financial plan – 6 years proj incorporated information about additional fitout required and other capital expenditure.</i>
Who made the final recommendation regarding the location decision? At what level in the organisation was the final decision taken; i.e., when the commitment was made to acquire the new location?	<i>General manager – to Executive Committee and then through to the Board of directors Board on recommendation, business model, investment parameters and advice from Executive Committee</i>
In your opinion had the decision been made informally before the final meeting?	<i>Yes – once identified corner site.</i>
How long did the meeting take to make the decision regarding the choice of site?	<i>Short work</i>
In the decision process were there other factors being considered? Equipment, vehicles, etc – which drove which?	<i>Generally considered in the business case – particularly issues regarding new forklifts, racking and inventory control systems investment. Business decision drives other aspects</i>
In your opinion was the location decision influenced by any particular person?	No
Were there any informal alliances formed during the decision-making process?	None apparent

5. What information and knowledge did your company use in making the location decision?

What information was used in making the location decision? (a checklist of potential items is over the page)	<i>Based on building availability within 5 km distance from where contract was lost. Issue with NUW and Tpt workers awards where redundancies can be requested where a move is more than 5 kilometres. Employee demographics</i>
Who collected the information?	Internally collected and generated – primarily by W&OM
How was it analysed?	Internally
Who undertook the majority of the analysis?	GM and operations staff
Did the firm have a general, geographic location in mind at the start of the process?	Yes – see earlier comments
How many alternative specific locations were considered before selecting the ‘best’?	3 or 4 in the close geographical area before selecting this one on a corner site.
What primary decision making processes were used to evaluate potential locations?	List of questions – information on available sites Brainstorming List of criteria Advantages and disadvantages Spreadsheet Requirement brief Visit a few locations to gather information Extensive matrix of criteria Benchmark based analysis If Benchmarked, what to?
Were consultants involved in the search process?	NO <i>but W&OM has used consultants in past in other logistics related employment. (Graeme Parton – Pinnacle Property)</i>
What was the extent of the consultants’ involvement?	N/a
Was the consultants’ involvement helpful? Would you use them again?	<i>N/a but used in the past in other employment and they were good (Pinnacle Property) – would use them again.</i>

Checklist items

<p>CRITERIA 1 LABOUR FORCE, POPULATION AND DEMOGRAPHICS</p>	<p>a - Age Profile of Workforce b - Attitude to Work / Staff Loyalty c - Readily Available Workforce C d - Appropriate skill sets e - Population Growth</p>
<p>CRITERIA 2 PHYSICAL REAL ESTATE</p>	<p>a - Quality / Flexibility of Design b – Cost C c - Availability d - Technological Specification e - Accessibility f - Car Parking I</p>
<p>CRITERIA 3 INFRASTRUCTURE</p>	<p>a - Proximity Of Major Port or Airport b - Rail Links c - Freeway / Car Access C d - Public Transport</p>
<p>CRITERIA 4 BUSINESS ENVIRONMENT</p>	<p>a - Positive Reputation as a business location b - Business Diversity c - Competitive Environment d - Synergy with other companies e - Proximity to Clients/Suppliers/Market</p> <p>Proximity to existing location C</p>
<p>CRITERIA 5 SECURITY & RISK</p>	<p>a - Threat of Corporate Crime b - Personal Safety/Level of Crime c - Psychologically attractive/deterrent</p>
<p>CRITERIA 6 QUALITY OF LIFE</p>	<p>a Quality and availability of housing b Entertainment and culture c Access to recreation d Health & Environment e Security and personal well being</p>
<p>CRITERIA 7 ANY OTHER ISSUES CONSIDERED?</p>	<p>5 km rule</p>

6. What was the context in which these location decisions were taken, i.e. competitive environment, customer relationships, etc?

<p>Do you consider that the business environment in which you operate is very volatile?</p> <p>If “Yes” in what ways?</p>	<p>Yes - <i>much contract volatility with contracts generally being sought on lowest price – significant resistance to price increases</i></p>
<p>How were customers considered in the process of analysing the location decision?</p>	<p><i>Major importance with main customers influencing the location of the warehouse</i></p>
<p>Were major competitors locations considered during the analysis process?</p>	<p><i>Not really – but knew where they were A bit more important now as they are looking to expand our business and do some international work.</i></p>
<p>Is the new location part of a network in Melbourne/Victoria?</p> <p>If “Yes” - was the new location “filling a gap” in the existing network or a consolidation of the organisations operations?</p>	<p>No replacement for lost accommodation</p>

7. What length of time did the decision-making process take the company?

<p>Time taken for the specific location decision to be made – from decision that new location was needed to commitment</p>	<p>Pretty quick due to loss of contract. <i>Vacant building “just around the corner” Attractive rental rate as building had been vacant since construction Say 4 months at maximum</i></p>
<p>Was it longer than anticipated?</p>	<p>No</p>
<p>If so, what were the factors that contributed to the delay?</p>	<p>None</p>

8. What, if any, evaluation processes were used during the process?

What measures were used to determine effectiveness of the new location – return on capital, cost effectiveness, increase in transactions, revenue growth, customer growth, etc	<i>Bottom line impact – allowed for some revenue growth when contract was lost</i>
Was there a strategic benefit in moving to the new location?	<i>Yes – created impetus for new business model and development of other lines of business</i>
Where did financial or other benefits of the new locations flow to?	Bottom line and hopefully to our customers <i>Other companies in the group(?)</i>
What primary decision making technique was used to evaluate the potential properties?	<i>Fitted the business plan and financials were achievable – significant urgency!</i>

9. Legals regarding the new location

Tenure of the new facility – owner occupied or leased – did this impact on the decision process?	<i>Leased – yes building was vacant and available</i>
What was the preferred tenure?	Term / options 6 yrs Rent reviews 2 yearly rent reviews to market <i>Leasehold</i>
Did the choice of tenure change during the investigation period?	<i>No</i>
If property is leased did the terms and conditions of the lease and options available impact on the location decision? If “Yes” – how?	Considered in the business case
Was the facility designed specifically for the organisation or was a completed development acquired?	We leased a vacant building

10. Hindsight

<p>Has the new location been a success? How is success measured?</p>	<p><i>No – playing catchup for a while and often taken on business just to make sure that the rent was covered. Some revenue growth. Parts of our business are not a strategic fit – evolving to our new business model..</i></p>
<p>Would anything have been done differently?</p>	<p>Yes – racking and lighting were fitted in wrong locations and caused internal inefficiencies <i>Computer system data issues – current system not fully integrated and creates some difficulty with inventory management.</i></p>
<p>How have staff, sub-contractors reacted to the new location?</p>	<p><i>Pretty good response as we were able to stay in same area</i></p>
<p>How have customers reacted to the new location?</p>	<p><i>Nothing changed from their point of view as long as service is being delivered.</i></p>
<p>Did the whole process take a shorter or longer time than anticipated? Why?</p>	<p><i>Slightly Shorter</i></p>
<p>In your opinion, how subjective or objective was the decision process? Please provide reasons for your answer.</p>	<p>1 Very Subjective 2 Subjective 3 Neutral 4 Objective 5 Very Objective <i>Urgency of the process drove decision process</i></p>
<p>In your opinion was the decision given the prominence or importance that it deserved?</p>	<p><i>Yes, high level engagement and involvement in the decision process</i></p>

Other comments, etc

Aldinga – RW 20th April 2005 – dictated driving home from interview

Aldinga – current location since end of 2003 start 2004 when they moved in from about 1.5 km away where they had lost a contract.

Property is leased about 47000 sq ft with height in middle of about 11.3m and a racking height of 7.3m. Currently have contracts with a number of businesses where they move stuff on a contract basis.

The decision to move was forced on them due to losing / walking away from another contract. They were sub-letting premises from their client. In that process they looked at the same geographical area in order that largely their employees would remain faithful to them.

Company offers contract warehousing, taxi truck on demand business and some minor 3PL work in order to meet existing customer requirements.

W&OM - DH commented that the business had been chasing its tail since it moved in – the former warehouse managed had chased some not particularly good business and there are little synergies between their businesses and customers and that caused a few problems.

And they have been playing catch-up as the businesses were being chased just to cover the rent and outgoings. It is interesting that since they moved in they have had some warehouse problems – the racking and lighting had been put in the wrong way, there was insufficient power to add further lights. Some real building upgrades just to meet current demands. That has cost a few dollars and they haven't recovered from that. The business is doing reasonably well but has been struggling of late as it has lost another of its contracts and is currently bidding for other business.

ALDINGA Logistics is a company in the Whitsundays group – there are about 30 other businesses in the group and they are run as individual private companies.

The decision making processes within the organisation essentially come from operational level to an exec team that comprises GM Vic & State Managers SA & NSW, group MD and CFO, and a member from the Board who sits on the Exec committee.

The Exec Committee is the major decision making body within DTM and its decisions are then ratified at board level. Both the GM, Steve and W&OM (DH) have significant industry experience but are relatively new to the company in the past two years. Have probably up to 50 years of tpt and logistics experience between them. That level of experience is supported by other general managers in the company who all have substantial industry experience.

In their last location decision it was literally forced on them by the loss of a contract but both Steve and David have in their previous business lives used consultants in developing location plans, etc. David H in his last job used Pinnacle Property (Barry Brakey and Graham Parton). Last decision made pretty ad hoc and quickly based on pure geographic factors and proximity to previous warehouse that they were running.

The environment of the business is very volatile and competitive both at bidding for contract and contracts with whom they do business are fairly aggressive in seeking the better deal so there is continual pressure on margins and re-bidding for business is part of W&OM job on a day to day basis at the same time many of the contractors are seeking alternative transport warehousing businesses in order to ensure that margins as tight as possible.

We talked about the left turn principle and yes W&OM confirmed that that is one of the issues that is considered but their workforce is the major issues with much of their workforce live in the Hampton Park, Somerville sort of areas that are geographically to the east and south east of their current location and that has been fairly critical for them.

The firm has just made another location decision in South Australia and that decision was made by way of acquisition of another business that is to be integrated into the DTM business and current structure. DH said that this was going to be an interesting process as they did not want to loose customers of the acquired business so had moved into the warehouse occupied by them but certainly over time there will be some rationalisation.

W&OM was also conscious of decisions that were made when they moved into their existing accommodation – their information systems and warehouse management systems is not efficient as it should be and it restricts some of their inventory management attempts and interfacing with some of their customers requirements where they cannot provide up to date information that is meaningful.

Other thing from an information point of view – the private company does not publish annual reports etc – in fact in their waiting area there were 1994 issues of WM material and industry publications. I thought that this was certainly indicative of some of the thinking in the business.

Comments regarding research questions

R1 Are warehouse location decisions made within a framework of three distinct steps; and within each step are there identification, development and selection phases?

Yes all phases were noted during this decision process, although the identification issue was forced by the loss of a contract and I believe that the urgency required shortened the development and selection phases. It could be argued that they were not in a position to negotiate the best deal available due to their business situation in being required to vacate existing premises at relatively short notice.

- R2 What contingent factors affect the WLD process?

There were none apparent in this case.

- R2a What is the effect of interrupts and delays on the warehouse location decision-making process?

In this case no interrupts or delays were noted but any delay would have meant that the company may have had to vacate with no other premises to use for their business.

- R2b What information and knowledge was used in making the warehouse location decision?

Competitor and customer locations, availability of vacant premises, financial implications for lease commitments and fit-out and operational requirements were all factors considered in the process.

- R2c What factors in the business environment provided the most impact on a warehouse location decision?

In Aldinga's case the major factors were the loss of a contract that brought their current occupancy to an end and the need to stay locally to maintain good relationships with their existing workforce and other customers.

- R2d What are the typical behaviours of managers when making a warehouse location decision?

There were initial concerns as the location decision had to be made quickly. This led to some uncertainty regarding the initial stages of the location decision process. In this respect the prior location decision-making experience of two of the managers was an advantage in this case. Once the decision was made regarding the local area (Decision 1A) this minimised the uncertainty and focused the attention of the personnel involved on the detailed site search and evaluation.

C2. Organisation Background: BOMBALA

Organisation type	<i>Now a private company – well established – was privatised by family a number of years ago.</i>
Number of employees	<i>Approximately 9,000 across whole group with about 4,000 vehicles</i>
How long has the business been established	<i>1956</i>
How many warehouse locations does the business occupy in Melbourne/Victoria (?) (28 Aust wide)	<i>Currently 12 but consolidating a couple of smaller ones – back to around 10 by end of 2006.</i>
Have any other warehouse location decisions have been made by the firm in the past 5 years?	<i>Significant number both for general freight and for customer specific purposes.</i>
How many?	<i>Many! – at least 6</i>
Were they successful? (How success measured?)	<i>Most have been – often using existing buildings is a form of compromise but those which have been purpose built are of a high standard and provide economic benefits and are market competitive. Look for both operational efficiency and cost efficiency.</i>
Measure of size of the operation, e.g turnover, tonnes, pallets shipped, transactions, customers,	<i>Each facility varies dramatically – but generally say that Bombala is a very large operation across the board.</i>
Business growth in recent years? Indication by way of %p.a. increase in turnover, increase in profit etc	<i>Substantial – particularly with contract work.</i>

2. Documentation (if available)

General company documentation, annual reports, etc
 Specific documentation regarding the location decision, investment analysis, feasibility studies, board papers, etc
 Organisation chart/structure

Some material on generally company documentation – nothing specific on decision processes.

