Relationship Between Creativity and Entrepreneurial Orientation of Tech Startups in Singapore, Australia and New Zealand

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Abstract

In the rapidly evolving global economy, understanding the role of creativity and entrepreneurial orientation (EO) in the growth of tech startups is paramount. Despite the wealth of research on EO and creativity, the intricate interplay between these two facets under uncertain circumstances that are common to tech startups remains largely untapped. This study aims to address these significant research gaps by exploring the relationship between creativity and the dimensions of Lumpkin and Dess's (1996) EO model within early-stage tech startups, specifically in entrepreneurial hubs such as Australia, New Zealand and Singapore.

Tech startups from Australia, New Zealand, and Singapore were interviewed using a qualitative approach. Data were collected from semi-structured interviews and analysed using NVivo 12 Plus. In this study, Lumpkin and Dess's (1996) EO dimensions were applied as a platform to understand how entrepreneurs engaged in creativity and dealt with uncertainty in their startup, particularly in the early stage. They empirically demonstrate creativity's role in promoting key EO dimensions: enhancing innovativeness by supporting experimentation and original thinking, boosting proactiveness by aiding anticipation of future events, encouraging calculated risk-taking by promoting a willingness to explore uncertainty, fostering competitiveness through enhanced self-awareness and speed and enabling autonomy by reducing dependence and driving innovation. By strengthening the EO dimensions, creativity has profound implications for the overall EO and performance.

In uncertain environments, startups must be agile and foster a culture of continuous creativity, learning, and innovation to respond quickly to changing conditions. Entrepreneurs must demonstrate transformational leadership skills to rapidly adjust their strategies and seize emerging opportunities in fast-evolving business landscapes. Startups require resilient organisational structures and an empowered workforce to navigate uncertainty with confidence.

The findings reveal the vital role of personal competencies, such as storytelling, business skills, and proactive learning, in enabling entrepreneurs to exhibit creativity and

innovativeness. Interpersonal competencies, including relationship building and risk encouragement, empower entrepreneurs to demonstrate proactiveness and competitive aggressiveness. Managerial competencies, such as creative problem-solving, customer focus, and vision articulation, help entrepreneurs manifest leadership abilities and enhance autonomy and creativity, emphasising its critical role in fostering EO dimensions and creativity among early-stage entrepreneurs.

From a theoretical perspective, this study provides a deeper understanding of the dynamics between creativity and EO in tech startups. Furthermore, it validated the applicability of these concepts to Australia, New Zealand, and Singapore. Practically, this study provides strategies to foster EO, creativity, and startup success despite uncertainty. By exploring the intersection of creativity and EO, this study offers empirical insights and recommendations for cultivating resilience and competitiveness in dynamic entrepreneurial ecosystems. Ultimately, creativity has emerged as an indispensable catalyst for tech startups striving to flourish in times of change.

Student Declaration

I, Khaled Naser Magableh, declare that the Doctor of Philosophy (integrated) thesis entitled *Relationship Between Creativity and Entrepreneurial Orientation of the Tech Startups in Singapore, Australia and New Zealand* is no more than 80,000 words in length including quotes and exclusive of tables, figures, appendixes, 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.

I have conducted my research in alignment with the Australian Code for the Responsible Conduct of Research and Victoria University's Higher Degree by Research Policy and Procedures.

Signature: *Khaled Magabbleh* Date: 15-08-2023

Ethics Declaration

All research procedures reported in the thesis were approved by VU Human Research Ethics Committee: HRE21-004.

Signature: *Khaled Magabbleh* Date: 15-08-2023

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List of Abbreviations

AI	Artificial intelligence
EDB	Economic development board
EO	Entrepreneurial orientation
GDP	Gross domestic product
GEM	Global Entrepreneurship Monitor
HR	Human resources
HRM	Human resource management
IPA	Interpretative Phenomenological Analysis
IT	Information technology
KPI	Key performance indicator
NZ	New Zealand
NZGCP	New Zealand Growth Capital Partners
R&D	Research and development
TEA	Total early-stage entrepreneurial activity
VU	Victoria University
VUCA	Volatility, uncertainty, complexity and ambiguity

Chapter 1: Introduction

1.1 Study Focus

This thesis focuses on the complex interplay between entrepreneurial orientation (EO), as defined by Lumpkin and Dess (1996), and creativity in early-stage technological business. Although there is evident interest in these domains, gaps in the literature in terms of their interactions still need to be addressed. This becomes even more important when viewed through the eyes of entrepreneurs at uncertain times and in the early stages of startups. In addition to organisational-level analyses, an emerging focus involves adapting these concepts to examine entrepreneurial orientation at the individual level (IEO). Initial research suggests that IEO shows qualities comparable to firm-level EO and promising links to performance (Bolton, 2012), presenting opportunities to connect micro- and macro-perspectives.

This study attempts to answer the following questions: How does creativity relate to Lumpkin and Dess's five EO dimensions from the perspective of entrepreneurs in tech start-ups? How do entrepreneurs engage in creativity and EO during times of uncertainty? How do entrepreneurs demonstrate creativity and EO in the early stages of a startup?

The importance of this study stems from its potential to help explain the ways in which creativity and EO interact in early-stage technology businesses, a field in which adaptation and innovation are critical to survival and success. This study aims to provide a new perspective and actionable insights for entrepreneurs, investors, policymakers, and academics. This thesis was motivated by a desire to comprehend the mechanisms for developing and controlling creativity and EO, specifically in demanding circumstances. This knowledge is critical for increasing startup success rates, boosting economic growth, and bolstering the robustness of the entrepreneurial ecosystem.

1.2 Background and Context

1.2.1 Evolution and Importance of Entrepreneurial Orientation and Creativity

The concept of EO can be traced back three decades; however, the previous two decades are crucial because of its growing significance (Kimjeon & Davidsson, 2021). EO refers to an organisation's entrepreneurial nature, including processes, practices, and decision-making activities that lead to new entries (Omisakin & Adegoke, 2022). Entrepreneurship is necessary for an economy, and researchers have extensively explored this concept, especially in recent times, when developing countries focus on improving their economies (Kimjeon & Davidsson, 2021). Creating a new product or service is crucial for an organisation's survival, as agreed upon by many researchers. This is especially important because of the impact of globalisation (Njikam, 2022). Organisations now compete not only nationally but also internationally. Large firms with substantial resources and the ability to operate at a higher cost for extended periods make it challenging for small firms to sell their products or services at higher prices. In order to become more competitive, these firms aim to offer goods and services at lower prices (Hameed et al., 2021).

Smaller firms face market challenges and often exit or innovate to survive. Creativity is crucial for startups' long-term survival in a globalised era. Scholars argue that continuous creativity fostering is essential for startup success (Mohanty 2021). For technology-related startups, creativity serves as the foundation for daily operations. Telecommunications industries, which are growing increasingly complex, can make or break startups. Their success often hinges on innovation and providing creative solutions (Mohanty 2021). In this highly competitive landscape, small startups face numerous obstacles to survival, including a limited range of products and services, a lack of creativity, and challenges in managing quality Akhter et al. (2022).

Consequently, the survival of startups relies heavily on their capacity to infuse creativity into their products, processes, operations, and services (Mickiewicz & Kaasa, 2022). By emphasising creativity as a fundamental aspect of business strategy, startups can differentiate themselves from their competitors, attract customers by offering innovative offerings, and create sustainable market niches. Therefore, startups must embrace a culture of creativity and

continuously seek innovative thinking and problem-solving opportunities. More significantly, creativity is required, and the creation of such products or services is important to survive longer in the market. The active global market has made this more necessary and difficult than ever before (Mickiewicz & Kaasa 2022). From another perspective, creativity is necessary to maintain an organisation's performance. Most scholars have focused on the relationship between creativity and performance (Danish et al., 2019). Therefore, in terms of creativity in entrepreneurial organisations, there are some major gaps in the literature.

1.2.2 Theoretical Gaps and Role of Creativity and Entrepreneurial Orientation in Startups' Early Stages

Although a substantial number of studies have been conducted to understand the ways that entrepreneurial creativity can improve employee and organisational performance (Ferreira et al., 2020), few have explicitly explored the relationship between creativity and EO among individual entrepreneurs and their entrepreneurial ventures. Similarly, although scholars have extensively researched the relationship between EO and organisational performance (Engelen et al., 2015; Omisakin & Adegoke, 2022), the application of EO in the areas of creativity and innovation has not been sufficiently explored. This gap in the literature points to the potential of this study to make a particular contribution to the field of entrepreneurship.

Essentially, EO and creativity have paramount significance for the development and progress of an organisation (Ferreras-Méndez et al., 2021). Despite the importance of these concepts, few studies have established a relationship between EO and creativity (Khedhaouria et al., 2015). In particular, the link between IEO and creativity specifically remains underexplored, representing a research gap. Furthermore, in the EO literature, there is little available evidence of the competitive advantage of creativity, especially at the initial stage of a startup (Ferreira et al., 2020). Specifically, these few studies have not addressed the ways that early-stage entrepreneurs' engagement in creativity relates to their EO and, in turn, affects the development and performance of their startups.