3. Detail regarding the most recent location decision.

<p>Who raised the prospect of needing a new location? or</p> <p>Who was the proposer for a move?</p>	<p><i>Business development with new customer contract.</i></p>
<p>Who made the initial decision regarding the need for a new location?</p> <p>Can you provide an approximate date for that?</p>	<p><i>Generally the business development people initiate such a decision – in this case they did. Have won a contract that is due to commence at start of 2007.</i></p>
<p>What were the driving forces in seeking a new location?</p>	<p><i>Business – to meet new customer requirements. But then took opportunity to look at consolidation of some smaller facilities.</i></p>
<p>Is the existence of the facility driven by the business or the location</p>	<p><i>By the new business won.</i></p>
<p>What business is being carried on in the warehouse?</p>	<p><i>Both general freight and specific customer distribution requirements.</i></p>
<p>Is this business affected by its location?</p>	<p><i>Yes – proximity to major customer’s manufacturing operation.</i></p>
<p>When was the (re)location completed?</p>	<p><i>Decision was made within last 3 months – now negotiating with developer for purpose built warehouse – move will not be completed until building finished.</i></p>
<p>What was the primary business stimulus for the relocation?</p> <p>Please check only ONE option.</p>	<p><i>Growth/expansion – won new customer</i></p> <p><i>Note the trade-offs between the need to be near customer and also proximity to end client.</i></p> <p><i>Use of internal modeling group for material on which to make decision.</i></p>
<p>Was the business stimulus (above) combined with a particular push trigger?</p>	<p><i>Other - new business opportunity – allowed some consolidation of other facilities.</i></p>

4. What decision-making processes did your company use in its most recent location decision? What is the level of sophistication of business planning, developed policies and procedures, etc

4A General:

How does the business make decisions on major issues?	<i>Collegiate, consensus approach generally once business development aspects are completed.</i>
How does the business make <u>strategic</u> decisions?	<i>Through development of business case, investment evaluation and risk assessments to Senior Management / Board.</i>
What are the steps in making a decision in the organisation? What are they?	<i>See above – also use internal property division for property related decisions.</i>
Does the organisation have/use a formal business planning process?	<i>Yes – highly structured, business planning and budgeting processes.</i>
If yes, how do location decisions fit into that process?	<i>In strategic context of business but also Property Division is a profit centre in its own right. Property play is also important part of business and profitability.</i>

4B Specific:

Who ran the location search process?	<i>Business development people and DJ as general manager leading the operational managers..</i>
Have they been involved in location decision making before for your company?	<i>Yes – at least 6 occasions over the last 5 years.</i>
Who was involved in the location decision process? What are their positions, where do they fit within the organisation structure? <i>(position titles rather than names)</i>	<i>Business development Supply chain modeling group Facilities and project managers General manager and operations Bombala property group</i>
Where do they fit in the organisation structure?	<u>Mostly “staff” groups</u>
What is their education, experience background?	<i>Broad range of skills and qualifications - engineering, business, law, operations research, scientists, construction management</i>

How many meetings were held?	<i>5 meetings plus substantial email circulation of documents prior to meetings</i>
What documents were circulated to the decision makers? (Who prepared them)	<i>Business case (bus development) Investment evaluation Risk assessment – all staff contributed</i>
Who made the final recommendation regarding the location decision? At what level in the organisation was the final decision taken; i.e., when the commitment was made to acquire the new location?	<i>General manager of division to CEO/Managing director CEO</i>
In your opinion had the decision been made informally before the final meeting?	<i>Decision has generally been made based on email and information discussions.</i>
How long did the meeting take to make the decision?	<i>Generally pretty quickly if the documentation has been circulated and agreed prior to meetings .</i>
In the decision process were there other factors being considered? Equipment, vehicles, etc – which drove which?	<i>Vehicle requirements, fit-out requirements, inventory management systems – anything that would be required to meet the requirements of the customers/clients. Extent of capital expenditure needed.</i>
In your opinion was the location decision influenced by any particular person?	<i>No</i>
Were there any informal alliances formed during the decision-making process?	<i>None apparent – we use a fairly informal consensus type approach</i>

5. What information and knowledge did your company use in making the location decision?

What information was used in making the location decision? (See page 6 for listing of items.)	<i>Demographics / labour force Customers and other potential customers Travel times</i>
Who collected the information?	<i>Internally collected and collated</i>
How was it analysed?	<i>From both a mathematical and commercial basis.</i>
Who undertook the majority of the analysis?	<i>Supply chain modeling group and business development areas</i>
Did the firm have a general, geographic location in mind at the start of the process?	<i>Yes – due to potential major customer and transport infrastructure and need for access to markets</i>
How many alternative specific locations were considered before selecting the ‘best’?	<i>2 or 3 with negotiations continuing with developer who has site in best location.</i>
What primary decision making processes were used to evaluate potential locations?	<i>Brainstorming List of criteria Advantages and disadvantages Requirement brief - all were used once business development had confirmed the deal was on!</i>
Were consultants involved in the search process?	<i>No external consultants – use of internal property division for negotiations</i>
What was the extent of the consultants involvement?	<i>See above</i>
Was the consultants involvement helpful? Would you use them again?	<i>See above – company policy to use internal division wherever appropriate.</i>

<p>CRITERIA 1 LABOUR FORCE, POPULATION AND DEMOGRAPHICS</p>	<p>a - Age Profile of Workforce b - Attitude to Work / Staff Loyalty c - Readily Available Workforce I d - Population Growth</p>
<p>CRITERIA 2 PHYSICAL REAL ESTATE</p>	<p>a - Quality / Flexibility of Design C b - Cost c – Availability d - Technological Specification e - Accessibility f - Car Parking I</p>
<p>CRITERIA 3 INFRASTRUCTURE</p>	<p>a - Proximity Of Major Airport I b - Rail Links c - Freeway / Car Access C d - Public Transport</p>
<p>CRITERIA 4 BUSINESS ENVIRONMENT</p>	<p>a - Positive Reputation as a business location b - Business Diversity c - Competitive Environment d - Synergy with other companies e - Proximity to Clients/Suppliers/Market C</p>
<p>CRITERIA 5 SECURITY & RISK</p>	<p>a - Threat of Corporate Crime b - Personal Safety/Level of Crime c – Security requirements – not in choosing but has an impact on operations</p>
<p>CRITERIA 6 QUALITY OF LIFE</p>	<p>a Quality and availability of housing b Entertainment and culture c Access to recreation d Health & Environment e Security and personal well being</p>
<p>CRITERIA 7 LOCAL ENVIRONMENT AND COMMUNITY (ADDED)</p>	<p>welcoming and looking to support the development of additional business</p> <p>Land available for expansion M</p> <p>Ability to have input to the design of the facility C</p>

DJ noted that there was rarely such a detailed choice and many location decisions were a compromise based on business requirements and the availability of suitable premises / locations.

6. What was the context in which these location decisions were taken, i.e. competitive environment, customer relationships, ?

<p>Do you consider that the business environment in which you operate is very volatile?</p> <p>If “Yes” in what ways?</p>	<p><i>Yes – transport and logistics is a highly competitive industry</i></p>
<p>How were customers considered in the process of analysing the location decision?</p>	<p><i>They are often the driver in transport business location decisions</i></p>
<p>Were major competitors locations considered during the analysis process?</p>	<p><i>Not in this case, but clearly we generally watch what the opposition is doing!</i></p>
<p>Is the new location part of a network in Melbourne/Victoria?</p> <p>If “Yes” - was the new location “filling a gap” in the existing network or a consolidation of the organisations operations?</p>	<p><i>Yes it is part of a network of operations in Melbourne but was really a stand alone decision due to the main client’s requirements.</i></p>

7. What length of time did the decision-making process take each company?

<p>Time taken for the specific location decision to be made – from decision that new location was needed to commitment.</p>	<p><i>5 months to 6 months</i></p>
<p>Was it longer than anticipated?</p>	<p><i>A little bit longer than the norm in our company – partly due to negotiations allowing us to play off two developers!</i></p>
<p>If so, what were the factors that contributed to the delay?</p>	<p><i>Not applicable</i></p>

8. What, if any, evaluation processes were used during the process?

What measures were used to determine effectiveness of the new location – return on capital, cost effectiveness, increase in transactions, revenue growth, customer growth, etc	<i>10 year business case for revenue growth – matches contract length</i> <i>Investment evaluation that considered return on capital and cost effectiveness.</i>
Was there a strategic benefit in moving to the new location?	Yes
Where did financial or other benefits of the new locations flow to?	<i>Will flow to our bottom line when operations commenced.</i>
What primary decision making process was used to evaluate the potential properties?	<i>Cost driven decision e.g. NPV, IRR etc. and full strategic plan, with real estate incorporated into and aligned with the business needs. Partly driven by Property Group/Division</i>

9. Legals regarding the new location

Tenure of the new facility – owner occupied or leased – did this impact on the decision process?	<i>Leasehold – there are elements of risk attached to freehold and tie up of capital that make such a tenure the less preferred. Ability to tailor lease terms to meet the business contractual arrangements entered into.</i> <i>12 year lease with fixed dollar rent reviews each two years</i>
What was the preferred tenure?	<i>Leasehold</i>
Did the choice of tenure change during the investigation period?	No
If property is leased did the terms and conditions of the lease and options available impact on the location decision? If “Yes” – how?	<i>Not really – but needs to be tied to other contracts. Generally if dealing with a developer there is ability to tailor terms and conditions to the business requirements. Considered in the business case</i>
Was the facility designed specifically for the organisation or was a completed development acquired?	<i>Not owned but were able to have some input to building design with real estate developer.</i>

10. Hindsight

Has the new location been a success?	<i>Cannot say as yet – haven't moved in – but should be</i>
How is success measured?	<i>Post script – Yes, revenue increased</i>
Would anything have been done differently?	<i>Try not to make too many compromises!</i>
How have staff, sub-contractors reacted to the new location?	<i>Not applicable as yet</i>
How have customers reacted to the new location?	<i>Client is excited about the new location and potential business relationship</i>
Did the whole process take a shorter or longer time than anticipated?	<i>A bit longer than expected - Decision process about 5 – 6 months</i>
Why?	<i>Post script – development took about 16 months to complete before occupation</i>
In your opinion, how subjective or objective was the decision process? Please provide reasons for your answer.	1 Very Subjective 2 Subjective 3 Neutral 4 Objective 5 Very Objective – due to the testing along the way and the use of modeling group and property group
In your opinion was the decision given the prominence or importance that it deserved?	<i>Yes – major involvement with internal groups associated with the proposal</i>

Other comments, etc

Notes made after interview with BOMBALA

What clearly comes through from this interview is that the Bombala Group generally have a fairly sophisticated decision making process. The decision-making process for location decisions is generally/largely based on their consumer or customer requirements their contracts etc and everything is subject to a business case and where they think they want to be.

Clearly they understand decision-making in a locational context. They have a property group within the Bombala Group that is responsible for both internal and internal real estate liaison and they do all the work and negotiations on the operating groups behalf once the operational areas have made a decision. Decisions themselves are often compromises depending on the availability of land, the

availability of buildings as DJ said you can have a good location with a fairly crappy building that meets a particular need at a particular time but then you can have no building, no location and you need to start from scratch. They tend to lease property with the leases tied very closely to their business relationships, their contracts etc and in some cases short term leases up to 3 – 6 months to meet overflow requirements but generally will take leases up to 10 years that tie in with their contractual relationships.

In making decisions they use an internal group, “Supply chain modelling group” who use many of the mathematical methods that have been propounded in the literature and then of course being put into place using a pretty pragmatic approach to where they are precisely going. That forms part of their business case that they have modelled it and they have researched it and clearly the balance of the business case is based on profitability or cost effective provision of service to their customer, etc.

Each business case is subject to a rigorous risk evaluation exercise based on their internal risk management processes – clearly this is a major part of their approvals process to ensure that all the risks are covered and considered.

The decision that we concentrated on was the establishment of a new distribution centre (DC) for a specific client, but the DC will deal with multiple clients once established. The specific client who has driven this decision is a manufacturer who is looking for Australia wide distribution out of a manufacturing plant in Victoria. The contract is expected to commence at the start of 2007 so they are clearly at the commitment stage for building etc with only 15 months or so lead time. Currently negotiating with a developer for a purpose built property. In that respect the Logistics group has internally some fit-out people who look after the day to day aspects of ensuring that the property works and will fit the purpose for which it has been leased. In effect ensuring that it will meet their needs.

Process regarding a location decision is firstly have a business reason for needing a new location, then review the market for available options, develop a business case including an investment evaluation and evaluate how it fits with overall corporate strategy and then the risk evaluation and how it fits. The timing of the decision process is generally 3 – 5 meetings and a fair amount of email discussion takes place and all the documents are well and truly on the table before meetings take place – generally a relatively straight forward process.

DJ is an engineer by profession and has been in his current job for about three years. He has recently returned from a residential short course at an American university in management of the logistics process. His current responsibilities are due to be slightly increased in the near future with him taking on some international responsibilities for NZ and Asia.

Telephone contact was made in 8/2007 as a follow up.

Addressing the research questions

R1 Are warehouse location decisions made within a framework of three distinct steps; and within each step are there identification, development and selection phases?

These three steps and phases were clearly identified in this case.

R2 What contingent factors affect the WLD process?

- R2a What is the effect of interrupts and delays on the warehouse location decision-making process?

In this case there were no delays or interrupts noted possibly due to previous experience within Bombala and the use of its in-house team to drive the data collection and analysis process prior to recommendation for decision.

- R2b What information and knowledge was used in making the warehouse location decision?

Legal and operational matters, customer requirements, available sites, workforce issues, financial impacts, risk assessments

- R2c What factors in the business environment provide the most impact on a warehouse location decision?

The clients requirements were the over riding issue in respect of the decision under review.

- R2d What are the typical behaviours of managers when making a warehouse location decision?

In the case of Bombala managers have been involved in this type of decision in recent years and have the process well established and capable of being implemented efficiently. Confidence about process was evident from the discussions. Use of internal consultants who had also previously been involved in such decisions

C3. Organisation Background: COOMA 1

Organisation type	<i>Listed company (in middle of takeover battle)</i>
Number of employees	<i>6,000</i>
How long has the business been established	<i>1980's – various iterations and takeovers – name changed to Cooma Corp in 1996.</i>
How many warehouse locations does the business occupy in Melbourne/Victoria (?)	<i>4 – 3 leased – S/E(2), W, owned in W</i>
Have any other warehouse location decisions have been made by the firm in the past 5 years?	<i>Yes</i>
How many?	<i>2, one the owned one and another that was recently leased.</i>
Were they successful? (How success measured?)	<i>Yes – measured by finances, customer satisfaction.</i>
Measure of size of the operation, e.g. turnover, tonnes, pallets shipped, transactions, customers,	<i>See annual reports</i>
Business growth in recent years? Indication by way of %p.a. increase in turnover, increase in profit etc	<i>Significant – see annual report.</i>

2. Documentation (if available)

General company documentation, annual reports, etc GOT

Specific documentation regarding the location decision, investment analysis, feasibility studies, board papers, etc NOT AVAILABLE

Organisation chart/structure SEE ANNUAL REPORT

3. Detail regarding the most recent location decision.

Who raised the prospect of needing a new location? or Who was the proposer for a move?	<i>Business development manager</i>
Who made the initial decision regarding the need for a new location? Can you provide an approximate date for that?	<i>Business development manager</i> <i>Warehouse owner occupied about end 2004</i>
What were the driving forces in seeking a new location?	<i>Need to consolidate less efficient facilities and allow for business expansion which required access to other transport infrastructure. City link (freeway system generally) Access to port and access to Dynon Road rail facility – other division of company is involved in rail transport.</i>
Is the existence of the facility driven by the business or the facility location? <i>Find location build business or business growth causes need for new location.</i>	<i>Business growth (additional demand from customers) has driven need for new location to meet requirements of contract / operations.</i>
What business is being carried on in the warehouse?	<i>General but part redeveloped for dangerous goods warehouse</i>
Is this business affected by its location?	<i>Yes</i>
When was the (re)location completed?	<i>About 18 months ago</i>
What was the primary business stimulus for the relocation? Please check only ONE option. (Where any others important)	<i>Growth/expansion of existing operations</i> <i>Others:</i> <i>supply chain efficiencies – Efficient utilization of existing infrastructure asset base</i> <i>Market growth</i> <i>A need to be closer to clients</i>
Was the business stimulus (above) combined with a particular push trigger?	<i>NO</i> <i>Other:</i>

4. What decision-making processes did your company use in its most recent location decision? What is the level of sophistication of business planning, developed policies and procedures, etc

4A General:

How does the business generally make decisions on major issues?	<i>Cap ex approvals Business case – detailed financials Business development</i>
How does the business make <u>strategic</u> decisions?	<i>Long term strategic planning to utilise infrastructure</i>
What are the general steps in making a decision in the organisation?	<i>Proposal Planning Financials Cap ex approval</i>
Does the organisation have/use a formal business planning process?	<i>Not in group but some detailed planning in individual business units</i>
If yes, how do location decisions fit into that process?	<i>Consistent approach with other decisions Provide utilization of other facilities in group – particularly terminal based.</i>

4B Specific:

Who ran the location search process? <i>Name / title</i>	<i>Vic manager w/housing Business development manager Property division and strategic analyst</i>
Have they been involved in location decision making before for your company?	<i>Senior people – expect so – have been involved at national business level.</i>
Who was involved in the location decision process? <i>(position titles rather than names)</i>	<i>Business development manager Business analyst Victorian Manager w/housing</i>
Where do they fit within the organisation structure?	<i>Middle and senior management</i>
What is their education, experience background?	<i>Long time tpt and logistics MBA, Commerce/economics</i>

How many meetings were held?	<i>Mainly informal in planning stage – 4 – 5 during approvals process</i>
What documents were circulated to the final decision makers? (Who prepared them)	<i>Consultants reports Business plans Bus development Projected P&L – other financials Cap ex proposals including fitout building improvements, plant and equipment and info systems. Risk analysis Bus development/operational staff and reviewed by strategic analyst at CEO office</i>
Who made the final recommendation regarding the location decision? At what level in the organisation was the final decision taken; i.e., when the commitment was made to acquire the new location?	<i>CEO to Board of directors Top of the organisation</i>
In your opinion had the decision been made informally before the final meeting?	<i>Yes – due to extensive consultation and review of documentation – particularly capex request.</i>
How long did the meeting take to make the decision regarding the choice of site?	<i>Relatively short</i>
In the decision process were there other factors being considered? Equipment, vehicles, etc – which drove which?	<i>IT implications Racking Vehicles including forklifts and container stackers</i>
In your opinion was the location decision influenced by any particular person?	<i>Vic warehouse manager driving process</i>
Were there any informal alliances formed during the decision-making process?	<i>Yes – some based on people who had delivered projects before and could be relied upon</i>

5. What information and knowledge did your company use in making the location decision?

What information was used in making the location decision? (a checklist of potential items is over the page)	<i>Websites Real estate agent/consultants - urbis Management consultancy firm Information from local council</i>
Who collected the information?	<i>Consultants</i>
How was it analysed?	<i>Initially by consultants and then in-house</i>
Who undertook the majority of the analysis?	<i>Generally internally with some consultant input</i>
Did the firm have a general, geographic location in mind at the start of the process?	<i>Yes</i>
How many alternative specific locations were considered before selecting the 'best'?	<i>Looked at 6 sites but made detailed evaluation of 2</i>
What primary decision making processes were used to evaluate potential locations?	<i>List of criteria – (i) based on customer requirements and (ii) based on potential synergies with other company infrastructure Advantages and disadvantages</i>
Were consultants involved in the search process? CHECK regarding other consultants	<i>YES - Management Consultant Gillon YES - Property Consultants - urbis</i>
What was the extent of the consultants' involvement?	<i>Extensive</i>
Was the consultants' involvement helpful? Would you use them again?	<i>Yes Yes (will, and have used them)</i>

Checklist items

<p>CRITERIA 1 LABOUR FORCE, POPULATION AND DEMOGRAPHICS</p>	<p>a - Age Profile of Workforce b - Attitude to Work / Staff Loyalty Readily Available Workforce M d - Appropriate skill sets e - Population Growth</p>
<p>CRITERIA 2 PHYSICAL REAL ESTATE</p>	<p>Quality / Flexibility of Design C b - Cost c - Availability Technological Specification C Accessibility f - Car Parking C</p>
<p>CRITERIA 3 INFRASTRUCTURE</p>	<p>Proximity Of Major Port C Rail Links I Freeway / Car Access C d - Public Transport</p>
<p>CRITERIA 4 BUSINESS ENVIRONMENT</p>	<p>Positive Reputation as a business location b - Business Diversity c - Competitive Environment d - Synergy with other companies Proximity to Clients I</p>
<p>CRITERIA 5 SECURITY & RISK</p>	<p>a - Threat of Corporate Crime b - Personal Safety/Level of Crime c - Psychologically attractive/deterrent</p>
<p>CRITERIA 6 QUALITY OF LIFE</p>	<p>a Quality and availability of housing b Entertainment and culture c Access to recreation d Health & Environment e Security and personal well being</p>
<p>CRITERIA 7 ANY OTHER ISSUES CONSIDERED?</p>	<p>Proximity to existing locations I Competitor locations I Land available for expansion I Ability to design buildings C</p>

6. What was the context in which these location decisions were taken, i.e. competitive environment, customer relationships, etc?

<p>Do you consider that the business environment in which you operate is very volatile?</p> <p>If “Yes” in what ways?</p>	<p><i>Yes customers treat logistics as a commodity and always searching for cheapest price</i></p> <p><i>Little customer loyalty</i></p> <p><i>On line tendering – driving best bang for buck approach</i></p>
<p>How were customers considered in the process of analysing the location decision?</p>	<p><i>Absolutely</i></p>
<p>Were major competitors locations considered during the analysis process?</p>	<p><i>Reviewed to pick their strengths and weakness in that particular location and see if there were any lessons that could be learned.</i></p>
<p>Is the new location part of a network in Melbourne/Victoria?</p> <p>If “Yes” - was the new location “filling a gap” in the existing network or a consolidation of the organisations operations?</p>	<p><i>Yes</i></p> <p><i>No – new business opportunities but also some benefits for our other infrastructure.</i></p>

7. What length of time did the decision-making process take the company?

<p>Time taken for the specific location decision to be made – from decision that new location was needed to commitment</p>	<p><i>12 or so months to make decision and acquire land – then another 15 months to get appropriate permits and develop for use</i></p>
<p>Was it longer than anticipated?</p>	<p><i>Yes – see comment below</i></p>
<p>If so, what were the factors that contributed to the delay?</p>	<p><i>Permit issues and delays in building – particularly after contamination found on site.</i></p> <p><i>We have added questions to internal proforma checklist to cover this eventually happening again</i></p>

8. What, if any, evaluation processes were used during the process?

What measures were used to determine effectiveness of the new location – return on capital, cost effectiveness, increase in transactions, revenue growth, customer growth, etc	<i>Business case which detailed return on investment / cap ex model with detail regarding building improvements, fitout, additional plant and equipment Additional revenue and profitability Customer satisfaction</i>
Was there a strategic benefit in moving to the new location?	<i>Yes – ability to have access to other company owned facilities and infrastructure</i>
Where did financial or other benefits of the new locations flow to?	<i>Within group</i>
What primary decision making technique was used to evaluate the potential properties?	<i>Cost driven decision e.g. NPV, IRR etc. Full strategic plan, with real estate incorporated into and aligned with the business needs</i>

9. Legals regarding the new location

Tenure of the new facility – owner occupied or leased – did this impact on the decision process? What was the preferred tenure?	<i>Owned – in the business name – but was originally to be a leased property. Option changed when site identified that had available land area to allow for expansion and other development.</i>
Did the choice of tenure change during the investigation period?	<i>Yes, Open mind depending on availability at start but then moved to ownership model due to future expansion availability</i>
If property is leased did the terms and conditions of the lease and options available impact on the location decision? If “Yes” – how?	<i>No – see above comment</i>
Was the facility designed specifically for the organisation or was a completed development acquired?	<i>Designed specifically as one of the two businesses on the site has a dangerous goods warehouse.</i>

10. Hindsight

Has the new location been a success? How is success measured?	<i>Yes – financial and customer satisfaction Increased revenue and business efficiency</i>
Would anything have been done differently?	<i>Surprised by the contamination issue – slightly different site review would have been adopted.</i>
How have staff, sub-contractors reacted to the new location?	<i>No issues noted</i>
How have customers reacted to the new location?	<i>Well</i>
Did the whole process take a shorter or longer time than anticipated? Why?	<i>Longer See previous comments</i>
In your opinion, how subjective or objective was the decision process? Please provide reasons for your answer.	<i>1 Very Subjective 2 Subjective 3 Neutral 4 Objective 5 Very Objective with strategic intent, within business development / client requirements</i>
In your opinion was the decision given the prominence or importance that it deserved?	<i>Yes – board approval Post implementation evaluation and review back to capex proposal.</i>

Other comments, etc

Cooma's is a publicly listed company and a copy of the most recent annual report is in the file. Plenty of stuff on their website. At the date of the discussion Cooma is involved in a takeover battle.

They run 4 warehouses in Victoria, 3 leased and one owned. Both leased are in S/E and other two are in W region. In addition there is some hard stand and annex areas within the Melbourne port area.

Cooma 1 is Cherry Lane, Laverton - SC was intimately involved in and it clearly indicates the process that the company uses for decisions of this kind.

Cooma have a well established WLD. Their wld actually starts with their business development people all driven by what customers want from their relationship. Once they get down the track with a business development proposal they look at sites that generally meet, essentially, the customers requirements. In turn the process is generally driven by the business development managers and business analysts working through to the divisional head. (GM) Necessary paperwork – business development plans, budgets and financial are developed and capex proposals. Capex is the critical one and it needs board approval before they move to do anything. Before a capex proposal goes to the board – the numbers are independently crunched by an analyst attached to the CEO's office, who tests the assumptions and second guesses the information in the documentation.

Once through that process and board approval given, the business case and capex submission becomes the document against which performance is judged going forward. (first company to make this comment)

Interesting to note that as they go through the business planning processes there is very little inter-reaction between the different business units. This is often related to minor differences in the past – often some competitive pressures internally.

Cooma is the first company that has indicated a major use of consultants for site selection in both data gathering and analysis and negotiations. They are using both urbis and Gillon.

The Cherry lane property which is owned by Cooma Properties has a site that is sufficiently large so that two separate business units are operating there and still have plenty of room for expansion in the future.

Interesting comment made by SC the difference between a tenanted and owner occupied property in that the tenanted one generally has minimal hard stand and circulation area compared to an owner occupied one that generally has a better external environment. Developer has generally allowed for the minimum of turning circles and little car parking for owned site generally go for more extensive parking and turning circles.

Addressing the research questions for Cooma 1

R1 Are warehouse location decisions made within a framework of three distinct steps; and within each step are there identification, development and selection phases?

The three phases are clearly evident in this case.

R2 What contingent factors affect the WLD process?

- R2a What is the effect of interrupts and delays on the warehouse location decision-making process?

There were no apparent interrupts in the location decision process. Some were noted during the planning and construction of the building.

- R2b What information and knowledge was used in making the warehouse location decision?

A broad range of strategic and operational issues were considered in this case.

- R2c What factors in the business environment provide the most impact on a warehouse location decision?

The decision was client driven together with the need to 'add value' to other infrastructure assets.

- R2d What are the typical behaviours of managers when making a warehouse location decision?

It is evident that there is a well rehearsed process within the company.

C4. Organisation Background: COOMA 2

Organisation type	<i>Listed company (in middle of takeover battle)</i>
Number of employees	<i>6,000</i>
How long has the business been established	<i>1980's – various iterations and takeovers – name changed to Cooma Corp in 1996.</i>
How many warehouse locations does the business occupy in Melbourne/Victoria (?)	<i>4 – 3 leased – S/E(2), W, owned in W</i>
Have any other warehouse location decisions have been made by the firm in the past 5 years?	<i>Yes</i>
How many?	<i>2, one the owned one and another that was recently leased</i>
Were they successful? (How success measured?)	<i>Yes – measured by finances, customer satisfaction.</i>
Measure of size of the operation, e.g. turnover, tonnes, pallets shipped, transactions, customers,	<i>See annual reports</i>
Business growth in recent years? Indication by way of %p.a. increase in turnover, increase in profit etc	<i>Significant – see annual report.</i>

2. Documentation (if available)

General company documentation, annual reports, etc GOT

Specific documentation regarding the location decision, investment analysis, feasibility studies, board papers, etc NOT AVAILABLE

Organisation chart/structure SEE ANNUAL REPORT

3. Detail regarding the most recent location decision.

Who raised the prospect of needing a new location? or Who was the proposer for a move?	<i>Business development manager</i>
Who made the initial decision regarding the need for a new location? Can you provide an approximate date for that?	<i>Victorian General Manager Logistics in conjunction with Business development manager and Warehouse Manager.</i> <i>Warehouse occupied early 2005</i>
What were the driving forces in seeking a new location?	<i>City link and access to freeway system generally.</i> <i>Access to Dynon Road rail facility – other division of company is involved in rail transport.</i>
Is the existence of the facility driven by the business or the facility location? <i>Find location build business or business growth causes need for new location.</i>	<i>Business growth (new customer) has driven need for new location to meet requirements of contract / operations – also allows for expansion capacity to other areas of the business.</i>
What business is being carried on in the warehouse?	<i>General cartage and inventory storage and management</i>
Is this business affected by its location?	<i>Yes – close to main client manufacturing plant.</i>
When was the (re)location completed?	<i>Over 12 months ago</i>
What was the primary business stimulus for the relocation? Please check only ONE option. (Where any others important)	<i>Growth/expansion</i> <i>Others:</i> <i>supply chain efficiencies – efficient utilization of existing asset base</i>
Was the business stimulus (above) combined with a particular push trigger?	NO Other:

4. What decision-making processes did your company use in its most recent location decision? What is the level of sophistication of business planning, developed policies and procedures, etc

4A General:

How does the business generally make decisions on major issues?	Cap ex approvals <i>Business case – detailed financials</i> Business development
How does the business make <u>strategic</u> decisions?	<i>Long term strategic planning to utilise infrastructure</i>
What are the general steps in making a decision in the organisation?	<i>Proposal Planning Financials Cap ex approval</i>
Does the organisation have/use a formal business planning process?	<i>Not in group but some detailed planning in individual business units</i>
If yes, how do location decisions fit into that process?	<i>Consistent approach with other decisions Provide utilization of other facilities in group – particularly terminal based.</i>

4B Specific:

Who ran the location search process? <i>Name / title</i>	<i>Vic manager w/housing Business development manager Property division and strategic analyst</i>
Have they been involved in location decision making before for your company?	<i>Senior people – expect so – have been involved at national business level.</i>
Who was involved in the location decision process? <i>(position titles rather than names)</i>	<i>Business development manager Business analyst Victorian Manager w/housing</i>
Where do they fit within the organisation structure?	<i>Middle and senior management</i>
What is their education, experience background?	<i>Long time tpt and logistics MBA Commerce/economics</i>