Startups typically undergo multiple stages in their journey, and each stage has unique characteristics and challenges. These stages are crucial for gathering high-quality information about entrepreneurs' activities because the level of engagement remains high

during the early phases of new business ventures (Kier & McMullen, 2020). According to the Global Entrepreneurship Monitor (GEM) report (2019), the systematic correlation between the level of entrepreneurial activity and gross domestic product (GDP) per capita, which has been confirmed by GEM research, obliges policymakers to include an entrepreneurial condition framework when developing macroeconomic policies to achieve economic development goals (Hart et al., 2020). Moreover, Fritsch (2013) highlighted that entrepreneurs of new business ventures have a significant impact on economic growth. The first stage of a startup is often associated with high levels of entrepreneurial activity and enthusiasm. Entrepreneurs are driven by their vision and passion for business ideas. However, this was also a period of turbulence and uncertainty (Danish et al., 2019). Many of those conducting new ventures tend to underestimate the risks that they face in their initial stages and fail to adequately measure and evaluate the impact of these risks on their short- and long-term objectives (Lumpkin & Dess, 1996). Consequently, they may struggle to devise effective measures for mitigating these risks.

These risks are continuously increasing in the current era owing to increasing competition. In terms of the increasing effects of globalisation, environmental changes, and the recent pandemic, this world is seen to be volatile, uncertain, complex, and ambiguous (VUCA; Kraaijenbrink, 2018). To define such situations, professors at an American university introduced an abbreviation of four words, as mentioned earlier, namely, VUCA (USAWC, 2021). However, among these four aspects, uncertainty is the most influential factor affecting entrepreneurial setup (Mack et al., 2015). Given that entrepreneurs work under risk and uncertainty, there is a high chance that they have opportunities that others may miss; therefore, uncertainty can be a threat as well as an opportunity. For example, during the recent pandemic, many individuals lost their wealth, while others not only maintained their status but also became wealthier (Garti & Dolan, 2021). Similarly, an uncertain situation may prove to be a gain for someone during a loss for another person. Researchers believe that entrepreneurs often gain an advantage from uncertainty; however, they enhance the chance of failure, especially in the case of initial startups. Therefore, EO plays a vital role in entrepreneurs' survival (Akhter et al., 2022).

Despite extensive studies on EO and its benefits for entrepreneurial success in uncertain times (Cowden et al., 2022), there seems to be a significant gap in the understanding of how entrepreneurs demonstrate their EO and creativity during uncertain times. This lack of specific knowledge creates a gap between academic and practical settings and highlights the need for further research on the interaction between creativity and EO in the face of uncertainty.

1.2.3 Dimensions of Entrepreneurial Orientation and Their Relationship with Creativity

Researchers have identified several dimensions of EO. According to Lumpkin and Dess (1996), EO has five dimensions: innovativeness, proactiveness, risk-taking, autonomy, and competitive aggressiveness. According to Beattie (2016), five dimensions are used for EO. Al Mamun and Fazal (2018) used four dimensions, specifically, 'creativity and innovativeness, risk-taking propensity, proactiveness and autonomy'. These dimensions play a significant role in entrepreneurial creativity; therefore, their relationships are vital for this study. However, scholars have not explored the link between these dimensions and creativity in initial startups. Jiang et al. (2018) conducted a study and illustrated responses about the influence of EO, open innovation and creativity on firm performance. However, they did not link these dimensions to the creation of products or services at the initial level. Another study by Yu et al. (2019) stated that performance is a vital phenomenon between EO and business; therefore, there is a dire need to understand the factors that underlie EO value.

Robinson and Stubberud (2014) noted that EO acts as an organisational culture and a driving force in creating new products or services. The authors further noted that employees become more creative, enthusiastic, confident, and innovative after EO is applied to an organisation. Although this study did not identify a relationship between EO dimensions and creativity, it highlighted EO as a critical determinant of creativity. Similarly, Donbesuur et al. (2020) conducted a study that investigated the effect of EO on performance; however, they also listed creativity as a significant consequence of entrepreneurial action. Given that EO and creativity are the basis for regional and national improvements, entrepreneurs and startups are important (Ferreira et al., 2020). Ferreira et al. (2020) asserted that creativity contributes

significantly to economic growth, and entrepreneurs are the key sources of creativity and innovation. EO and creativity are rooted in technology. Therefore, to enhance the creativity of employees, adopting EO is a significant option, especially in initial startups (Donbesuur et al., 2020). Hence, this study investigates the relationship between EO and creativity in organisations, specifically early-stage tech startups in Australia, New Zealand, and Singapore.

1.3 Problem Statement

Current literature on EO and creativity focuses predominantly on Western or other developed countries, leaving the Asia-Pacific region largely understudied (Xie & Paik, 2019). Furthermore, existing studies have often overlooked the role of creativity as a critical determinant of EO, thereby limiting the understanding of the complex interplay between these two constructs. Maas and Ester (2016) identified that there has been oversight of the ways that uncertainty factors contribute to the performance of startups. This consideration of uncertainty, which is a situation or often considered a risk, has been given little or no significance in previous studies.

In sum, the current body of literature on IEO and creativity in startups suffers from several limitations:

- Limited focus on the combined effect: Existing research has primarily examined IEO and creativity in isolation, neglecting their potential synergistic effects within the crucial early stages of startups.
- Uncertainty as a neglected factor: While acknowledging the importance of EO in uncertain environments, existing studies seldom explore the specific mechanisms through which entrepreneurs leverage IEO and creativity to navigate uncertainty in the early stages of their venture.
- Inadequate attention to IEO dimensions and creativity: While Lumpkin and Dess's five dimensions provide a valuable framework, research is lacking on how these specific dimensions interact with creativity at the individual entrepreneur level.

Hence, in this study, I used Lumpkin and Dess's (1996) EO model to understand whether this long-standing model of EO is still valid in an uncertain world and how it is linked to creativity during the early stages of digital startup ventures.

1.4 Research Aim and Objectives

In line with this research problem, this study investigates the relationship between creativity and Lumpkin and Dess's (1996) five dimensions of the EO model in tech startups to identify the strategies rooted in Lumpkin and Dess's EO model that enable these startups to adapt and thrive in uncertainty. Finally, through the lens of Lumpkin and Dess's (1996) EO model, this study seeks to understand early-stage entrepreneurs' behaviours and practices to cultivate creativity and demonstrate EO in startups. This comprehensive study provides critical insights and contributes valuable knowledge to the academic literature and a practical understanding of entrepreneurial success in uncertain environments. The objectives of this study are as follows:

- To explore the relationship between creativity and Lumpkin and Dess (1996), five dimensions of EO (risk-taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy) from the perspective of entrepreneurs within the tech startup sector.
- To understand the methods by which entrepreneurs engage in creativity and EO during uncertain times.
- To explore the ways that entrepreneurs demonstrate creativity and EO during the early stages of their startup initiatives.

1.5 Research Questions

The aim of this study was to develop distinctive insight into the relationship between creativity and Lumpkin and Dess's (1996) five dimensions of EO in tech startups to identify the strategies rooted in Lumpkin and Dess's EO model that enable these startups to adapt and thrive in uncertain times. In pursuit of this overall aim, three research questions were formulated as follows:

RQ1: How does creativity relate to Lumpkin and Dess's (1996) five EO dimensions from entrepreneurs' perspectives in tech startups?

RQ2: How do entrepreneurs engage in creativity and EO in times of uncertainty?

RQ3: How do entrepreneurs demonstrate creativity and EO in the early stages of a startup?

1.6 Significance of Study

This study has significant theoretical and practical implications because it addresses several gaps in existing literature. First, although EO and creativity have been studied extensively (Emami et al., 2023; Mrabure et al., 2021; Tan & Zamborsky, 2022; Winarno et al., 2022), their relationship, specifically in the context of initial startups, remains largely unexplored (Ferreira et al., 2020; Khedhaouria et al., 2015). This study addresses this critical research gap by investigating the relationship between creativity and EO in the early stages of tech startup ventures. Second, it contributes to the understanding of the relationship between creativity and EO in the context of uncertainty. Given the dynamic and rapidly changing business environment in which startups operate, examining the ways in which creativity and EO interact in the face of uncertainty provides valuable insights for entrepreneurs, policymakers, and practitioners.

Third, this study addresses another gap in the literature by exploring the relationship between creativity and entrepreneurship, specifically in Singapore, Australia, and New Zealand. The unique characteristics, government support, and entrepreneurial ecosystems of these countries make them ideal contexts to study this relationship. By conducting a thorough analysis across these countries, this study contributes to a more comprehensive understanding of the relationship between creativity and EO in the Asia-Pacific region. Finally, this study addresses this research gap by exploring the relationship between creativity and the dimensions of EO, namely innovativeness, proactiveness, risk-taking, autonomy, and competitive aggressiveness. By investigating the ways in which creativity relates to these dimensions, this study provides insights into how entrepreneurs can use creativity to promote EO, ultimately contributing to the growth and success of their ventures. By scrutinising the

relationship between creativity and IEO dimensions, this study provides insights into how founders' creativity may enhance orientation.

1.7 Definitions of key terms

Entrepreneurial orientation (EO): A firm's strategic posture reflects its propensity towards innovation, risk-taking, and proactiveness (Lumpkin & Dess, 1996).

Individual entrepreneurial orientation (IEO): Adaptation of EO to the individual level reflects an individual's inclination towards entrepreneurial behaviours and mindsets (Bolton & Lane, 2012).

Creativity: The production of ideas that are both novel and useful for addressing a particular task or problem (Amabile, 1988).

VUCA: An acronym summarising a volatile, uncertain, complex, and ambiguous environment (Krawczyńska-Zaucha, 2019).

Startups: Recently established ventures are innovative, scalable, and early-stage companies aiming to serve markets through technology-enabled business models (Cavallo et al., 2021).

1.8 Organisation of Thesis

This thesis is structured into seven distinct chapters supplemented by four appendices. Each chapter was designed to serve a specific objective within the broader context of this study. Chapter 1 introduces the central theme and provides a comprehensive research topic overview. This chapter delineates the pertinent research gaps that this study, as well as its questions and objectives, seeks to address and emphasise the significance of the study in the prevailing academic discourse. This establishes the tone of the entire research investigation, paving the path for an evolving narrative. Chapter 2 presents an exhaustive exploration of the relevant theoretical and empirical literature. This review expands on the complex constructs of entrepreneurs, entrepreneurship, and startups. This chapter delves deeper into EO dimensions and their role in entrepreneurial activity. Furthermore, it critically discusses creativity, its processes, and its interaction with EO, specifically in terms of uncertainty. This

comprehensive review helps to build a strong theoretical underpinning for subsequent empirical work. Chapter 3 presents an in-depth overview of the countries selected for this study: Singapore, Australia, and New Zealand. It delves into various aspects, including geography, population, and economic characteristics. This chapter reviews the state of innovation, entrepreneurship, and development of tech startups in these countries. This culminates in the synthesis of relevant research and practices that link EO to creativity within entrepreneurial ecosystems. Chapter 4 outlines the research methodology used in this study. It explicitly describes the research design, population, sampling framework, and data collection techniques used. It also discusses data analysis methods, specifically the application of thematic analysis in this research. Finally, the chapter addresses the ethical considerations that were adhered to during the research process. Chapter 5 presents the empirical results of this study. The demographic characteristics of the participants were profiled, followed by a detailed thematic analysis of the collected data. This chapter presents the findings and provides empirical evidence for the proposed research questions. Chapter 6 commences the interpretative journey and discusses the research findings in detail. This chapter seeks to situate the findings within the broader theoretical and empirical landscape laid out in Chapter 2, thus providing a richer understanding of the research questions. Finally, Chapter 7 concludes the study by examining the theoretical and practical implications of the findings. This reflects the limitations encountered during the study and proposes avenues for future researchers in the field. This chapter closes the research narrative, summarises the journey, and underlines the study's contributions and recommendations.

1.9 Chapter Summary

This introductory chapter provides an overview of the thesis. The background of the study was presented, followed by a research problem statement. Three research questions were proposed in accordance with the research aim. This chapter also presents a statement of research significance. In the next chapter (Chapter 2), the literature related to this study is presented.

Chapter 2: Literature Review

2.1 Introduction

This chapter provides the background to explain the research objectives. It begins by exploring the concept of entrepreneurship, including the criteria for entrepreneurs and conditions conducive to entrepreneurship. Subsequently, it delves into an in-depth examination of business startups and their processes. This serves as the foundation for a detailed exploration of Lumpkin and Dess's (1996) work on EO. This chapter then presents an in-depth analysis of Lumpkin and Dess's (1996) five dimensions of entrepreneurship. This chapter also discusses how creativity can be fostered in entrepreneurial endeavours by examining the processes, elements, and skills necessary to foster creativity. This review argues that Lumpkin and Dess's (1996) work is fundamental to understanding EO's contextual and relational aspects of EO. This chapter also reviews the literature on how entrepreneurs engage in EO and creativity during uncertain times. This chapter concludes by summarising Lumpkin and Dess's (1996) contributions to EO discourse, aiming to contribute to a deeper understanding of this critical aspect of entrepreneurship by positioning Lumpkin and Dess's (1996) work as central.

2.2 Entrepreneurship: Dynamics, Challenges, and Impact on Startups

Entrepreneurship, a core concept in understanding Entrepreneurial Orientation (EO), entails the process of innovation and risk-taking to establish new businesses (Akhter et al., 2022). This process, which is essential for economic growth, involves identifying opportunities, managing resources, and introducing market innovation. Entrepreneurs, who differ from traditional businesspeople, possess an innovative spirit and capacity for risk-taking. Despite facing challenges, such as limited access to finance and regulatory obstacles (Ibeabuchi et al., 2020), entrepreneurs play a crucial role in stimulating economic growth and technological advancement. Startups, a crucial aspect of entrepreneurship, represent innovative and scalable ventures that often require substantial capital but offer significant potential rewards (Cavallo et al., 2021). The entrepreneurial mindset, which is essential for startup success, involves being open to taking risks and adapting to market changes. The startup ecosystem,

including incubators, accelerators, and venture capitalists, provides crucial support, enabling entrepreneurship to flourish and drive innovation and economic growth. This interconnected relationship highlights the profound impact of entrepreneurship on the development of startups and the broader economy.

2.2.1 Stages of Startups

Baldridge and Curry (2022) noted that those who found startups want to change the existing market by providing something that is not available. They want to deliver something useful and valuable to people to fulfil their needs. Katila et al. (2012) asserted that startups are businesses or projects that individuals start to provide valuable products or services to the community, nation or world. According to the GEM conceptual framework, entrepreneurial activity comprises three phases (GEM Report, 2014). The first stage is the entrepreneurial intention stage, in which individuals are not currently entrepreneurial but are determined to do so within the next three years. The second stage is total early-stage entrepreneurial activity (TEA), which consists of two substages: budding and new entrepreneurs. In the substage of budding entrepreneurs, individuals actively participate in a startup and assume that they own all or part of the new enterprise but have not been paid for more than three months. In the new enterprise substage, individuals participate in new enterprises as owners or managers and receive pay for over three to 42 months. The third phase is the enterprise creation or exit phase, in which the enterprise lasts longer than 42 months and becomes established. However, if abandoned, this is included in the enterprise exit rate.

In essence, TEA focuses on the periods before and immediately after the founding of a startup. Moreover, TEA is more appropriate for investigating the main objective of this study because creativity is more often associated with the creation of new ventures (Shabir & Ali, 2022). Moreover, the early stages of business creation are considered the most appropriate period for entrepreneurs to obtain high-quality details about their activities because their level of engagement is high at the beginning of their new venture (Abrell & Karjalainen, 2017). According to the GEM Report (2020), the systematic correlation between the level of entrepreneurial activity (TEA index) and GDP per capita, as confirmed by GEM studies, obliges policymakers to include a framework for entrepreneurial conditions when developing

macroeconomic policies to achieve their economic development goals. Furthermore, Fritsch (2008) highlighted that creating new enterprises significantly affects economic growth. They accelerate the pace of creative destruction, stimulate innovation in industries, and provide various new products, services, and processes by challenging or replacing existing firms. However, the first year of business is turbulent for all companies. Many new businesses ignore the risks that they face in their early stages. Furthermore, they fail to measure and assess the impact of such risks on their short- and long-term objectives and typically develop ineffective measures to mitigate potential risks (McGee & Peterson, 2019). Figure 2.1 presents a diagram of these stages.

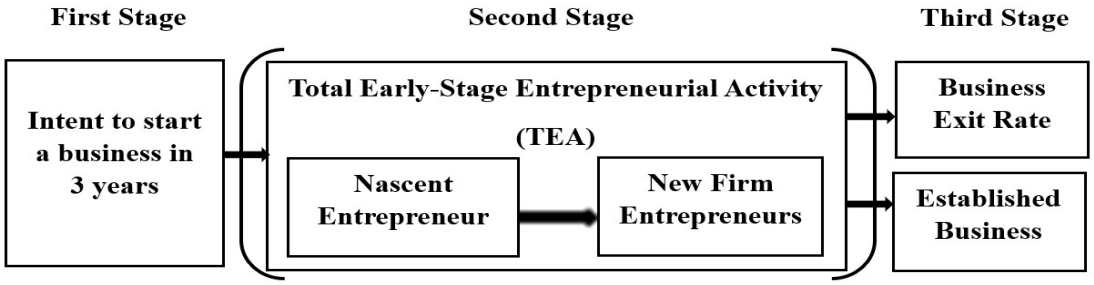

Figure 2.1: Entrepreneurial Stages (GEM Report, 2014)

To contribute to the study of entrepreneurship and startups, this study examines Lumpkin and Dess's (1996) concept of EO and connects it to Amabile's (1996) idea of creativity as well as the variable of uncertainty. This provides a comprehensive understanding of this topic.

2.3 Entrepreneurial Orientation

Lumpkin and Dess (1996) defined EO as 'the process, practices and decision-making activities that lead to new entry' (p. 136). Lumpkin and Dess's foundational work dramatically advanced the field of EO, given its rich development, defined by significant contributions to EO's definition, dimensions, and correlation to business performance. Lumpkin and Dess's (1996) definition focused initially on product market innovation. It characterised these firms as risk-taking, proactive, and focused on developing breakthrough

technologies to outperform the competition (Casillas & Moreno, 2010). This view lays the foundation for considering EO in terms of creativity and risk-taking.

Lumpkin and Dess's (1996) work heavily influenced the identification of the aspects of EO that build on this underlying concept. Lumpkin and Dess identified five crucial EO dimensions: proactivity, innovativeness, autonomy, risk-taking and competitive aggression (Shahid et al., 2022). These dimensions encompass a company's predisposition to innovation, proactiveness, and risk-taking. Conceptually, they reflect a firm's ability to anticipate and respond to changes in the business environment, willingness to take risks, and competitive nature (McGee & Terry, 2022).