How many meetings were held?	<i>Mainly informal in planning stage – say 3 or 4 during approvals process</i>
What documents were circulated to the final decision makers? (Who prepared them)	<i>Consultants reports Business plans Bus development Projected P&L – other financials Bus devel Cap ex proposals Bus devel/strategic analyst</i>
Who made the final recommendation regarding the location decision? At what level in the organisation was the final decision taken; i.e., when the commitment was made to acquire the new location?	<i>Victorian General Manager Logistics to CEO Top of the organisation without going to the Board. Could be approved within CEO delegation as it was an operational matter.</i>
In your opinion had the decision been made informally before the final meeting?	<i>Yes – due to extensive consultation and review of documentation – particularly capex request.</i>
How long did the meeting take to make the decision regarding the choice of site?	<i>Relatively short – some pressure from client drove urgency.</i>
In the decision process were there other factors being considered? Equipment, vehicles, etc – which drove which?	<i>IT implications Racking Vehicles including forklifts and container stackers</i>
In your opinion was the location decision influenced by any particular person?	<i>Vic warehouse manager driving process</i>
Were there any informal alliances formed during the decision-making process?	<i>None noted</i>

5. What information and knowledge did your company use in making the location decision?

What information was used in making the location decision? (a checklist of potential items is over the page)	<i>Real estate websites Real estate agent/consultants - urbis</i>
Who collected the information?	<i>Consultants collected information regarding properties that were vacant</i>
How was it analysed?	<i>Compared against customer requirements</i>
Who undertook the majority of the analysis?	<i>Internally with some consultant input</i>
Did the firm have a general, geographic location in mind at the start of the process?	Yes
How many alternative specific locations were considered before selecting the 'best'?	2
What primary decision making processes were used to evaluate potential locations?	<i>List of criteria – based on customer requirements Advantages and disadvantages Requirement brief from client</i>
Were consultants involved in the search process? CHECK regarding other consultants	<i>YES - Property Consultants - urbis</i>
What was the extent of the consultants' involvement?	<i>Identification of suitable vacant buildings</i>
Was the consultants' involvement helpful? Would you use them again?	Yes <i>Yes (will and have used them)</i>

Checklist items

<p>CRITERIA 1 LABOUR FORCE, POPULATION AND DEMOGRAPHICS</p>	<p>a - Age Profile of Workforce b - Attitude to Work / Staff Loyalty Readily Available Workforce I d - Appropriate skill sets e - Population Growth</p>
<p>CRITERIA 2 PHYSICAL REAL ESTATE</p>	<p>Quality / Flexibility of Design b - Cost c - Availability Technological Specification Accessibility f - Car Parking</p>
<p>CRITERIA 3 INFRASTRUCTURE</p>	<p>Proximity Of Major Port I Rail Links I Freeway / Car Access C d - Public Transport</p>
<p>CRITERIA 4 BUSINESS ENVIRONMENT</p>	<p>Positive Reputation as a business location b - Business Diversity c - Competitive Environment d - Synergy with other companies Proximity to Clients I</p>
<p>CRITERIA 5 SECURITY & RISK</p>	<p>Customer specific requirements I a - Threat of Corporate Crime b - Personal Safety/Level of Crime c - Psychologically attractive/deterrent</p>
<p>CRITERIA 6 QUALITY OF LIFE</p>	<p>a Quality and availability of housing b Entertainment and culture c Access to recreation d Health & Environment e Security and personal well being</p>
<p>CRITERIA 7 ANY OTHER ISSUES CONSIDERED?</p>	<p>Cost C</p>

6. What was the context in which these location decisions were taken, i.e. competitive environment, customer relationships, etc?

<p>Do you consider that the business environment in which you operate is very volatile?</p> <p>If “Yes” in what ways?</p>	<p><i>Yes customers treat logistics as a commodity and always searching for cheapest price</i></p> <p><i>Little customer loyalty</i></p> <p><i>On line tendering – driving best bang for buck approach</i></p>
<p>How were customers considered in the process of analysing the location decision?</p>	<p><i>Yes – primary driver</i></p>
<p>Were major competitors locations considered during the analysis process?</p>	<p><i>Reviewed but pretty much constrained to customer requirements..</i></p>
<p>Is the new location part of a network in Melbourne/Victoria?</p> <p>If “Yes” - was the new location “filling a gap” in the existing network or a consolidation of the organisations operations?</p>	<p><i>Yes</i></p> <p><i>No – new business opportunity</i></p>

7. What length of time did the decision-making process take the company?

<p>Time taken for the specific location decision to be made – from decision that new location was needed to commitment</p>	<p><i>5 months to make decision and occupy premises from signing contract with customer.</i></p>
<p>Was it longer than anticipated?</p>	<p><i>About the time anticipated – able to get facility set up prior to contract commencement</i></p>
<p>If so, what were the factors that contributed to the delay?</p>	<p><i>N/a</i></p>

Comment - often customer time line driven – also contractual issues – terminate one contract and transfer to new provider has impact on time and whether you will have the time to seek existing available rental accommodation.

8. What, if any, evaluation processes were used during the process?

What measures were used to determine effectiveness of the new location – return on capital, cost effectiveness, increase in transactions, revenue growth, customer growth, etc	<i>Return on investment / cap ex model Additional revenue and profitability Risk assessment</i>
Was there a strategic benefit in moving to the new location?	<i>Yes – ability to have access to other company owned facilities and infrastructure</i>
Where did financial or other benefits of the new locations flow to?	<i>Within group</i>
What primary decision making technique was used to evaluate the potential properties?	<i>Profitability on contract and return on investment for additional plant.</i>

9. Legals regarding the new location

Tenure of the new facility – owner occupied or leased – did this impact on the decision process? What was the preferred tenure?	<i>Leased for a 5 year term (consistent with current contract) with rent reviews two yearly to market Leasehold</i>
Did the choice of tenure change during the investigation period?	<i>Lease to fit contract term</i>
If property is leased did the terms and conditions of the lease and options available impact on the location decision? If “Yes” – how?	<i>No – but site chosen was one where the landlord was prepared to match lease term with contract.</i>
Was the facility designed specifically for the organisation or was a completed development acquired?	<i>No – some minor fitout required.</i>

10. Hindsight

Has the new location been a success? How is success measured?	<i>Yes – revenue increase and customer satisfaction</i>
Would anything have been done differently?	<i>Surprised by the contamination issue – slightly different site review would have been adopted.</i>
How have staff, sub-contractors reacted to the new location?	<i>good</i>
How have customers reacted to the new location?	<i>Well</i>
Did the whole process take a shorter or longer time than anticipated? Why?	<i>About time originally expected</i> <i>See previous comments</i>
In your opinion, how subjective or objective was the decision process? Please provide reasons for your answer.	1 Very Subjective 2 Subjective 3 Neutral 4 Objective 5 Very Objective within business development / client requirements <i>Subject to post implementation review</i>
In your opinion was the decision given the prominence or importance that it deserved?	<i>Yes –approval by CEO within operational delegation.</i> <i>Post implementation evaluation and review back to capex proposal.</i>

Other comments, etc

Cooma's is a publicly listed company and a copy of the most recent annual report is in the file. Plenty of stuff on their website. At the date of the discussion Cooma is involved in a takeover battle.

They run 4 warehouses in Victoria, 3 leased and one owned. Both leased are in S/E and other two are in W region. In addition there is some hard stand and annex areas within the Melbourne port area.

COOMA 2 - This decision related to a site in inner west. Cooma's had done a deal with "U" to take over a lot of their work in warehouse and distribution work and this site was seen as the most appropriate.

Cooma have well established WLD. Their wld actually starts with their business development people all driven by what customers want from their relationship. Once they get down the track with a business development proposal they look at sites that generally meet, essentially, the customers requirements. In turn the process is generally driven by the business development managers and business analysts working through to the divisional head. (GM) Necessary paperwork – business development plans, budgets and financial are developed and capex proposals. Capex is the critical one and it needs board approval before they move to do anything. Before a capex proposal goes to the board – the numbers are independently crunched by an analyst attached to the CEO's office, who tests the assumptions and second guesses the information in the documentation.

In the case of COOMA 2 there was little capex required and the CEO authorised within operational delegation.

Once through that process and board approval given the business case becomes the document against which performance is judged going forward. (first company to make this comment)

Interesting to note that as they go through the business planning processes there is very little inter-reaction between the different business units. This is often related to minor differences in the past – often some competitive pressures internally.

Addressing the research questions for Cooma 2

R1 Are warehouse location decisions made within a framework of three distinct steps; and within each step are there identification, development and selection phases?

Yes, each phase was evident in this case.

R2 What contingent factors affect the WLD process?

- R2a What is the effect of interrupts and delays on the warehouse location decision-making process?

None noted in this case.

- R2b What information and knowledge was used in making the warehouse location decision?

There was a wide range of past experience, the specific client requirements and operational data used in the decision process.

- R2c What factors in the business environment provide the most impact on a warehouse location decision?

The major factor was the company's interaction with its client.

- R2d What are the typical behaviours of managers when making a warehouse location decision?

There is a well rehearsed location decision making process within this company.

C5 Organisation Background: DIMBOOLA

Organisation type	<i>Private company- owned by one person (PF)</i>
Number of employees	<i>Approx 150 across three businesses, initially in wharf cartage and now to distribution of containers and product.</i>
How long has the business been established	<i>About 15 years</i>
How many warehouse locations does the business occupy in Melbourne/Victoria?	<i>2 - Current site (32 acres) and contract management of about 9500 m2 of other space</i>
Have any other warehouse location decisions have been made by the firm in the past 5 years?	<i>Yes</i>
How many?	<i>1 major acquisition of land to produce additional space for the company's operations – currently being developed into new facility.</i>
Were they successful? (How success measured?)	<i>Work in process – as planning approvals just being obtained prior to commencement of work</i>
Measure of size of the operation, e.g. turnover, tonnes, pallets shipped, transactions, customers,	<i>Vehicle movements, containers handled.</i>
Business growth in recent years? Indication by way of %p.a. increase in turnover, increase in profit etc	<i>Significant by way of acquisition and ability to attract work away from other business</i>

2. Documentation (if available)

General company documentation, annual reports, etc **Promotion material only**
Specific documentation regarding the location decision, investment analysis, feasibility studies, board papers, etc **some viewed during interview – (pretty basic)**
Organisation chart/structure

3. Detail regarding the most recent location decision.

Who raised the prospect of needing a new location? or Who was the proposer for a move?	<i>Operations and need to provide service to customers in outer eastern/south eastern suburbs – also longer term move to use of Westernport as the major port for Melbourne. Proposal came out of longer term view of the future of the organisation. MD influence (sole owner)</i>
Who made the initial decision regarding the need for a new location? Can you provide an approximate date for that?	<i>MD / exec group About mid 2003</i>
What were the driving forces in seeking a new location?	<i>Operational, longer term view of tpt and distribution, longer term view of wharf operations</i>
Is the existence of the facility driven by the business or the facility location? <i>Find location build business or business growth causes need for new location.</i>	<i>To build business as well as to service existing customers. Purchase of 48 acres in Dandenong area early in 2006.</i>
What business is being carried on in the warehouse?	<i>When completed will nearly replicate existing operations in W Melb in vicinity of port area.</i>
Is this business affected by its location?	<i>Yes – as most work from wharf cartage and distribution</i>
When was the (re)location completed?	<i>In process</i>
What was the primary business stimulus for the relocation? Please check only ONE option. (Where any others important)	<i>Owners strategic view of the future of the transport and logistics industry Others: Growth/expansion Consolidation A need to be closer to clients</i>
Was the business stimulus (above) combined with a particular push trigger?	<i>NO – additional building to support expanded operations Other:</i>

4. What decision-making processes did your company use in its most recent location decision? What is the level of sophistication of business planning, developed policies and procedures, etc

4A General:

How does the business generally make decisions on major issues?	<i>Discussion and prioritising by the management team</i>
How does the business make <u>strategic</u> decisions?	<u>As above but with owner having major input and final say!</u>
What are the general steps in making a decision in the organisation?	<i>Proposal that meets strategic view of business, business plan and financial evaluation then to management meetings.</i>
Does the organisation have/use a formal business planning process?	<i>No, planning from constant evaluation of operating environment and overall strategic direction</i>
If yes, how do location decisions fit into that process?	<i>Different to general business planning but intrinsically linked.</i>

4B Specific:

Who ran the location search process? <i>Name / title</i>	<i>Owner (Managing director)</i>
Have they been involved in location decision making before for your company?	<i>Well experienced has previously been involved in location decision making for previous businesses.</i>
Who was involved in the location decision process? <i>(position titles rather than names)</i>	<i>Owner (MD) Gen manager – transport Warehousing and dist manager (DL)</i>
Where do they fit within the organisation structure?	<i>Titles say it all!</i>
What is their education, experience background?	<i>MD – long experience as owner-operator in transport, others have appropriate technical and experience. DL been with logistics etc since beginning as grad trainee with TNT. All with strategic view of where business should be.</i>

How many meetings were held?	<i>Numerous</i>
What documents were circulated to the final decision makers? (Who prepared them)	<i>Modeling of transport operations Business case Financial evaluation All prepared in house</i>
Who made the final recommendation regarding the location decision? At what level in the organisation was the final decision taken; i.e., when the commitment was made to acquire the new location?	<i>Managing director/owner He is the boss!</i>
In your opinion had the decision been made informally before the final meeting?	<i>Yes</i>
How long did the meeting take to make the decision regarding the choice of site?	<i>Very short time – a formality only – due to involvement of main players in site search and evaluation.</i>
In the decision process were there other factors being considered? Equipment, vehicles, etc – which drove which?	<i>Significant factor – integral to the decision, building design, vehicles, capacity Fork lifts, etc</i>
In your opinion was the location decision influenced by any particular person?	<i>Yes MD who drove the process</i>
Were there any informal alliances formed during the decision-making process?	<i>No – pretty close group of senior staff.</i>

5. What information and knowledge did your company use in making the location decision?

What information was used in making the location decision? (a checklist of potential items is over the page)	<i>Developed a criteria matrix – criteria required to support business needs Real estate agent/consultants were interviewed as part of process to get their input. Local council economic development material</i>
Who collected the information?	<i>MD</i>
How was it analysed?	<i>Against criteria previously established</i>
Who undertook the majority of the analysis?	<i>GM and finance exec</i>
Did the firm have a general, geographic location in mind at the start of the process?	<i>Yes – wanted to be in south-eastern region</i>
How many alternative specific locations were considered before selecting the 'best'?	<i>4 different sites before settling on preferred</i>
What primary decision making processes were used to evaluate potential locations?	<i>List of criteria Advantages and disadvantages Visit a few locations to gather information Extensive matrix of criteria to meet business needs</i>
Were consultants involved in the search process?	<i>NO r/e agents were interviewed initially but not otherwise used.</i>
What was the extent of the consultants' involvement?	<i>Real estate agents - minimal</i>
Was the consultants' involvement helpful? Would you use them again?	<i>Primarily at the negotiation stage only. Useful – to mask identity of buyer.</i>

Checklist items

<p>CRITERIA 1 LABOUR FORCE, POPULATION AND DEMOGRAPHICS</p>	<p>a - Age Profile of Workforce b - Attitude to Work / Staff Loyalty c - Readily Available Workforce I d - Appropriate skill sets e - Population Growth</p>
<p>CRITERIA 2 PHYSICAL REAL ESTATE</p>	<p>a - Quality / Flexibility of Design Cost C Availability d - Technological Specification Accessibility f - Car Parking I</p>
<p>CRITERIA 3 INFRASTRUCTURE</p>	<p>Proximity Of Major Port I <i>Rail Links C</i> Freeway / Car Access C d - Public Transport</p>
<p>CRITERIA 4 BUSINESS ENVIRONMENT</p>	<p>Positive Reputation as a business location b - Business Diversity Competitive Environment I d - Synergy with other companies Proximity to Clients/Suppliers/Market I</p>
<p>CRITERIA 5 SECURITY & RISK</p>	<p>a - Threat of Corporate Crime b - Personal Safety/Level of Crime c - Psychologically attractive/deterrent</p>
<p>CRITERIA 6 QUALITY OF LIFE</p>	<p>a Quality and availability of housing b Entertainment and culture c Access to recreation d Health & Environment e Security and personal well being</p>
<p>CRITERIA 7 ANY OTHER ISSUES CONSIDERED?</p>	<p>Land available for expansion Ability to design improvements</p>

6. What was the context in which these location decisions were taken, i.e. competitive environment, customer relationships, etc?

<p>Do you consider that the business environment in which you operate is very volatile?</p> <p>If “Yes” in what ways?</p>	<p>Yes <i>takeover’s – some rationalization in the industry due to changing technology and not all the smaller companies are able to keep up. We have made two small acquisitions.</i></p>
<p>How were customers considered in the process of analysing the location decision?</p>	<p><i>Yes – their locations and what are their current and emerging needs</i></p>
<p>Were major competitors locations considered during the analysis process?</p>	<p><i>Yes – but would this location give competitive advantage – particularly relating to time</i></p>
<p>Is the new location part of a network in Melbourne/Victoria?</p> <p>If “Yes” - was the new location “filling a gap” in the existing network or a consolidation of the organisations operations?</p>	<p><i>Yes – replicate the W Melb operation to be able to better service clients in the SE sector. Also to provide future access to developing port infrastructure at Westernport and changing road networks</i></p>

7. What length of time did the decision-making process take the company?

<p>Time taken for the specific location decision to be made – from decision that new location was needed to commitment</p>	<p><i>Over 2 years in the search and acquisition process</i> <i>12 months later we are now getting approvals for development and building.</i></p>
<p>Was it longer than anticipated?</p>	<p><i>A bit longer than originally thought for the land acquisition but 12 months have been good in planning for buildings and improvements.</i></p>
<p>If so, what were the factors that contributed to the delay?</p>	<p><i>Design of improvements – looking at about 10000m2 of food grade warehousing and 14000m2 of annex area undercover with maximum clear span – ability to use 70 tonne reach stacker.</i></p>

8. What, if any, evaluation processes were used during the process?

What measures were used to determine effectiveness of the new location – return on capital, cost effectiveness, increase in transactions, revenue growth, customer growth, etc	<i>Did it fit our listed criteria and expectations. Financials are really a secondary consideration after that.</i>
Was there a strategic benefit in moving to the new location?	<i>Yes – clearly with longer term in mind</i>
Where did financial or other benefits of the new locations flow to?	<i>Business benefits – able to be more competitive and add to bottom line.</i>
What primary decision making technique was used to evaluate the potential properties?	<i>Criteria based audit/matrix Longer term strategic view, with real estate incorporated into and aligned with the business needs</i>

9. Legals regarding the new location

Tenure of the new facility – owner occupied or leased – did this impact on the decision process? What was the preferred tenure?	<i>Owned – Trust Operating business will lease from related party Freehold</i>
Did the choice of tenure change during the investigation period?	<i>N/a</i>
If property is leased did the terms and conditions of the lease and options available impact on the location decision? If “Yes” – how?	<i>N/a</i>
Was the facility designed specifically for the organisation or was a completed development acquired?	<i>Specifically designed for business</i>

10. Hindsight

Has the new location been a success? How is success measured?	<i>Not able to comment</i> <i>Post script – initial revenue growth noted – early days yet (3/2008)</i>
Would anything have been done differently?	<i>Probably try to shorten the time frame</i>
How have staff, sub-contractors reacted to the new location?	<i>Not in operation yet – not widely known we have bought site.</i> <i>Postscript – too early to tell</i>
How have customers reacted to the new location?	<i>N/a</i> <i>Postscript - Seem ok</i>
Did the whole process take a shorter or longer time than anticipated? Why?	<i>Longer – just making sure!</i>
In your opinion, how subjective or objective was the decision process? Please provide reasons for your answer.	1 Very Subjective 2 Subjective 3 Neutral 4 Objective 5 Very Objective – plenty of time / reviewing / back tracking to ensure that everything was being covered
In your opinion was the decision given the prominence or importance that it deserved?	<i>Yes – it's the owner's money (and retirement funds)</i>

Other comments, etc

Operation claims to be biggest wharf carrier in Melbourne.

Issues with vehicle permits – carriage of containers B doubles, super B's – very political process in Victoria.

Land availability – pinched it from under the noses of the developers – cut out the middleman!

To be held in separate entity than operating entities.

Interview notes DIMBOOLA

DIMBOOLA is a private company owned by a gentleman called PF – DL had some equity in the company early on but not now.

DL has a double major in politics and economics from Monash Uni and got into transport via vacation work and then being taken on at TNT as a graduate trainee. He stayed there for about two years before moving on.

DIMBOOLA have a quite extensive operation in West Melbourne and have just bought 48 acres at Dandenong in order to replicate their operation in that location. They claim to be the biggest wharf cartage operators in Melbourne and take upwards of 250 containers per night from the wharves.

A very sophisticated transport operation, they tailor their fleet and vehicle capacity to deal with their business needs to the extent that they order specific vehicle types from the Scania factory in Sweden.

Business is reasonably strong on planning – very good at it – the Managing Director still very much hands on with other executive encouraged to think of the future. But much of the planning is in the MD's head. MD initiates most of the work – the decision to buy the 48 acres at Dandenong is one that was taken over a 2-3 year period – mainly in order to service better their clients particularly those in the eastern suburbs (not south eastern suburbs) places like Bayswater, Mitcham, Ringwood those sort of places are the most difficult to get to with a truck in Melbourne – part of the reason for decision to move to South Dandenong and replicate their operation.

Addressing the research questions

R1 Are warehouse location decisions made within a framework of three distinct steps; and within each step are there identification, development and selection phases?

The three phases are clearly evident in this case.

R2 What contingent factors affect the WLD process?

- R2a What is the effect of interrupts and delays on the warehouse location decision-making process?

There were none noted and the search was a long and deliberative one.

- R2b What information and knowledge was used in making the warehouse location decision?

A broad range of strategic and operational issues for the business and the personal investment parameters of the MD.

- R2c What factors in the business environment provide the most impact on a warehouse location decision?

The longer term strategic view of both the existing business and the general industry drove the decision process.

- R2d What are the typical behaviours of managers when making a warehouse location decision?

In this case the MD and his executive staff exhibited a very measured approach to the location decision ensuring that they were in control of the information and evaluation.

C6 Organisation Background: EDINA

Organisation type	<i>Group of private companies comprising – A Transport (target), T taxi trucks, C Logistics, M Messengers, etc (See GB's card)</i>
Number of employees	<i>About 85 in Victoria</i>
How long has the business been established	<i>Since 1990</i>
How many warehouse locations does the business occupy in Melbourne/Victoria (?)	<i>2 totalling about 90,000 sq ft</i>
Have any other warehouse location decisions have been made by the firm in the past 5 years?	<i>1 – new warehouse at South Oakleigh/Huntingdale</i>
How many?	<i>1</i>
Were they successful? (How success measured?)	<i>Work in process – only been in occupation for a short while and nearing break even. Should become profitable next financial year 2006/7.</i>
Measure of size of the operation, e.g. turnover, tonnes, pallets shipped, transactions, customers,	<i>Capacity of new warehouse – about 3200 pallets</i>
Business growth in recent years? Indication by way of %p.a. increase in turnover, increase in profit etc	<i>Good growth – new customers and increased use by existing customers. Moving from straight transport to a more broader distribution focus.</i>

2. Documentation (if available)

General company documentation, annual reports, etc

Specific documentation regarding the location decision, investment analysis, feasibility studies, board papers, etc

Organisation chart/structure - from company website – including other promotional material

3. Detail regarding the most recent location decision.

Who raised the prospect of needing a new location? or Who was the proposer for a move?	<i>GB – as part of the plan to grow the warehousing side of the business.</i>
Who made the initial decision regarding the need for a new location? Can you provide an approximate date for that?	<i>GB</i> <i>Oct/November 2004</i>
What were the driving forces in seeking a new location?	<i>Market driven by 5yr planning to develop more business in the storage and distribution end of the business, use of new site as a feeder for other businesses in the group.</i>
Is the existence of the facility driven by the business or the facility location? <i>Find location build business or business growth causes need for new location.</i>	<i>Driven by both business growth and longer term strategic planning.</i>
What business is being carried on in the warehouse?	<i>General storage – some break down and re-pack to meet distribution requirements.</i>
Is this business affected by its location?	<i>No – but has good proximity to main business location and allows good management oversight.</i>
When was the (re)location completed?	<i>June/July 2005 and just completing first year in location.</i>
What was the primary business stimulus for the relocation? Please check only ONE option. (Where any others important)	<i>Growth/expansion</i> <i>A need to be closer to clients</i> <i>General location – close to geographical heart of Melbourne.</i>
Was the business stimulus (above) combined with a particular push trigger?	<i>NO but proximity allowed ability to remotely manage the new site. Did not add much to overheads. Ability to generate appropriate return.</i>

4. What decision-making processes did your company use in its most recent location decision? What is the level of sophistication of business planning, developed policies and procedures, etc

4A General:

How does the business generally make decisions on major issues?	<i>Generally a two tiered approach at State operational level and then where necessary to national board of management (note most based in Melbourne)</i>
How does the business make <u>strategic</u> decisions?	<i>As above National Board of Management – Gen Mgr, Nat Fin, Nat IT, CEO, MD and other State Mgrs</i>
What are the general steps in making a decision in the organisation?	<i>Generally pretty collegiate but with owner override when he thinks necessary. Good follow up and monitoring of performance against proposals.</i>
Does the organisation have/use a formal business planning process?	<i>Yes but owner has ultimate decision.</i>
If yes, how do location decisions fit into that process?	<i>Generally the same – with major local level input then to board for cap ex approvals.</i>

4B Specific:

Who ran the location search process? <i>Name / title</i>	<i>GB – Vic State Manager</i>
Have they been involved in location decision making before for your company?	<i>Not with this company but in other organisations, yes.</i>
Who was involved in the location decision process? <i>(position titles rather than names)</i>	<i>CEO – “D” - above GB Warehouse Manager – Adam – reports to GB</i>
Where do they fit within the organisation structure?	<i>See above</i>
What is their education, experience background?	<i>Generally good experience in logistics – mainly industry based.</i>

How many meetings were held?	<i>6 – 8 together with a number of informal meetings</i>
What documents were circulated to the final decision makers? (Who prepared them)	<i>Business plan and financials – based on expected revenue streams – freight, storage and packing against expected fixed and variable costs. BP called for 10 – 15% weekly pallet turnover compared with longer term storage. Cap ex for additional vehicle, racking and other equipment together with fitout and lease commitments. Warehouse Manager and State Manager prepared documents with finance input as required.</i>
Who made the final recommendation regarding the location decision? At what level in the organisation was the final decision taken; i.e., when the commitment was made to acquire the new location?	<i>State Manager to CEO CEO then to National Board of Management – within delegations. Owner had been briefed along the way</i>
In your opinion had the decision been made informally before the final meeting?	<i>Yes due to involvement of CEO and CFO in development of case.</i>
How long did the meeting take to make the decision regarding the choice of site?	<i>Pretty quick as major players in development of the case carried the situation with other senior mgt.</i>
In the decision process were there other factors being considered? Equipment, vehicles, etc – which drove which?	<i>Reach forklifts and racking required – major additional expenditure.</i>
In your opinion was the location decision influenced by any particular person?	<i>Yes – decision champion GB</i>
Were there any informal alliances formed during the decision-making process?	<i>No – fitted within org structure.</i>

5. What information and knowledge did your company use in making the location decision?

What information was used in making the location decision? (a checklist of potential items is over the page)	<i>Sourced available vacant buildings from selected real estate agents</i>
Who collected the information?	<i>GB and w/house manager</i>
How was it analysed?	<i>Essentially financial implications only</i>
Who undertook the majority of the analysis?	<i>Vic State Manager (GB) and CFO</i>
Did the firm have a general, geographic location in mind at the start of the process?	<i>Yes – looking at perceived geographic centre of Melbourne</i>
How many alternative specific locations were considered before selecting the 'best'?	<i>15 – 20</i>
What primary decision making processes were used to evaluate potential locations?	<i>List of criteria Advantages and disadvantages</i>
Were consultants involved in the search process?	<i>YES - Property Consultants for specific site search only</i>
What was the extent of the consultants' involvement?	<i>See above</i>
Was the consultants' involvement helpful? Would you use them again?	<i>Yes as a facilitator Probably</i>

Checklist items

<p>CRITERIA 1 LABOUR FORCE, POPULATION AND DEMOGRAPHICS</p>	<p>A - Age Profile of Workforce b - Attitude to Work / Staff Loyalty Readily Available Workforce – but use significant proportion of contract/agency staff I d - Appropriate skill sets e - Population Growth</p>
<p>CRITERIA 2 PHYSICAL REAL ESTATE</p>	<p>Quality / Flexibility of Design M Cost – older style building lower priced C Availability C d - Technological Specification e - Accessibility</p> <p>Car Parking C</p>
<p>CRITERIA 3 INFRASTRUCTURE</p>	<p>a - Proximity Of Major Port or Airport b - Rail Links Freeway / Car Access C d - Public Transport</p>
<p>CRITERIA 4 BUSINESS ENVIRONMENT</p>	<p>a - Positive Reputation as a business location Business Diversity Competitive Environment M d - Synergy with other companies</p> <p>Proximity to Clients/Suppliers/Market M</p>
<p>CRITERIA 5 SECURITY & RISK</p>	<p>a - Threat of Corporate Crime b - Personal Safety/Level of Crime c - Psychologically attractive/deterrent</p>
<p>CRITERIA 6 QUALITY OF LIFE</p>	<p>a Quality and availability of housing b Entertainment and culture c Access to recreation d Health & Environment e Security and personal well being</p>
<p>CRITERIA 7 ANY OTHER ISSUES CONSIDERED?</p>	<p>Proximity to existing operations C Leasehold tenure</p>

6. What was the context in which these location decisions were taken, i.e. competitive environment, customer relationships, etc?