Lumpkin and Dess (1996) extended their influence by investigating the relationship between EO and business performance and found a favourable correlation between EO and business growth (Casillas & Moreno, 2010). High EO levels positively affect family business growth, meaning that firms with higher EO levels are more likely to grow and succeed (Yu et al. 2019). Lumpkin and Dess's EO work have been used in various ways. For example, Bolton and Lane (2012) incorporated it into their model and developed an individual entrepreneurial orientation.

In summary, Lumpkin and Dess's (1996) study of EO led to the characterisation of entrepreneurial firms as inventive and proactive entities to identify the essential characteristics of EO and further investigate their relationship to firm performance. The authors' contributions also influenced the development of practical EO valuation techniques, deepening the understanding of EO and highlighting its importance in business success.

Lumpkin and Dess's (1996) seminal work on EO provided a solid foundation for investigating the relationship between creativity, uncertainty and EO in tech startups. It explores the ways in which entrepreneurs manage creativity and EO in turbulent, uncertain, complex, and ambiguous times, guided by the authors' extension of EO characteristics and their links to firm performance. Lumpkin and Dess's (1996) insights into EO promise valuable insights. Figure 2.2 shows a visual representation of Lumpkin and Dess's (1996) model. These dimensions are discussed in detail in the section that follows.

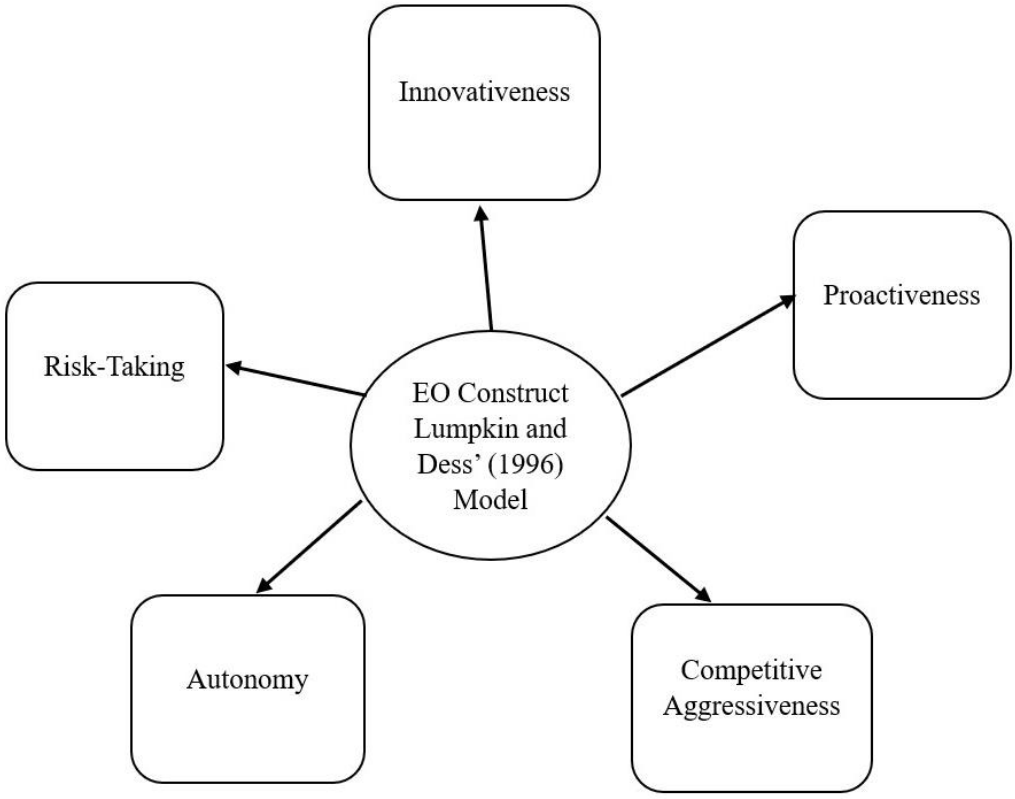

Figure 2.2: Lumpkin and Dess's (1996) Entrepreneurial Orientation Model

2.3.1 Dimensions of Entrepreneurial Orientation

The earliest conceptualisation of EO used the work of Miller (1983). A decade later, Lumpkin and Dess (1996) suggested adding two additional dimensions–competitive aggressiveness and autonomy–to complement Miller's three dimensions: innovativeness, risk-taking, and proactiveness. Lumpkin and Dess (1996) argued that to be successful, a business needs autonomy from strong leaders or creative individuals who do not have any restrictions from the business's bureaucracy. The other dimension, competitive aggressiveness, describes Miller's (1983) idea of 'beating competitors to the punch' (p. 771). This demonstrates how a business reacts to potential risks and does not just capitalise on opportunities, as outlined in Miller's proactive approach, which Lumpkin and Dess (1996) examined and measured as a better exposition of traditional EO constructs. Prior studies have indicated that EO is the central construct for organisational success and has been found to lead to greater performance (Wiklund & Shepherd, 2011). Moreover, Lumpkin and Dess (1996) suggested that EO is a

source of competitive advantage. Businesses that have higher levels of EO operate better than those that have a lower level of EO (Rauch et al., 2009). By implementing higher levels of EO, businesses can seize opportunities in a way that differentiates them from nonentrepreneurial firms.

The main difference between the EO dimensions is that Lumpkin and Dess's (1996) five dimensions vary independently rather than covary, depending on the environmental and organisational context. Moreover, Lumpkin and Dess asserted that all of these factors—autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness—may be present when a firm engages in a new entry' (p. 137). However, a successful new entry may also be achieved when only some of these factors operate. Specifically, the extent to which each of these dimensions is useful for predicting the nature and success of a new undertaking may be contingent on external factors, such as the industry or business environment, or internal factors, such as the organisational structure (in the case of an existing firm) or the characteristics of the founders or top managers.

Rauch et al. (2009) argued that it is necessary to study these dimensions separately because they differ in environmental and organisational contexts. Thus, several prior studies have suggested a disparity between EO dimensions (Baumann et al., 2017). Therefore, autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness may vary independently depending on environmental and organisational contexts (McKenny et al., 2018). In line with this understanding, the following five dimensions are elaborated separately.

A) Proactiveness

Proactiveness, as defined by Lumpkin and Dess (1996), is the ability of a firm to foresee and act on future wants and needs in the market by establishing a first-mover advantage ahead of competitors. Grant and Ashwood (2021) also defined proactiveness as a self-initiated approach to providing an efficient and effective solution to a problem that has not yet occurred. This proactive approach involves examining the market's prospects, taking steps to control a situation before it occurs, and assessing risks and chances of failure or opportunities for innovativeness, as noted by Dai et al. (2014). Coleman and Adim (2019)

asserted that proactiveness could be taking the initiative by predicting and pursuing new possibilities, as well as engaging in emerging markets, which has become synonymous with entrepreneurship.

Furthermore, proactiveness is characterised by the introduction of new products and services before competitors and acting in anticipation of future demand, as observed by Rauch et al. (2009). Ibeabuchi et al. (2020) suggested that proactiveness involves evaluating and identifying new opportunities and analysing market trends. Numerous studies have shown that proactive organisations introduce unique items to the market before their rivals, as highlighted by Tolstoy (2019). In the early stages of business growth, proactiveness is a crucial element that affects business performance growth, as observed by Cho and Lee (2018). However, once a firm is established, proactiveness becomes less influential. It is important to note that the terms 'competitive aggressiveness' and 'proactiveness' are frequently used interchangeably, but Tolstoy (2019) differentiated the two by suggesting that competitive aggressiveness reveals a company's reaction to the difficulties posed by competitors, while proactiveness refers to a company's response to market prospects without happening or in advance to avoid future risks and failures.

B) Innovativeness

Lumpkin and Dess (1996) defined innovativeness as the willingness of a firm to engage in and support new ideas, novelty, and experimentation to create new products and services. Similarly, Lewandowska et al. (2021) define innovativeness as the implementation of creative ideas, resulting in the introduction of new products or services. This emphasis on newness and improvement is a commonality among the definitions by various authors. Kreiser and Davis (2010) asserted that due to strong international competition, organisations must build a solid competitive advantage to survive in the market, making innovativeness an essential source of providing value to customers. Hernández-Perlines et al. (2020) argued that innovativeness provides a valuable addition to existing products and services, creating something new, particularly in the hotel industry. Kreiser et al. (2013) found that innovativeness requires resources to create something new to improve performance, and it should increase the organisation's performance, as entrepreneurs recognise their

innovativeness through their managerial policies and products or services. Therefore, innovativeness is a vital predictor and dimension of EO.

C) Risk-Taking

Risk-taking refers to the willingness to commit resources to activities and projects that result in uncertain outcomes (Lumpkin & Dess, 1996). Al Mamun and Fazal (2018) asserted that risk-taking is the ability of an organisation to take bold steps instead of engaging in cautious behaviour. Naldi et al. (2007) defined it as the intentional movement of an organisation to obtain opportunities despite their associated uncertainties and risks. One of the entrepreneurs' critical and distinctive behaviours is taking risks because of associated rewards. The level of reward depends on the level of risk, meaning that high levels of reward are typically associated with a high level of risk (Kreiser & Davis, 2010). Therefore, managers and entrepreneurs are distinguished according to this dimension because managers try to avoid risk and believe in safe play, whereas entrepreneurs try to obtain quick rewards by taking risks that are attached to an opportunity (Dai et al., 2014).

D) Competitive Aggressiveness

According to Lumpkin and Dess (1996), competitive aggressiveness refers to 'a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is, to outperform industry rivals in the marketplace' (p. 148). Covin and Covin (1990) noted that competitive aggressiveness is an organisation's complex and intense competition rather than its avoidance. Similarly, Stambaugh et al. (2020) asserted that this is the proclivity of a business to actively and vigorously battle its competitors to gain entrance or enhance position, that is, to outperform its competitors in the market. These methods may depend on market growth and product improvement. Lumpkin and Dess (2015) observed that competitive aggressiveness leads to high levels of performance that are orchestrated using strategic actions to improve the company's creativity and performance. Similarly, Vidic (2013) found that competitive aggressiveness positively connects to performance and employees' creativity.

E) Autonomy

Lumpkin and Dess (1996) defined autonomy as 'the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion' (p. 140). It was also defined as 'workers' ability to be self-directed in the pursuit of opportunities. In an organisational context, it refers to a course of action adopted in the absence of suffocating organisational obstacles (Theurer et al., 2018). A. Yu et al. (2019) suggested that granting autonomy to employees increases their positive performance, which might lead to improved corporate performance. Fadda (2018) concluded that to function quickly and effectively, organisations must empower their employees and grant them autonomy to make decisions and accept responsibility. According to Yu et al. (2019), organisations can only operate in an entrepreneurial manner if they grant autonomy to workers, as it is the most crucial element in enhancing corporate success across all sectors. In the section that follows, the essential role of creativity within the entrepreneurial world is discussed.

2.3.2 Individual-Level Entrepreneurial Orientation

Individual entrepreneurial orientation (IEO) stems from the well-established concept of entrepreneurial orientation (EO) that emerged at the firm level. Originally, EO was conceptualised by Miller (1983) as consisting of three key dimensions: innovativeness, proactiveness, and risk-taking. This conceptualisation was then popularised by Covin and Slevin (1989) in their proposed framework of entrepreneurial strategic posture. Lumpkin and Dess (1996) subsequently expanded on the EO dimensions and put forward a five-factor model encompassing autonomy and competitive aggressiveness in addition to the original three dimensions.

Over time, EO has gained widespread recognition in the literature as a vital firm-level construct that determines organisational outcomes. For instance, numerous studies have illustrated links between EO dimensions and performance across contexts, whether in government-linked companies, franchises, or small and medium enterprises (Reijonen et al., 2015). However, scholarly conversation has recently adapted the EO concept to exist at the individual level. In particular, Robinson and Stubberud (2014) asserted that EO can be meaningfully considered as a separate difference variable. Conceptualising IEO parallels the

multidimensional qualities of its firm-level predecessor, encompassing a similar set of attitudinal factors and tendencies.

Initial research examining IEO supports its relevance in explaining success and performance, as firm-level EO has demonstrated. For example, a positive relationship has been found between franchisees' IEO and business performance in the Taiwanese context (Chien, 2014). The link between the IEO construct and general business success has also been demonstrated (Bolton, 2012). However, investigations specifically focusing on IEO remain scarce and usually focus on performance outcomes. Considerably less attention has been paid to elucidating how IEO at the individual level relates to personal attitudes, motivations, and cognitive patterns fundamental to entrepreneurship. In particular, the interrelationships between individual creativity, IEO dimensions such as risk-taking and innovativeness, and the resulting entrepreneurial intentions demand further examination and theorisation. Progress in this vein can enable a more robust understanding of the antecedents and manifestations of the differences in IEO among future entrepreneurs.

2.3.3 Individual-Level Entrepreneurial Orientation in Australia, New Zealand, and Singapore

The investigation of IEO has garnered substantial interest in the field of entrepreneurship, with a growing body of research highlighting its significance in shaping entrepreneurial beliefs and behaviours across cultures and economies (Clark et al., 2024). Notwithstanding this burgeoning interest, the literature on IEO in Australia, New Zealand, and Singapore remains less developed (Gerschewski et al., 2016; Gholizadeh & Mohammadkazemi, 2022) than the extensive research available in the United States and Europe (Clark et al., 2024). While there is an established understanding of EO at the organisational level in the Asia-Pacific context, including Australia, New Zealand, and Singapore (Khan et al., 2021; Omisakin & Adegoke, 2022), studies that adopt an individual lens to explore EO foundations related to start-up founders' cognition and behaviours are relatively limited. This gap is evident in the comparative scarcity of research that delves into the associations between individual-level EO dimensions, such as innovativeness, risk-taking, and autonomous decision-making, and their interplay with personal drivers and strategic tendencies.

The need for further research on IEO is underscored by the limitations of the current understanding of EO's causal mechanisms of EO. Wales et al. (2023) point out that despite the extensive research on EO and its relationship with firm performance, "the literature remains surprisingly silent about the theoretical underpinning for why EO is causing firm performance" (p. 1753). This lack of theoretical clarity hinders the development of a comprehensive understanding of how EO influences organisational outcomes and leaves the question of the underlying causal mechanisms (Anderson et al., 2022). Moreover, the focus on firm-level analysis in EO research has led to neglecting individual-level factors that may influence entrepreneurial behaviours and outcomes (Lumpkin and Dess, 1996; Fellnhofer, 2017). In this line, Gao et al. (2020) emphasise that "current research on entrepreneurial orientation is based on the firm level but not the individual level" (p. 1). This limitation is particularly relevant in the context of start-ups and small businesses, where the entrepreneurial orientation of the founder or key decision-makers can have a significant impact on the firm's strategic direction and performance.

The lack of attention to IEO is especially problematic given the increasing recognition of the role of individual entrepreneurs in driving innovation and economic growth. As the global business landscape becomes more dynamic and competitive, understanding the factors influencing individual entrepreneurs' abilities to identify and exploit opportunities becomes crucial (Clark et al., 2024). This highlights the need for more research on how IEO is generated and how it interacts with other individual-level factors such as creativity, self-efficacy, and risk propensity. Baker et al.'s (2021) bibliometric analysis of Small Business Economics reveals that entrepreneurship, self-employment, innovation, and financing small firms are among the major areas covered by the existing literature, underscoring the importance of these topics in the broader entrepreneurship research landscape.

Addressing these gaps through emphasised research attention aligns with calls for elaborating on the entanglements between entrepreneurial cognition, strategic orientations, and behaviours (Fellnhofer, 2017). In response to these gaps, Clark et al. (2024) have been instrumental in validating the study of IEO and advocating its investigation as a credible and distinctive construct within the broader EO framework, thereby challenging resistance to its application at the individual level (Entrepreneurship Theory and Practice). This theoretical

advancement offers a new lens through which to view and understand the nuances of EO at the individual level, particularly in the distinct economic and cultural settings of Australia, New Zealand, and Singapore (Gholizadeh & Mohammadkazemi, 2022).

For instance, in the Australian context, Seet et al. (2020) provided insights into a country's entrepreneurial dynamics, emphasising innovativeness, proactiveness, and risk aversion among entrepreneurs. These studies illustrate the complex relationship between these IEO dimensions and a country's economic performance, suggesting that these characteristics are integral to Australian entrepreneurial cultures. Similarly, Marcotte's (2011) comparative study of New Zealand and Singapore revealed how cultural influence shaped IEO in these regions. New Zealand's individualistic culture fosters a more risk-tolerant approach to entrepreneurship, while Singapore's collectivist values emphasise risk aversion and desire for control. The research agenda should be extended to consider how cultural factors such as these influence EO at the individual level, as discussed by Kumar and Shukla (2022), who examined the impact of market opportunities, social capital, and personal attributes on IEO. The interplay between IEO and creativity is an area ripe for exploration. Mohammadi (2021) highlighted entrepreneurial bricolage, which emphasises the significance of passion and perseverance in fostering an innovative and experimental environment. This interplay is further complicated by the findings of Gao et al. (2020), who examined how personality traits such as extraversion and neuroticism relate to creativity and, by extension, to IEO.

These insights underscore the importance of a research agenda that extends beyond the preliminary evidence of IEO's impact of IEO on organisational outcomes. A profound understanding of IEO's influence of IEO on entrepreneurial success necessitates an investigation of the nuanced relationship between start-up founders' creativity and IEO (Ferreira et al., 2020). This complex and multifaceted relationship is influenced by various individual, organisational, and environmental factors. Studies have shown that creativity in entrepreneurship is not merely about generating new ideas but also involves the ability to implement these ideas in a way that leads to successful business outcomes (Fattah et al., 2022). Thus, creativity is a critical component of the innovativeness dimension of IEO. However, the mechanisms through which creativity interacts with other dimensions of IEO, such as risk-taking, proactiveness, autonomy, and competitive aggressiveness, are poorly

understood. Research should uncover how these dimensions of IEO can be enhanced by creative thinking and problem-solving skills, particularly in the face of the ambiguity and limited resources that characterise the early stages of venture development (Gao et al., 2020).