<p>Do you consider that the business environment in which you operate is very volatile?</p> <p>If “Yes” in what ways?</p>	<p><i>Yes – this market is made up of smaller operators, the big players and niche operators – most of the smaller operators compete on cost only – but at cost recovery levels rather than profitability.</i></p>
<p>How were customers considered in the process of analysing the location decision?</p>	<p><i>Yes considered but also the possibility of being attractive to a wider range of clients/potential clients.</i></p>
<p>Were major competitors locations considered during the analysis process?</p>	<p><i>Reviewed but consideration given about a 4/10 priority.</i></p>
<p>Is the new location part of a network in Melbourne/Victoria?</p> <p>If “Yes” - was the new location “filling a gap” in the existing network or a consolidation of the organisations operations?</p>	<p><i>Yes – location fits both criteria of being close to geographic centre of Melbourne and being close to head office for managerial support and oversight.</i></p>

7. What length of time did the decision-making process take the company?

<p>Time taken for the specific location decision to be made – from decision that new location was needed to commitment</p>	<p><i>3-4 months – site selection then further time needed to negotiate the details/legals</i></p>
<p>Was it longer than anticipated?</p>	<p><i>Negotiation process took much longer than anticipated – legal issues made negotiation protracted and actually chewed up some of the rent free period originally negotiated.</i></p>
<p>If so, what were the factors that contributed to the delay?</p>	<p><i>See above – rent free time was supposed to be for fitting of racking which was delayed till negotiations were completed.</i></p>

8. What, if any, evaluation processes were used during the process?

What measures were used to determine effectiveness of the new location – return on capital, cost effectiveness, increase in transactions, revenue growth, customer growth, etc	<i>Cost, return on investment Some revenue growth Increased business efficiency</i>
Was there a strategic benefit in moving to the new location?	<i>Yes – provided additional capacity while being attractive to new customers</i>
Where did financial or other benefits of the new locations flow to?	<i>To bottom line (eventually – near break even after first year of operation).</i>
What primary decision making technique was used to evaluate the potential properties?	<i>Cost driven decision e.g. NPV, IRR etc.</i>

9. Legals regarding the new location

Tenure of the new facility – owner occupied or leased – did this impact on the decision process? What was the preferred tenure?	<i>Leased (12 years) Term / options 3 x 3 x 3 x 3 Rent reviews, 3 yearly, fixed % reviews Leasehold</i>
Did the choice of tenure change during the investigation period?	<i>No – always going to lease</i>
If property is leased did the terms and conditions of the lease and options available impact on the location decision? If “Yes” – how?	<i>Yes – ability to essentially fix rental for 12 years with agreed % rent increases rather than fixed to market review.</i>
Was the facility designed specifically for the organisation or was a completed development acquired?	<i>No – “secondhand facility” previously used as a transport depot. Older style facility</i>

10. Hindsight

<p>Has the new location been a success?</p> <p>How is success measured?</p>	<p><i>Yes – position has allowed some spin offs from main location. Additional referrals from existing customer base.</i></p> <p><i>Some business efficiency</i></p> <p><i>Sustainable profitability across both locations is the aim and new location is virtually at b/even after first year of operations.</i></p>
<p>Would anything have been done differently?</p>	<p><i>Shortened or run concurrently the negotiation process</i></p>
<p>How have staff, sub-contractors reacted to the new location?</p>	<p><i>Well</i></p>
<p>How have customers reacted to the new location?</p>	<p><i>Well</i></p>
<p>Did the whole process take a shorter or longer time than anticipated?</p> <p>Why?</p>	<p><i>Longer - see earlier comments re negotiation process</i></p>
<p>In your opinion, how subjective or objective was the decision process?</p> <p>Please provide reasons for your answer.</p>	<p><i>Elements of both subjectivity and objectivity – subjective due to initial plan to be in that general location (and being driven by GB) but also objective as it had to stack up financially.</i></p>
<p>In your opinion was the decision given the prominence or importance that it deserved?</p>	<p><i>Yes was given serious consideration</i></p>

Other comments, etc

Existing site is owned and sub-let to various business units as attractive rentals – owner is also property investor.

Racking \$183K over 5 year lease.

Difficult access arrangements with access from N and W of new building which meant that racking had to be designed to allow for both N/S and E/W access.

Addressing the research questions

R1 Are warehouse location decisions made within a framework of three distinct steps; and within each step are there identification, development and selection phases?

All three phases were evident in this location decision.

R2 What contingent factors affect the WLD process?

- R2a What is the effect of interrupts and delays on the warehouse location decision-making process?

None were noted in the location decision process, more in the subsequent lease negotiation process.

- R2b What information and knowledge was used in making the warehouse location decision?

Essentially the current operational requirements were the major driver of this decision and information pertaining to operations was the major information used.

- R2c What factors in the business environment provide the most impact on a warehouse location decision?

The need to be able to exercise local management control was the key issue in this decision together with meeting emerging customer requirements.

- R2d What are the typical behaviours of managers when making a warehouse location decision?

In this case the VSM and the MDWD were somewhat tentative as neither of them had been involved in location decision making before.

C7 Organisation Background: FLINDERS

Organisation type	<i>private company organized in 5 divisions Flinders seek to be an alternative to the big players in the industry.</i>
Number of employees	<i>800</i>
How long has the business been established	<i>1979</i>
How many warehouse locations does the business occupy in Melbourne/Victoria (?)	<i>2 – Hampton Park around 11,500 sq metres and Laverton around 8,000 sq metres</i>
Have any other warehouse location decisions have been made by the firm in the past 5 years?	<i>Yes</i>
How many?	<i>1 – the move to Laverton</i>
Were they successful? (How success measured?)	<i>Yes – cost effective, service to client base, complementary to existing operation in South East. Allows some differentiation from competitors having two locations</i>
Measure of size of the operation, e.g. turnover, tonnes, pallets shipped, transactions, customers,	<i>See area above</i>
Business growth in recent years? Indication by way of %p.a. increase in turnover, increase in profit etc	<i>Substantial winning additional contracts from the bigger players – due to personal nature of business and ability to relate to smaller customers</i>

2. Documentation (if available)

General company documentation, annual reports, etc **promotional material**
Specific documentation regarding the location decision, investment analysis, feasibility studies, board papers, etc
Organisation chart/structure – from website

3. Detail regarding the most recent location decision.

<p>Who raised the prospect of needing a new location? or</p> <p>Who was the proposer for a move?</p>	<p><i>Owner (SB) – vision, strategic leadership.</i></p> <p><i>SB looked at it as both a business and property play as part of portfolio and wealth generation.</i></p> <p><i>Entrepreneur in the old mould</i></p>
<p>Who made the initial decision regarding the need for a new location?</p> <p>Can you provide an approximate date for that?</p>	<p><i>SB in conjunction with client – approx mid 2003 – process took about 9 months till contract signed and then location search commenced. Then had only 3 to 4 months to source facility.</i></p>
<p>What were the driving forces in seeking a new location?</p>	<p><i>Recognised client need – collaborative effort</i></p> <p><i>Chance to establish presence in west</i></p> <p><i>Offer additional service to clients</i></p>
<p>Is the existence of the facility driven by the business or the facility location? <i>Find location build business or business growth causes need for new location.</i></p>	<p><i>Driven by business decision and existing client.</i></p>
<p>What business is being carried on in the warehouse?</p>	<p><i>Some client specific but general warehousing and distribution for other clients.</i></p>
<p>Is this business affected by its location?</p>	<p>Yes</p>
<p>When was the (re)location completed?</p>	<p><i>Moved in – late 2004</i></p>
<p>What was the primary business stimulus for the relocation?</p> <p>Please check only ONE option.</p> <p><i>(Where any others important)</i></p>	<p><i>New business opportunity</i></p> <p>Other:</p> <p><i>Major growth/expansion</i></p>
<p>Was the business stimulus (above) combined with a particular push trigger?</p>	<p><i>NO – client driven</i></p> <p>Other:</p>

4. What decision-making processes did your company use in its most recent location decision? What is the level of sophistication of business planning, developed policies and procedures, etc

4A General:

How does the business generally make decisions on major issues?	<i>Generally driven top down from SB – with good group of GM's who make it work, clean up behind him.</i>
How does the business make <u>strategic</u> decisions?	<i>The boss - with input from GM's</i>
What are the general steps in making a decision in the organisation?	<i>Weekly meetings to drive decisions</i>
Does the organisation have/use a formal business planning process?	<i>Yes within SB guidelines (and whims)</i>
If yes, how do location decisions fit into that process?	<i>Clearly location decisions are client driven and not undertaken "on spec"</i>

4B Specific:

Who ran the location search process? <i>Name / title</i>	<i>SB generally drove process through his personal / business relationship with client.</i>
Have they been involved in location decision making before for your company?	<i>Yes</i>
Who was involved in the location decision process? <i>(position titles rather than names)</i>	<i>Owner GM Group Accountant Divisional manager</i>
Where do they fit within the organisation structure?	<i>Self explanatory</i>
What is their education, experience background?	<i>Some technical qualifications, most long term logistics industry people. Owner formerly with Bombala.</i>

How many meetings were held?	<i>Generally via weekly senior staff meetings</i>
What documents were circulated to the final decision makers? (Who prepared them)	<i>Business plan – Div Mgr and Grp Accountant</i>
Who made the final recommendation regarding the location decision? At what level in the organisation was the final decision taken; i.e., when the commitment was made to acquire the new location?	<i>Group Accountant and Divisional Manager to GM</i> <i>Owner – SB</i>
In your opinion had the decision been made informally before the final meeting?	<i>Yes – subject to detail – due to SB involvement with client</i>
How long did the meeting take to make the decision regarding the choice of site?	<i>Very short – essentially a sign off meeting</i>
In the decision process were there other factors being considered? Equipment, vehicles, etc – which drove which?	<i>Shed was the basic decision Racking and fork lifts were important considerations. Part of business plan done concurrently with shed decision. No new vehicles required.</i>
In your opinion was the location decision influenced by any particular person?	<i>SB</i>
Were there any informal alliances formed during the decision-making process?	<i>No – generally pretty collaborative senior staff group.</i>

5. What information and knowledge did your company use in making the location decision?

What information was used in making the location decision? (a checklist of potential items is over the page)	<i>Much was based on the client specific needs – see other documentation. New area for us – so we did a couple of visits and talked to Hobson’s Bay and Wyndham councils.</i>
Who collected the information?	<i>Divisional manager and client liaison</i>
How was it analysed?	<i>In house finance team</i>
Who undertook the majority of the analysis?	<i>Div Manager and Grp accountant</i>
Did the firm have a general, geographic location in mind at the start of the process?	<i>Yes – based much on specific client needs</i>
How many alternative specific locations were considered before selecting the ‘best’?	<i>3 alternative specific locations considered</i>
What primary decision making processes were used to evaluate potential locations?	<i>Requirement brief from client was critical Advantages and disadvantages that needed to meet the financial evaluation criteria</i>
Were consultants involved in the search process?	<i>NO “pretty low tech in-house search and evaluation”</i>
What was the extent of the consultants’ involvement?	<i>N/a</i>
Was the consultants’ involvement helpful? Would you use them again?	<i>N/a</i>

Checklist items

<p>CRITERIA 1 LABOUR FORCE, POPULATION AND DEMOGRAPHICS</p>	<p>a - Age Profile of Workforce b - Attitude to Work / Staff Loyalty c - Readily Available Workforce d - Appropriate skill sets e - Population Growth</p>
<p>CRITERIA 2 PHYSICAL REAL ESTATE</p>	<p>a - Quality / Flexibility of Design I b - Cost c – Availability C d - Technological Specification e - Accessibility f - Car Parking I</p>
<p>CRITERIA 3 INFRASTRUCTURE</p>	<p>a - Proximity Of Major Port or Airport b - Rail Links c - Freeway / Car Access I d - Public Transport</p>
<p>CRITERIA 4 BUSINESS ENVIRONMENT</p>	<p>a - Positive Reputation as a business location b - Business Diversity c - Competitive Environment M d - Synergy with other companies e - Proximity to Clients/Suppliers/Market C</p>
<p>CRITERIA 5 SECURITY & RISK</p>	<p>a - Threat of Corporate Crime b - Personal Safety/Level of Crime c - Psychologically attractive/deterrent</p>
<p>CRITERIA 6 QUALITY OF LIFE</p>	<p>a Quality and availability of housing b Entertainment and culture c Access to recreation d Health & Environment e Security and personal well being</p>
<p>CRITERIA 7 ANY OTHER ISSUES CONSIDERED?</p>	<p>Proximity to prospective clients M Customer specific requirements C</p>

6. What was the context in which these location decisions were taken, i.e. competitive environment, customer relationships, etc?

<p>Do you consider that the business environment in which you operate is very volatile?</p> <p>If “Yes” in what ways?</p>	<p>Yes</p> <p><i>Very competitive industry – rates are generally shaved pretty tightly</i></p>
<p>How were customers considered in the process of analysing the location decision?</p>	<p><i>Key focus – particularly client needs but also looking to the future with other potential clients. New location provides some additional benefits to other existing clients. Took space greater than specific client needs to allow other options</i></p>
<p>Were major competitors locations considered during the analysis process?</p>	<p><i>Kept an eye on them but a low priority in this case – due to the decision being pretty much client focused.</i></p>
<p>Is the new location part of a network in Melbourne/Victoria?</p> <p>If “Yes” - was the new location “filling a gap” in the existing network or a consolidation of the organisations operations?</p>	<p><i>Not particularly – stand alone facility which offers some additional flexibility.</i></p>

7. What length of time did the decision-making process take the company?

<p>Time taken for the specific location decision to be made – from decision that new location was needed to commitment</p>	<p><i>About 3 months – got access to good shed – but also driven by client need to get out of existing premises</i></p>
<p>Was it longer than anticipated?</p>	<p><i>No shorter due to time pressure from client – it worked very well We were lucky with the availability of a property and able to have some minor extension / renovation to provide some covered access</i></p>
<p>If so, what were the factors that contributed to the delay?</p>	<p><i>N/a</i></p>

8. What, if any, evaluation processes were used during the process?

What measures were used to determine effectiveness of the new location – return on capital, cost effectiveness, increase in transactions, revenue growth, customer growth, etc	<i>Client satisfaction Revenue increase and return on capital over the initial client contract</i>
Was there a strategic benefit in moving to the new location?	<i>Yes client need and additional space allowed us to position ourselves to move forward and offer additional service to other clients.</i>
Where did financial or other benefits of the new locations flow to?	<i>Bottom line – through additional revenues with little cost increase.</i>
What primary decision making technique was used to evaluate the potential properties?	<i>Cost driven decision e.g. NPV, IRR etc. business case developed (Pressure on client from existing lease termination requirements)</i>

9. Legals regarding the new location

Tenure of the new facility – owner occupied or leased – did this impact on the decision process? What was the preferred tenure?	<i>Leased Term / options 5 x 5 Rent reviews 2 yearly fixed dollar rent reviews Leasehold</i>
Did the choice of tenure change during the investigation period?	<i>No</i>
If property is leased did the terms and conditions of the lease and options available impact on the location decision? If “Yes” – how?	<i>Yes – with rent reviews we capped the rent increases to give us some certainty over the term of the lease. Also was able to negotiate some minor building works (covered areas) and site upgrades</i>
Was the facility designed specifically for the organisation or was a completed development acquired?	<i>Leased an existing property with some minor additional works referred to above being done for us.</i>

10. Hindsight

Has the new location been a success? How is success measured?	<i>Yes – met client expectations</i> <i>Financial returns and client satisfaction</i>
Would anything have been done differently?	<i>No – process moved very quickly due to client specific issues</i>
How have staff, sub-contractors reacted to the new location?	<i>Minimum resistance until staff saw opening up of other opportunities. Enable some minor promotions for staff. Good Industrial response generally from operations staff</i>
How have customers reacted to the new location?	<i>Major client rapt, offers some broader options to other clients – added some additional flexibility and additional options in western region</i>
Did the whole process take a shorter or longer time than anticipated? Why?	<i>Shorter</i> <i>Shorter probably due to client specific issues</i>
In your opinion, how subjective or objective was the decision process? Please provide reasons for your answer.	1 Very Subjective 2 Subjective- – to meet client need 3 Neutral 4 Objective 5 Very Objective <i>Whilst subject the commercial reality also considered strongly</i> <i>Turned out a win win situation for client and us.</i>
In your opinion was the decision given the prominence or importance that it deserved?	<i>Yes – client driven within strategic directions set by SB.</i>

Other comments, etc

Flinders – sees themselves as second tier business in transport industry – generally offering extra service to their client base. Some specialisation.