Furthermore, the cultural context within which entrepreneurs operate may shape their EO significantly. Research has demonstrated that national culture affects risk-taking behaviours and attitudes towards innovation (Ashraf et al. 2016). In countries such as Singapore, where there is greater emphasis on risk aversion and long-term planning, the expression of IEO may differ from that in countries that tend to have a higher tolerance for risk and uncertainty (Moorhead et al., 2021). As such, a more thorough investigation into how cultural values and norms influence the expression and effectiveness of IEO could yield valuable insights into supporting entrepreneurs in different cultural settings (Gholizadeh & Mohammadkazemi, 2022).

Additionally, cognitive processes such as creative self-efficacy, which refers to an individual's belief in their ability to produce creative outcomes are likely to play a crucial role in how entrepreneurs perceive and navigate uncertain environments (Enstroem & Schmaltz, 2023). Understanding the role of such cognitive factors in enhancing or inhibiting the enactment of IEO could inform the development of interventions and support systems that bolster founders' confidence in their creative abilities, thereby fostering a more robust EO (Shahid et al., 2022).

A comprehensive research agenda should also consider the stages of venture development, as the benefits of IEO may vary across different phases of the entrepreneurial process (Gholizadeh & Mohammadkazemi, 2022). While IEO may be critical for opportunity identification and venture creation, its role in scaling a business and sustaining innovation requires further exploration. As such, studies that track the evolution of IEO over time and its impact on venture performance can shed light on the dynamic interplay between IEO and venture success (Shahid et al., 2022). However, limited research has scrutinised these relationships within Australian, New Zealand, and Singaporean start-up ecosystems. While initial evidence suggests that IEO supports innovation and performance in these contexts, a specific focus on founders' creativity and orientation remains scarce (McGee & Terry, 2022). Consequently, significant gaps persist concerning how creativity manifests as risk-taking,

autonomy, and competitive aggressiveness among tech entrepreneurs in uncertain environments.

In conclusion, the proposed research agenda should encompass theoretical and empirical studies exploring the relationship between start-up founders' creativity and IEO within various cultural contexts and across different stages of venture development. The importance of this research direction is underscored by Clark et al.'s (2024) argument that studying EO at the individual level is acceptable and necessary to advance our understanding of entrepreneurial behaviours and outcomes. Such research could significantly advance our understanding of EO and provide practical insights into fostering entrepreneurship in diverse environments and underexplored contexts in Australia, New Zealand, and Singapore.

2.4 Creativity

When examining the management literature, the significance of creativity and innovation in modern business organisations is evident (Jeanes, 2006). Amabile and Khaire (2008) emphasised that ‘creativity has always been at the heart of the business’ (p. 100). Amabile (1996) defined creativity as the generation of novel and valuable ideas or solutions that are original, appropriate to the task at hand, and can potentially have a significant impact or improvement. This involves the ability to think divergently, make unique connections, and engage in unconventional thinking processes to produce innovative and meaningful outcomes. Additionally, Amabile (1997) illustrated that creativity is the capability to create novel ideas, leading to the innovation or transformation of these novel ideas into valuable products. Prior studies have focused on human resource systems to indicate individual-level creativity and the roles of leadership, people, and team elements (Liu et al., 2017). Woodman et al. (1993) maintained that creativity offers crucial first phases for creative results and is a critical driver of innovation. It can be used to gain a competitive advantage, ideate intelligent solutions, and solve complex problems in the marketplace. According to Sawang et al. (2014), numerous components simplify creative and innovative processes, such as a supportive environment, the people themselves, and business practices and procedures. It has been claimed that creative individuals play a fundamental role in improving a business’s innovation level (Amabile, 1988).

2.4.1 Amabile's Componential Model of Creativity

Guilford (1950) proposed that skills, personality characteristics, and motivational levels are essential determinants of creative behaviour. Later, Amabile's (1996) three components of creativity considered Guilford's proposal, revised some of the terminologies in her adapted model and expanded the influences such as social factors and work climate. The constructs of domain experience, creativity-relevant skills, and motivation shape the foundation of Amabile's theoretical assumptions about the creative process. The highest levels of creative output can occur at the intersection of these three components. Amabile's three-component model explains creativity as a set of responses or work that is judged to be creative. These components include domain-relevant skills, creativity-relevant skills and task motivation, which are critical for fostering an entrepreneurial mindset.

A) Domain-Relevant Skills or Domain Experience

This component forms the basis of the individual performance. It includes knowledge, skills, and talent, which depend on innate cognitive abilities, perceptual skills, and education (Amabile, 2011). A creative person should have relevant knowledge and understanding of the domain. These domain-relevant skills use a person's innate cognitive, perceptual, and motor skills, as well as formal and informal education (Amabile, 1998). However, for a creative process that is not limited, information should be gathered in a general and relevant form that allows the subconscious to combine pieces of information to create something new (Emami et al., 2023). Prior studies have noted that creative individuals hold different value systems from their less creative counterparts and have greater levels of openness to experience, risk-taking and fostering change (Ferreira et al., 2020). This component is directly related to the first essential element of the entrepreneurial mindset, 'learning orientation', in which the ability to learn from experience and understand the industry is the foundation for innovation.

B) Creativity-Relevant Skills

This component includes a cognitive style, an implicit or explicit understanding of heuristics for producing innovative ideas, and a conducive work style (Amabile, 2011). A cognitive

style helps individuals to analyse and evaluate complex issues, develop new and innovative solutions, and remember great details. This helps make more connections between pieces of information, allowing for more creative options (Amabile, 1998). The knowledge of heuristics for producing innovative ideas is a method of problem-solving for which no prescriptive formula exists. These processes use informal methods or experience and employ a form of trial and error. Shortcuts developed through creative thinking reduce the time and effort required to find a solution (Amabile, 1996). A conducive work style is a necessary component of creativity because it depends on an individual's personality traits and requires flexibility and resilience, which is similar to the second key element of the entrepreneurial mindset, namely 'resilience and perseverance' (Amabile, 2011).

C) Task Motivation

This component, proposed by Amabile (1988), includes attitudes towards tasks and perceptions of motivation. Intrinsic motivation, which focuses on an individual's interest in a particular task, is essential. This motivation should favour inclination towards a task and lead to creative thinking (Emami et al., 2023). This component is directly related to the third essential element of the entrepreneurial mindset, namely risk-taking and open-mindedness, in which an entrepreneur's inner drive, passion, and willingness to take calculated risks are crucial.

Thus, it is evident that Amabile's three components of creativity and the entrepreneurial mindset overlap significantly and are interrelated. Creativity and entrepreneurial attitudes are necessary for innovation in tech startups and are mutually dependent on fostering a thriving entrepreneurial environment, especially in the context of tech startups. Therefore, integrating these models can provide a comprehensive framework for understanding and developing successful strategies for innovation-driven startups. Although creativity generates new and valuable ideas, EO helps implement these ideas despite setbacks and failures. This forms a virtuous circle in which creativity and entrepreneurial thinking influence and reinforce each other, leading to innovation, resilience, and growth in technology startups. Amabile's (1996) concept of creativity was applied in EO because of its overlapping elements, as assessed by Lumpkins and Dess (1996).

2.4.2 Amabile's Creativity Process

Amabile's creative process combines personality, cognition, and social factors to identify the components necessary for creative production in a field. Amabile's creative process uses earlier research models developed by Wallas (1926). The creative process is dynamic and has multiple steps, as Amabile (1996) outlined in the five-stage model of creativity. These stages include problem identification, preparation, response generation, response validation, communication, and outcomes, which are critical for fostering an entrepreneurial mindset.

The first stage, problem identification, involves analysing and articulating the exact nature of the problem to be solved. In this stage, the task motivation determines whether the search for the solution begins or continues. This information varies greatly depending on the discipline. This stage is crucial for learning from various sources and brainstorming; however, it can be misleading because of the influx of both correct and inaccurate information.

This is followed by the preparation stage, in which individuals prepare to solve a problem by gathering information and improving the required skills. In this stage, domain-relevant skills determine the pathways that are available when searching for a response. This is followed by the response generation stage, which involves generating ideas for solving the problem. At this stage, creativity-relevant skills serve as executive controllers and influence how the search proceeds. The response validation and communication stage involved critically examining rough ideas or validating the chosen solutions that emerged in the prior phase. In this stage, domain-relevant skills determine the criteria used to evaluate a response.

Finally, in the outcome stage, in which an appropriate decision is made, the outcome results influence task motivation and further determine whether the process continues or finishes. According to prior studies, 99% of the success or failure of an idea depends on this phase (Botella et al., 2018). This phase is labour-intensive, lengthy, and often stressful. It requires funding, hiring employees, marketing, and selling products or services, which can take months or years. Although the creative process may have limitations, it provides an essential structure for individuals to identify their progress and direction (Botella et al., 2018).

Combining Amabile's five-stage creativity process with Lumpkin and Dess's (1996) entrepreneurship model provides a new perspective on the connection between creativity and entrepreneurship. This integration reveals the importance of creativity in seeing and capitalising on opportunities, which is critical for the entrepreneurial process. As defined by Amabile (1997), creativity is essential for producing and devising novel solutions to problems in any domain of human activity. This creative talent perfectly meshes with Lumpkin and Dess's model of proactive and innovative EO (Lumpkin and Dess,1996). Combining these models makes it possible to understand how creativity drives entrepreneurial success.