Company has been in business for 22 years. Current owner is SB (15 years) S left Bombala in the early 90's as the No 3 Very much a strategist and marketer – drives virtually every significant decision in the organisation. Good general manager and good group finance guy and some operational managers who do the implementation. Very much the impression that I get is that whatever Stewart says goes and lets sort of make it happen. Couple of interesting side lights - they work a weekly financial

reporting process; Wednesday is the end of their business week. Very strong on managing the numbers and have good sets of key indicators. Looking at costs all through the business. Income is a margin of between 5 & 7% very competitive – they consider themselves second tier player, which gives them more flexibility than some of the majors. Two major occupancies in Victoria – head office and big shed at Hampton Park – about 10,000 square metres under the roof in storage and about 3000 square metres at Laverton where they moved about 2.5 years ago.

The Laverton decision was driven by a client relationship – where they provided a detailed solution that included some warehousing. Client AF was in leased premises in North Melbourne and their lease was up and the business was being forced to look elsewhere. Flinders took it on themselves to a certain extent (in conjunction with the client) to find a solution to their problem. All up from when Flinders got involved the re-location process was around 12 months because it was being driven by the client need based on the clients existing lease. That was a pretty interesting approach – long time to negotiate the contract and then found site, did the business case and ready to move in within about 3 months to meet the client requirements.

The clients concerns included HR and industrial relations issues moving from N Melb to Laverton – they had some IT issues in order to convince the client that they had met the various requirements but in the end it provided very well. The building not only met the existing clients needs but also have some additional space so that they could attract some additional business clients. In that respect they have done that fairly well. Up until this move there had been predominantly an east side business but now have opened stuff up to have access to the west for client needs. This has worked well and clients are utilizing the new facilities and they have covered their additional expenditure very quickly.

From a building point of view they have take a 5 x 5 x 5 yr lease with 2 yearly fixed rent reviews in order to fix their costs and give some certainty to their clients with rates. Have induced / convinced the landlord to do some

Addressing the research questions

R1 Are warehouse location decisions made within a framework of three distinct steps; and within each step are there identification, development and selection phases?

The three phases are evident in this case and clearly follow on the strategic view of the owner.

R2 What contingent factors affect the WLD process?

- R2a What is the effect of interrupts and delays on the warehouse location decision-making process?

There were no interrupts noted in the location decision process but rather in the implementation aspects of this case.

- R2b What information and knowledge was used in making the warehouse location decision?

The primary factor was the availability of an appropriate building in a location that had access to road infrastructure.

- R2c What factors in the business environment provide the most impact on a warehouse location decision?

Primarily this decision was customer focused together with the strategic view of developments within the logistics industry.

- R2d What are the typical behaviours of managers when making a warehouse location decision?

This case shows the ability of managers to react quickly to a new business opportunity and undertake the research and planning within a short time frame.

C8 Organisation Background: GABO

Organisation type	<i>Private company – part of the Crayfish Group – one man owns all the shares</i>
Number of employees	<i>About 70 employees and we use about as many again owner drivers – particularly of smaller vehicles</i>
How long has the business been established	<i>Established in 1992</i>
How many warehouse locations does the business occupy in Melbourne/Victoria (?)	<i>1</i>
Have any other warehouse location decisions have been made by the firm in the past 5 years?	<i>NO – but we have moved three times since we commenced – initial site in Eltham and then to shed in Thomastown and now here</i>
How many?	<i>1</i>
Were they successful? (How success measured?)	<i>Customer satisfaction / revenue and profit growth</i>
Measure of size of the operation, e.g. turnover, tonnes, pallets shipped, transactions, customers,	
Business growth in recent years? Indication by way of %p.a. increase in turnover, increase in profit etc	<i>Around 6 – 8% per annum</i>

2. Documentation (if available)

General company documentation, annual reports, etc **Website material**

Specific documentation regarding the location decision, investment analysis, feasibility studies, board papers, etc

Organisation chart/structure

Private company information not available

3. Detail regarding the most recent location decision.

<p>Who raised the prospect of needing a new location? or</p> <p>Who was the proposer for a move?</p>	<p><i>Client raised prospect of additional business with the owner but that would need bigger accommodation.</i></p>
<p>Who made the initial decision regarding the need for a new location?</p> <p>Can you provide an approximate date for that?</p>	<p><i>owner</i></p>
<p>What were the driving forces in seeking a new location?</p>	<p><i>New contract for general transport</i></p>
<p>Is the existence of the facility driven by the business or the facility location? <i>Find location build business or business growth causes need for new location.</i></p>	<p><i>Proximity to one of major customer's manufacturing operations.</i></p> <p><i>Find business then look for location</i></p>
<p>What business is being carried on in the warehouse?</p>	<p><i>General cartgage and some storage and picking</i></p>
<p>Is this business affected by its location?</p>	<p><i>Yes proximity to location</i></p>
<p>When was the (re)location completed?</p>	<p><i>We got occupation just before Christmas 2004 and by time fitout was done it was around March 2005 before we fully moved in.</i></p>
<p>What was the primary business stimulus for the relocation?</p> <p>Please check only ONE option.</p> <p><i>(Where any others important)</i></p>	<p><i>Growth/expansion</i></p> <p><i>Other: Outgrown existing location due to expansion of business</i></p> <p><i>A need to be closer to clients</i></p>
<p>Was the business stimulus (above) combined with a particular push trigger?</p>	<p><i>NO</i></p>

4. What decision-making processes did your company use in its most recent location decision? What is the level of sophistication of business planning, developed policies and procedures, etc

4A General:

How does the business generally make decisions on major issues?	<i>Driven by CEO from his contacts and then in conjunction with the Tpt GM and the Warehouse GM. CFO gets involved when the finances are considered.</i>
How does the business make <u>strategic</u> decisions?	<i>As above</i>
What are the general steps in making a decision in the organisation?	<i>If the owner likes it, and if it can be profitable – then we go for it.</i>
Does the organisation have/use a formal business planning process?	<i>Small player driven by strategic view of their own business and its capacity</i>
If yes, how do location decisions fit into that process?	<i>Considered in the same light.</i>

4B Specific:

Who ran the location search process? <i>Name / title</i>	<i>CEO (Owner)</i>
Have they been involved in location decision making before for your company?	<i>Yes</i>
Who was involved in the location decision process? <i>(position titles rather than names)</i>	<i>CEO Tpt GM Warehouse GM</i>
Where do they fit within the organisation structure?	<i>Self explanatory</i>
What is their education, experience background?	<i>Transport and logistics industry experience – CFO has financial qualifications.</i>

How many meetings were held?	<i>Too many in the first stage when we were looking at Dandenong and Laverton – once we focused about 3!</i>
What documents were circulated to the final decision makers? (Who prepared them)	<i>No many We did a business case for bank in order to fund the fitout requirements – prepared by CFO</i>
Who made the final recommendation regarding the location decision? At what level in the organisation was the final decision taken; i.e., when the commitment was made to acquire the new location?	<i>CEO/Owner Self explanatory!</i>
In your opinion had the decision been made informally before the final meeting?	<i>Yes – one we focused and got serious about the location search. Need was there from new business – just needed to find the right shed!.</i>
How long did the meeting take to make the decision regarding the choice of site?	<i>Minutes! - we had all seen the facility and agreed that it would work for us.</i>
In the decision process were there other factors being considered? Equipment, vehicles, etc – which drove which?	<i>Primarily the only other consideration was the fit out for the warehousing guys.</i>
In your opinion was the location decision influenced by any particular person?	<i>Yes, owner wanted to be in the western area due to location of beach house at Point Lonsdale</i>
Were there any informal alliances formed during the decision-making process?	<i>No CEO and GM's – are a pretty tight group.</i>

5. What information and knowledge did your company use in making the location decision?

What information was used in making the location decision? (a checklist of potential items is over the page)	<i>Owner and GM's prepared list of criteria</i>
Who collected the information?	<i>We did</i>
How was it analysed?	<i>Compared data and our observations with the list of criteria</i>
Who undertook the majority of the analysis?	<i>Tpt GM</i>
Did the firm have a general, geographic location in mind at the start of the process?	<i>No – initially looked at Dandenong and Laverton and then boss got married and chose the western area..</i>
How many alternative specific locations were considered before selecting the 'best'?	<i>Looked at about 5 before seriously looking at 2.</i>
What primary decision making processes were used to evaluate potential locations?	<i>List of criteria Advantages and disadvantages Visit a few locations to gather information</i>
Were consultants involved in the search process?	<i>YES - Property Consultants – for sourcing available properties.</i>
What was the extent of the consultants' involvement?	<i>Sourcing property</i>
Was the consultants' involvement helpful? Would you use them again?	<i>About average</i>

Checklist items

<p>CRITERIA 1 LABOUR FORCE, POPULATION AND DEMOGRAPHICS</p>	<p>a - Age Profile of Workforce b - Attitude to Work / Staff Loyalty c - Readily Available Workforce d - Appropriate skill sets e - Population Growth</p>
<p>CRITERIA 2 PHYSICAL REAL ESTATE</p>	<p>a - Quality / Flexibility of Design b – Cost I c – Availability (of large site) d - Technological Specification e - Accessibility f - Car Parking I</p>
<p>CRITERIA 3 INFRASTRUCTURE</p>	<p>a - Proximity Of Major Port or Airport b - Rail Links c - Freeway / Car Access C d - Public Transport</p>
<p>CRITERIA 4 BUSINESS ENVIRONMENT</p>	<p>a - Positive Reputation as a business location (close to Head Office) b - Business Diversity c - Competitive Environment d - Synergy with other companies e - Proximity to Clients/Suppliers/Market I</p>
<p>CRITERIA 5 SECURITY & RISK</p>	<p>a - Threat of Corporate Crime b - Personal Safety/Level of Crime c - Psychologically attractive/deterrent</p>
<p>CRITERIA 6 QUALITY OF LIFE</p>	<p>a Quality and availability of housing b Entertainment and culture c Access to recreation d Health & Environment e Security and personal well being</p>
<p>CRITERIA 7 ANY OTHER ISSUES CONSIDERED?</p>	<p>Building configuration I Land available for expansion I</p>

6. What was the context in which these location decisions were taken, i.e. competitive environment, customer relationships, etc?

<p>Do you consider that the business environment in which you operate is very volatile?</p> <p>If “Yes” in what ways?</p>	<p><i>Yes - competitive with slim margins – the increase in volume allows overheads to be spread across greater base.</i></p>
<p>How were customers considered in the process of analysing the location decision?</p>	<p><i>Customer was largely the driver in the process</i></p>
<p>Were major competitors locations considered during the analysis process?</p>	<p><i>Only by way of knowing the district/area from our visits and observations.</i></p>
<p>Is the new location part of a network in Melbourne/Victoria?</p> <p>If “Yes” - was the new location “filling a gap” in the existing network or a consolidation of the organisations operations?</p>	<p><i>No</i></p>

7. What length of time did the decision-making process take the company?

<p>Time taken for the specific location decision to be made – from decision that new location was needed to commitment</p>	<p><i>Over 2 years – long time before there was a focus on the region – we looked all over the place but pretty disjointed search. No one had enough time.</i></p> <p><i>One boss made decision for western area – then took about 6 months all up till we moved in.</i></p>
<p>Was it longer than anticipated?</p>	<p><i>Yes!</i></p>
<p>If so, what were the factors that contributed to the delay?</p>	<p><i>Lack of focus due to people not having enough time to develop search. Operational issues always seemed to get in the way.</i></p>

8. What, if any, evaluation processes were used during the process?

What measures were used to determine effectiveness of the new location – return on capital, cost effectiveness, increase in transactions, revenue growth, customer growth, etc	<i>Happy customer, Increased revenue Picked up some additional business from main customer too – tpt into SA and country Vic.</i>
Was there a strategic benefit in moving to the new location?	<i>Yes allowed us to grow</i>
Where did financial or other benefits of the new locations flow to?	<i>business</i>
What primary decision making technique was used to evaluate the potential properties?	<i>Simple visit to a few selected properties & business needs</i>

9. Legals regarding the new location

Tenure of the new facility – owner occupied or leased – did this impact on the decision process?	<i>Leased (other than from related party) Term / options 2 x 5 years Rent reviews 2 years to market rent</i>
What was the preferred tenure?	<i>Always going to be Leasehold – don't want to tie up capital.</i>
Did the choice of tenure change during the investigation period?	<i>No</i>
If property is leased did the terms and conditions of the lease and options available impact on the location decision? If "Yes" – how?	<i>No – but boss ensured that the contract with main client was extended to match the lease period.</i>
Was the facility designed specifically for the organisation or was a completed development acquired?	<i>No – was vacant space that was previously used by one of the major transport industry players (Bombala)</i>

10. Hindsight

Has the new location been a success?	<i>Yes – main client happy, revenue and profit increased</i>
How is success measured?	
Would anything have been done differently?	<i>Focus a lot earlier on</i>
How have staff, sub-contractors reacted to the new location?	<i>Some grumbles – lost a few contractors who were not prepared to come over this side of town. Rest of staff pretty happy.</i>
How have customers reacted to the new location?	<i>Good</i>
Did the whole process take a shorter or longer time than anticipated? Why?	<i>Longer! But once we got focused it was OK</i>
In your opinion, how subjective or objective was the decision process? Please provide reasons for your answer.	<i>1 Very Subjective 2 Subjective 3 Neutral 4 Objective 5 Very Objective</i> <i>Owner personal needs drove regional decision but after that was pretty much a straight forward approach.</i>
In your opinion was the decision given the prominence or importance that it deserved?	<i>Not in the early stages, but towards the end, yes</i>

Other comments, etc

Company very informal – but owner keeps close eye on finances. Currently about 40% of their revenue generated by one client – a lot of that at the packaging end and then transporting job lots to wholesalers. They still have the majority of their work (and revenue) from general transport and have clearly targeted their business in the last two years to companies in the western suburbs.