In conclusion, the combination of Amabile's (1996) creative process and Lumpkin and Dess's (1996) entrepreneurship model provides a comprehensive framework for understanding creativity in an entrepreneurial environment. This collaborative approach emphasises the importance of creativity in recognising and capitalising on the possibilities and strategies for cultivating creativity throughout the entrepreneurial process. Combining these two areas of study, I reason that the component model of creativity and innovation-oriented entrepreneurial mindset are interrelated concepts that help develop an effective startup strategy. The component model proposed by Amabile considers skills, personality traits, motivation levels, social variables, and work environment as critical predictors of creative behaviour, which is a cornerstone for any startup.

Having established the importance of creativity and EO, as represented in Lumpkin and Dess's (1996) model, for developing startups, the two variables are crucial for navigating a complex business environment. However, this type of environment is not static. It is characterised by several constantly changing variables that often cause disruptions, making the application of corporate innovation and EO strategies even more complex (Wang et al., 2022). Millar et al. (2018) stated that the condition described earlier refers to a state of uncertainty and potentially creates an array of problems and opportunities for entrepreneurs. These conditions, collectively known as uncertainty, create a wealth of challenges and opportunities for entrepreneurs. The following section briefly introduces VUCA. Subsequently, it presents the uncertainty contexts, types, and sources.

2.5 Volatility, Uncertainty, Complexity and Ambiguity

The VUCA framework describes the global socioeconomic environment as 'volatile, unpredictable, complex, and ambiguous' (Krawczyńska-Zaucha, 2019). The characteristics of rapidly changing environments can work together to obstruct management, forecasting, and planning. VUCA does not have to be present simultaneously for it to qualify as such. When a situation is volatile and complex, this does not imply that it is unpredictable or ambiguous. To properly evaluate a situation in terms of an entrepreneur's EO and creativity, it is necessary to conduct a thorough analysis and study. Given the scope and limitations of this thesis, this study focuses on uncertainty. Kail (2010) supports this rationale by articulating that uncertainty is challenging for a leader. He stated that 'the frenetic pace of the environment, brought on by volatility, also creates uncertainty, a lack of clarity that hinders the ability to conceptualise the threats and challenges facing the organisations we lead'. He asserted that a leader in an uncertain environment must have a fresh perspective, apply flexibility, and show a vision. These are features of an entrepreneur. Hence, a focus on the uncertainty alone from the elements of the VUCA is essential for this study. The following section introduces the concept of uncertainty.

2.5.1 Uncertainty

Uncertainty refers to the inability to accurately predict future events or outcomes due to insufficient information (Milliken, 1987). It arises when one cannot fully control situations, focusing on predicting the future, although uncertainty may also concern the past and present (Hoogstra & Schanz, 2008). Uncertainty emerges when organisations fail to interpret current circumstances or anticipate the future impacts of events (Bennett & Lemoine, 2014a). Uncertainty also casts doubt on surrounding changes (Mack et al., 2015).

To lead effectively in uncertain contexts, Kail (2010) advocated encouraging new ideas, demonstrating flexibility, learning from the past, and anticipating what is ahead. Supporting idea generation promotes organisational innovation because creativity frequently challenges assumptions (Lumpkin & Dess, 1996; Shefiu, 2019). Building flexibility enables adaptation, whereas resilience helps manage uncertainty (Millar et al., 2018). Entrepreneurs' adept at

shifting with external changes also strengthen organisational agility (Kaivo-oja & Lauraéus, 2018).

Additionally, leaders should reevaluate management practices and rapidly solve problems related to creativity and flexibility (Rimita et al., 2020; Minciu et al., 2020). Maintaining a clear organisational vision (Yeoh & Popovič, 2016) coupled with a proactive mindset is vital when operating under uncertainty (Lumpkin & Dess, 1996).

The majority of prior studies on uncertainty have not identified the sources of uncertainty. However, identifying these sources can significantly improve the comprehension of uncertainty and help us address it effectively (Van Der Vorst & Beulens, 2002). The following section provides a holistic view of sources of uncertainty.

2.5.2 Source of Uncertainty

Prior uncertainty studies have often neglected the sources of uncertainty classification. This hinders the determination of appropriate strategies for coping with uncertainty (Priem et al., 2002). Duncan (1972) recognised the sources of uncertainty by focusing on the lack of knowledge, which was further illustrated by Lipshitz and Strauss (1997) in their classification scheme of uncertainty as a three-dimensional rationale. The first rationale showed insufficient information about the environmental factors that are relevant to specific decision-making scenarios. Second, the rationale explains the lack of knowledge about the consequences of a decision in terms of the losses that a decision-maker suffers from making an incorrect decision or the benefits gained by making the correct decision. This section indicates that lack of information is sometimes unrelated to uncertainty. However, decision-makers who experience uncertainty are overwhelmed by the inconsistent meanings of existing information, which produces ambiguity in information reasons and affects relationships. Third, there is a lack of ability to determine the prospects of alternatives with any degree of confidence in relation to the part of the environment in facilitating or preventing the decision unit performance in proceeding with its function linked to this source. Lipshitz and Strauss (1997) suggested that uncertainty is crucial to the decision-making process. It helps to differentiate between alternatives and convinces the decision-maker that implementing a particular alternative would be beneficial.

Another uncertainty source differentiation that demands awareness is that deduced by Harwood and Stokes (2003), which concentrates on the formulation of a model and classifies these resources as follows:

1. Process stochasticity: The outcome of demographic and environmental stochasticity and the random behaviour of systems with chaotic dynamics. This is sometimes called 'natural variation' or 'natural stochasticity'.
2. Observation error: This consists of (a) measurement errors, namely, the result of how observations are taken (e.g. errors in data collection), and (b) estimation (or inference) errors, which include inaccuracies and imprecisions introduced by the method of statistical inference applied to evaluate system parameters from observations.
3. Model error: All models of uncertainty provide an incomplete view because they are caricatures of reality and likely mislead the representation of system dynamics. The misspecifications of the model have two main consequences: (a) it can partake in error estimation during the inferential process, and (b) it causes further errors if the main objective is to use it in forecasting.
4. Implementation error: This plays a primary role in capturing the consequences of mistakes in realising an application. Kangas and Kangas (2004) recognised that uncertainty sources can be differentiated as (a) insufficient information, (b) abundant information, (c) contradictory evidence, (d) ambiguity, (e) measurement, and (f) subjective belief.

Duncan's (1972) uncertainty differentiation sources were defined by Lipshitz and Strauss (1997) as (1) deficient information, (2) inappropriate understanding, and (3) undifferentiated alternatives. This differentiation is advantageous because of its generalisation. It admits the problem of lack of information, incomplete knowledge, and conflict of several possible events in the decision-making process, which is also clarified in the aforementioned classifications of uncertainty sources.

Similarly, MacCormack and Verganti (2003) indicated that a lack of knowledge and understanding of the subject matter is a common source of uncertainty. The unavailability of knowledge and information can be further categorised as a lack of causes of an event, a lack

of understanding of possible consequences, and a lack of information about losers or beneficiaries due to uncertainty (Fulton et al., 2011). In addition to a lack of knowledge, another source of uncertainty is the differentiation of meanings attached to things and events among those affected by uncertainty (Hattis & Silver, 1994). Simultaneously, the third source of uncertainty is the inability to differentiate between alternative events, which creates confusion regarding the accuracy of predictability (Abdellaoui et al., 2011). In addition, there are other sources, such as observations, models, and implementation errors (Ahmad et al., 2018).

2.5.3 Types of Uncertainty

It is important to differentiate between the various types of uncertainty to better understand and counter them. Decision-makers need to implement a different strategy for each type. According to Ulaga and Kohli (2018), uncertainty can be differentiated into three types, focusing on experienced uncertainty. These types are explained as follows:

The uncertainty state in the case of the environment means that decision-makers are unaware of the fluctuations that appear in the environment. These individuals face uncertainty because they are unaware of the environment, which requires prediction (Van der Bles et al., 2019).

The effect of uncertainty can be referred to as a failure to predict a future situation's influence or change in a decision-maker's environment. A lack of knowledge about the relationships between causes and effects contributes to this uncertainty.

Response uncertainty can be referred to as a lack of conception of the response to substitutes or incompetence in predicting arranged results because of a response alternative. The response uncertainty experienced by decision-makers requires immediate decisions (Gish, 2020). This type is closest in meaning to the uncertainty definition proposed by Tchernykh et al. (2019), who defined uncertainty as a lack of knowledge about (a) alternative options or responses, (b) states of nature or outcomes that could be linked to each, and (c) the value or interest related to each alternative state of a nature pair. Haeri and Rezaei (2019) outlined different approaches to differentiating uncertainty using their differentiation of uncertainty according to matters and sources. The issues considered were outcomes, situations, and

alternatives, and the sources were insufficient information, inconvenient understanding, and undifferentiated alternatives. Uotila et al. (2020) described these as conflicting.

Further, among the numerous types of environmental uncertainty, Nandakumar et al. (2012) distinguished between three types. *State uncertainties* arise when a portion of the business environment is volatile. *Effect uncertainties* materialise when these uncertainties affect certain areas of the business or the entire firm. *Response uncertainty* arises when it is impossible to predict the effects of a choice on decision-making (Yazdi et al., 2019). Observing uncertainty and making judgements are challenging for humans when they experience any of the three categories of uncertainty described previously.