The company makes decisions relatively informally – if the CEO likes it, it happens.

He originally established the business from a vacant block of land in Eltham and after 4 or 5 years of good business growth he leased some more vehicles and moved to a

larger site in Thomastown in late 1997. At that stage he was running a reasonably successful 12 truck operation but was always looking for more business opportunities. In 1999 one of the companies for whom the business had been doing some transport work as a casual offered him a contract that would generate about 40% of his total business. At that stage his business grew to nearly 30 vehicles and he had about 40 people working for him and life was pretty good.

But the yard and shed in Thomastown was becoming very crowded. Gabo was able to work as a general delivery transport business from Thomastown. The site offered reasonably good access to the Hume Freeway (going north) but pretty poor access to the Eastern (east/south-east), South Eastern (south-east) and Geelong Freeways (west). In early 2002 the customer who was provides about 40% of transport business asked whether Gabo would like to take-over some of its warehousing of inventory in addition to the transport and distribution aspects of the business.

Early in 2004 the owner married. His wife had a beach house at Point Lonsdale. At that time he decided to minimize traveling to the beach house so the Laverton / Altona North option became the option.

The then focused on the western region they became a bit more serious in their research and looked at 5 different properties before narrowing it down to two specific sites in the region. They eventually moved in after having some work done on the property (fit out)

Addressing the research questions

R1 Are warehouse location decisions made within a framework of three distinct steps; and within each step are there identification, development and selection phases?

Yes for Gabo there is an identification stage but that seems to have been forced on them to some extent by their business growth. The development phase on the search for new premises was present but was interrupted due to lack of resources employed and to a lesser extent a lack of focus. Essentially they floated along for a while and the selection process was elongated until Decision 1A was made due to factors outside the normal business practice. It might be said that they were somewhat haphazard in their early research processes as they clearly weren't pressed to make the decision.

Clearly the three phases are present in this case.

Factors that impacted on the search process - not a lot of time invested early on and they did not have a good focus on what they were looking for.

Interrupts and delays were certainly noticed.

R2 What contingent factors affect the WLD process?

- R2a What is the effect of interrupts and delays on the warehouse location decision-making process?
- R2b What information and knowledge was used in making the warehouse location decision?

- R2c What factors in the business environment provide the most impact on a warehouse location decision?

In Gabo case the factors in their environment that provided the most impact on their warehouse location decision was essentially the CEO's attitude – his personal requirements. The second thing was the existing client contractual arrangements that were flexible enough to allow them to move either to the south-east or the western regions.

- R2d What are the typical behaviours of managers when making a warehouse location decision?

Typical behaviour from a manager who hadn't done this before was some confusion but then personal issues resolved most of it

Appendix D

CASE NAMES EXPLAINED

Aldinga

In 1877 the Adelaide Steamship Company Limited (founded 1875) purchased this steamer essentially for trade between South Australia and Victoria.

Aldinga was a Steamer, 466 tons gross. (Sister - Balclutha). Built Greenock, 1860. Length, breadth, depth, 202 x 24 x 13 ft. Ran between Melbourne and NZ between 1863 and 1865, then returned to the Australian coast. Bought by A.S.N.Co. in 1877. Later sold to Mt Kembla Coal and Oil Co. Lost off Belambi Reef, (Queensland), January 1896

Bombala

SS *Bombala* was the first of the three Howard Smith ships that could be classed as famous liners of the era of coastal passenger trade. *Bombala* was built for the Howard Smith Company in 1904 at Sunderland, England and in her heyday carried passengers and refrigerated cargo. 3540 / 3571 tons (gross) 1664 ton net

In her 25 years on the Australian coastal run this ship serviced most ports on the eastern coast of Australia from Melbourne to Port Douglas. The ship was sold for tourist trade in the Mediterranean in 1929.



Cooma

SS *Cooma* was the second of the Howard Smith ships, launched in 1907 in Glasgow. Passenger steamer, steel, 3839 tons gross. Length breadth depth 330 x 46 x 21.4 ft. 3839 / 2121 tons (gross / net). The SS *Cooma* was a steel passenger and freighter steamer owned by the Adelaide Steamship Company. *Cooma* was built to a similar design to *Bombala* and even though from different builders were very similar in style and appearance.

In July 1926 the *Cooma* traveling from Brisbane to Cairns went aground on North Reef about 80 miles east of Rockhampton. In response to SOS calls, 200 passengers and 84 of the crew were transferred to SS *Burwah*. In the following days the majority of her non-perishable cargo was also salvaged. After unsuccessful salvage attempts In August 1926 the ship was declared a total wreck and she was abandoned to the underwriters. The hulk was gutted by fire on 26 January, 1927. Her boiler remains visible on the beach near the North reef lighthouse, with the wreck well flattened.



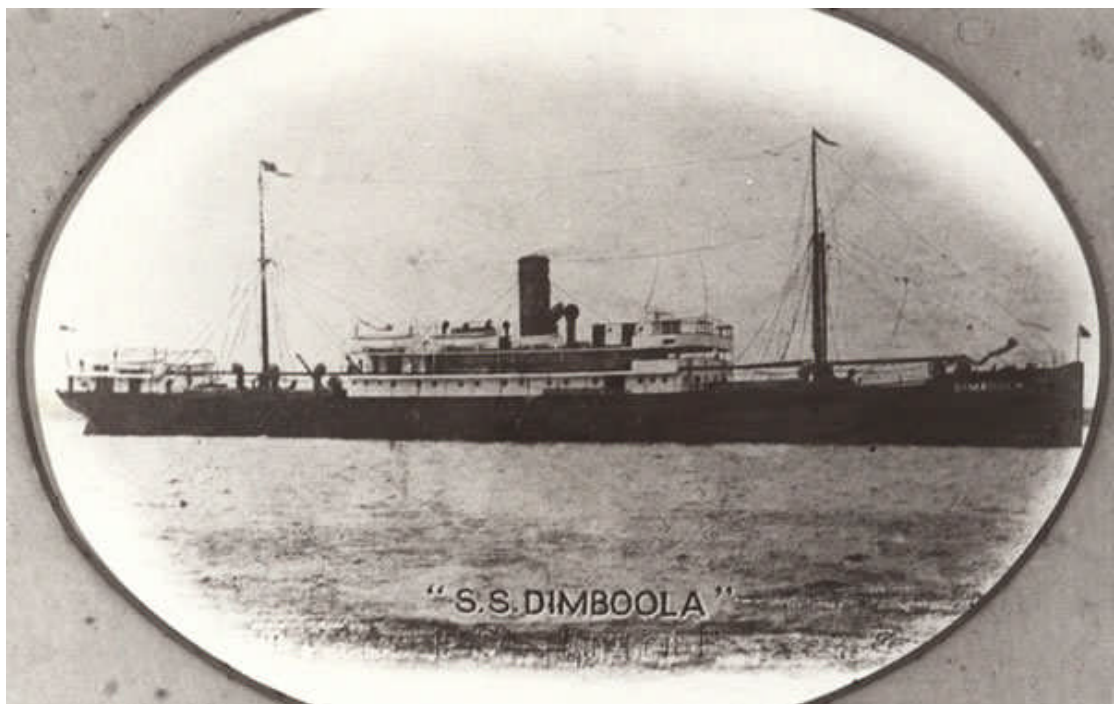
SS Cooma aground in the Brisbane River 1919

Cooma had a sister ship *Yongala* which also foundered off the North Queensland coast being sunk during a cyclone off Townsville in March 1911. At the time *Cooma* avoided the force of the cyclone in shelter of the nearby Cape Bowling Green. *Yongala* would probably not have suffered this tragedy had it had installed a wireless radio that could have warned them about the imminent danger. Ironically *Yongala* was due for a refit in Cairns, including installing a radio, at the end of its last journey.

Dimboola

The SS *Dimboola* was built at Newcastle-on-Tyne in 1912 specifically for the Australian coastal service. The ship was owned by the Melbourne Steamship Company. She enjoyed great popularity on the Sydney to Fremantle run due to her lavish fit-out and comfort afforded her passengers. The ship served for 23 years before being sold to Hong Kong interests in 1935.

3886 / 2112 tons (gross / net)



Edina

The SS *Edina* was built on the Clyde in Glasgow in 1854. The ship was an iron screw-steamer with an overall length of 171 feet and a beam of 23 feet 6 inches. She drew 12 feet 7 inches and had a gross tonnage of 380 tons. She was built as a sailing ship with auxiliary engines.

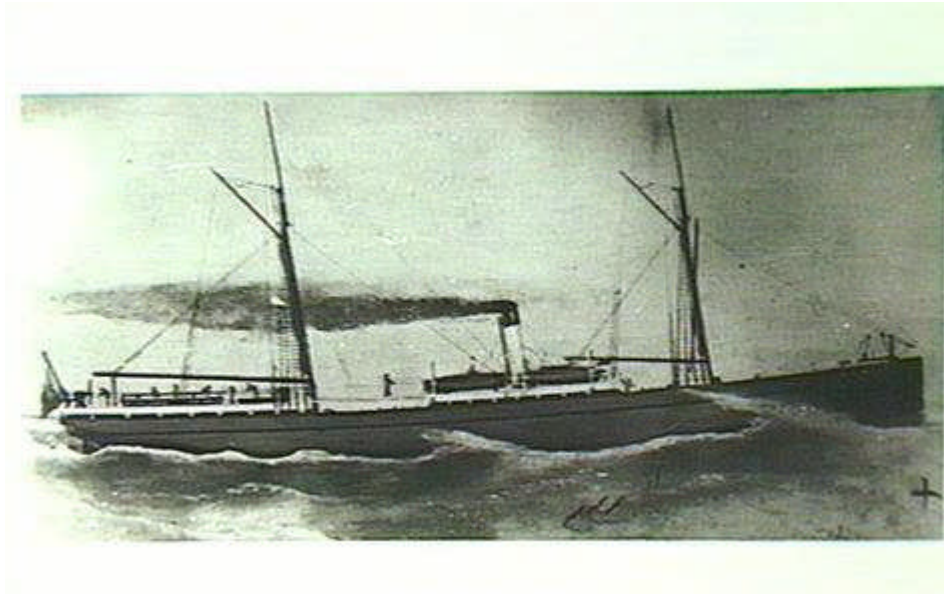
The *Edina* arrived in Melbourne in March 1863 and her primary use for the next 60 odd years was as an excursion steamer on Port Phillip Bay. For most of her career she carried the house flag of Howard Smith Limited. She had a chequered history of mishaps and collisions and in June 1938 she made her last passenger trip and then she was converted to a lighter and renamed the *Dinah*. The lighter was finally broken up in Melbourne in 1957.



SS Edina on her final voyage 1938

Flinders

Built 1874 for the Spencer's Gulf Steamship Company the ship was acquired by the Adelaide Steamship Company in 1882. The ship traded around coastal South Australia. 521 tons. The company sold the ship in 1900.

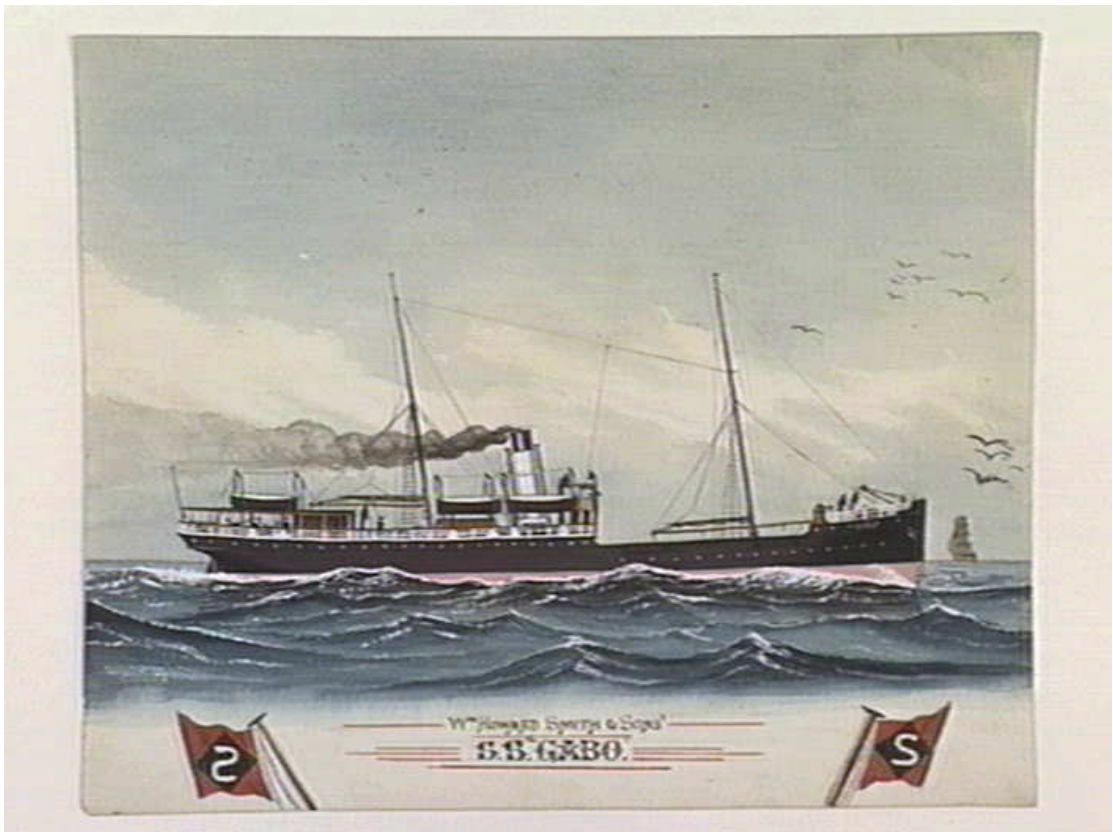


SS Flinders

Gabo

Built in 1883 Gabo had a gross capacity of 2060 tons. The ship was owned by Howard Smith Company. It is sometimes said that she was the “first of the Australian express ships” (Fitchett, 1976).

Served primarily on the Port Pirie to Adelaide run and in later years the coastal ports of Queensland. Wrecked off North Queensland coast.



SS Gabo

Sources:

Fitchett, TK, 1973, *Down the Bay: the story of the excursion boats of Port Phillip*, Rigby Ltd, Melbourne.

Fitchett TK, 1976, *The Vanished Fleet: Australian Coastal Passenger Ships 1910 – 1960*, Rigby Ltd, Melbourne