Indeed, different forms of uncertainty have varying effects on entrepreneurial orientation and creativity. For instance, Milliken, (1987) state uncertainty refers to the unpredictability of environmental conditions. This volatility may encourage reactive innovativeness among startup founders who respond to sudden market shifts. However, technological uncertainties resulting from complex innovations require a proactive EO orientation to take bold risks on inventions (York and Danes, 2014).

Additionally, uncertainties stemming from ambiguous cause-impact relationships (McKelvie et al., 2011) complicate creative decision-making. Without clear validation criteria, founders may waste resources in pursuing ineffective innovation strategies. Finally, response uncertainty arises when outcomes seem random, hindering predictive judgments (Jauch & Kraft, 1986). This makes it more difficult to justify risky EO actions.

In summary, while uncertainty broadly catalyses entrepreneurial creativity, different types of uncertainty have distinct effects. Market-related uncertainties may stimulate product innovation, yet causal ambiguities can confound creative processes. Managing uncertainty overall and appreciating these nuances is critical for startups. Both EO and creativity are essential for seizing unpredictable opportunities. However, the issue of uncertainty is neither new nor unique (Gustafson & Rice, 2020). In the real world, uncertainty is the norm because the future is unexpected. If not, decision-making would be unnecessary because everything would be predetermined (Ritholtz, 2012). The following section explores EO and its relationship with creativity.

2.6 Entrepreneurial Orientation and Creativity

Entrepreneurship is a critical component that focuses on practices, policies, and actions (Dai et al., 2014). Entrepreneurship primarily revolves around two crucial factors: risk-taking and creativity. Consequently, the goal of EO is to promote creativity. Given the significance of these factors, various scholars have investigated the relationship between EO and creativity, and the majority have concluded that EO has a favourable relationship with creativity (Khedhaouria et al., 2015).

This correlation shows that increasing EO levels improves creativity. However, some scholars stress that the correlation between EO and creativity is not absolute. It depends on successful EO implementation, situational considerations, and sound decision-making (Dai et al., 2014). Parkman et al. (2012) discovered that a greater level of EO leads to enhanced originality and creativity, which improves performance. They observed that the technology sector is a critical and creative area in which EO is commonly used. Concurrently, Politis (2015) discovered a strong EO influence on creativity, arguing that leadership is essential for encouraging innovation among individuals and organisations. He emphasised that leadership styles have varied effects and that the transformational approach is incredibly beneficial for increasing creativity.

In addition, the complex relationship between employee creativity and EO has been extensively researched, specifically in small and medium-sized firms (SMEs) (Yi et al., 2021). Suleiman Awwad and Kada Ali (2012) revealed that creativity can improve EO and build an entrepreneurial culture within organisations. Although creativity is essential to a firm's innovative development, it does not drive firm performance independently. Creativity, combined with EO processes such as proactiveness, risk-taking, and innovativeness, catalyses successful innovation and improves performance in small companies (Khedhaouria et al., 2015, 2020).

Further, Ferreira et al. (2020) observed that creative talent and creativity are critical for EO to improve organisational performance. They discovered that proactive tactics provide a competitive advantage. According to the study, organisations that have a high level of EO are more experimental and imaginative, boosting innovation. Nurturing creativity through

EO can significantly benefit a company's competitiveness and overall performance and has significant consequences for competitive advantage and firm performance.

Numerous studies have found a favourable association between these two dimensions as essential entrepreneurship components (Lumpkin & Dess, 1996). However, there is a paucity of information regarding these two variables in the VUCA setting. Uncertainty is characterised by a complex interplay between EO and creativity, which remains critically understudied.

In conclusion, various studies have shown a strong relationship between EO and creativity, which plays a vital role in promoting innovation in individuals and organisations. Leadership style can also affect this relationship differently, and transformational leadership is particularly effective in fostering creativity. The complex interplay between employee creativity and EO has been extensively studied. The findings showed that creativity can improve EO and foster an organisation's entrepreneurial culture. However, although creativity is critical for innovative development, it does not enhance organisational performance. Creativity can significantly affect organisational performance and competitive advantage when combined with EO processes such as proactiveness, risk-taking, and innovativeness. The next section focuses on the relationship between EO and uncertainty. This section explores the ways that business ventures navigate and prosper in unpredictable and dynamic environments by emphasising the context of uncertainty.

2.7 Entrepreneurial Orientation and Uncertainty

Although there are four essential elements of the VUCA, prior studies have predominantly focused on uncertainty and EO. Business ventures are crucial to the development of national and regional economies. However, these businesses operate in an environment of growing density and vitality, which has severe consequences for their capacity to prosper and survive. In an era of increasing uncertainty, some businesses fail to succeed. However, others grow because of their difficulties and thrive by taking crucial entrepreneurial measures such as risk assumptions and innovation (Sundqvist et al., 2012).

According to De Mol et al. (2020), the performance of such ventures is expected to improve, in addition to growth and profitability, by implementing these entrepreneurial measures. For example, Aspers (2018) indicated that 'uncertainty means we cannot predict or foresee what will happen when acting or not acting' (p. 133). In addition to multiple prior findings on uncertainty, Donbesuur et al. (2020) found that uncertainty has a positive relationship with EO, which means that an increase in uncertainty increases the level of risk. Therefore, entrepreneurial activity must be increased to counter the increasing level of risk. Further, Saleh and Watson (2017) noted that in a VUCA situation, EO is enhanced because entrepreneurs become more active, whereas uncertainty is the most influential among the VUCA elements.

Various entrepreneurship theorists have stated that the more dynamic an environment is, the more firms that operate within such environments will be entrepreneurial (Wiklund & Shepherd, 2011). Wiklund and Shepherd (2011) examined the role of uncertainty in entrepreneurial action and criticised the concept that entrepreneurs have perfect foresight and can forecast future market situations. They contend that uncertainty becomes a significant aspect of entrepreneurial operations during rapid technology changes, social disruptions, economic volatility, or significant health catastrophes, such as the COVID-19 pandemic. This emphasises the importance of adaptability, innovation, and willingness to take measured risks for entrepreneurs who face uncertainty.

The central themes of most previous studies are uncertainty and ambiguity (Liang et al., 2017). Approaches to the study of uncertainty, ambiguity, and complexity have evolved sequentially, starting from the classical perspective (Beck et al., 2020). This is supported by a transitional view followed by a process view, as exemplified by Duncan (1972). Prior studies have conceptualised uncertainty in several ways (Al Mamun & Fazal, 2018). Uncertainty has been observed as unpredictable, turbulent, lacking information in decision-making, and ambiguous (Giones et al., 2019). Gupta and Gupta (2015) studied the relationship between EO and performance in VUCA and found that EO increases during VUCA. However, uncertainty had the strongest influence on EO. Notwithstanding uncertainty, businesses often interact with multiple strategic alternatives (Cadogan, 2012). One of the most important alternatives is to use the principles of entrepreneurship (autonomy,

competitive aggressiveness, innovativeness, proactiveness, and risk-taking) to enhance a business's profitability, revenue base, and growth (Li et al., 2011). In addition, uncertainty provides businesses with an awareness of using dynamic capabilities by remaining 'nimble, innovative, and entrepreneurial' (Dewald, 2016, p. 115).

Notably, Muhtasom et al. (2022) investigated the competitive strategy of a four-star hotel in the context of the COVID-19 pandemic. They discovered that VUCA resilience was critical for hotels to survive the pandemic. This study emphasised the necessity of entrepreneurial development to enhance competitiveness and adjust to the pandemic's uncertainties and challenges.

Many scholars have investigated VUCA and EO; however, further evidence is needed in terms of EO in the VUCA world. Several empirical studies have focused on the relationship between EO and uncertainty. These studies evaluated the association between EO and uncertainty, specifically the propensity of businesses that encounter uncertainty in adopting EO. In addition, entrepreneurs' orientation towards innovative, risky, proactive, autonomous, and competitively aggressive behaviour improves an organisation's overall performance. According to Wiklund and Shepherd (2011), entrepreneurs and their businesses are persuaded to engage in risky and innovative behaviour to seek new market opportunities and products. Thus, the management of an organisation, if it makes decisions of an entrepreneurial nature, does not perceive uncertainty and ambiguity in terms of the negative aspects. Instead, they are perceived as opportunities to gain further benefits.

Uncertainty has been observed to enhance the propensity of businesses to become more entrepreneurial through enhanced autonomy, competitive aggressiveness, acceptance of risk measures, proactiveness and innovativeness (Lumpkin & Dess, 1996). Recently, Eresia-Eke and Boadu (2019) examined the relationship between uncertainty and the dimensions of EO in small businesses in South Africa. Their study found that only four dimensions of EO were statistically identifiable by the respondents to their study, as opposed to the five dimensions proposed in the theory. However, the findings revealed varying positive correlations between the environmental dynamics and each EO dimension.

After an extensive study of the literature and using my knowledge, it can be asserted that there is a lack of evidence about the relationship between EO and uncertainty in the context of the Asia-Pacific region, specifically Singapore, Australia, and New Zealand. Given that companies in different environments encounter distinct strategic challenges, the impact of uncertainty on EO may vary among companies in different locations (Millar et al., 2018). Therefore, this study uses data from Singapore, Australia, and New Zealand.

The level of uncertainty intrinsic to technology startups makes them highly precarious because companies must be vigilant about the need for innovation or prediction (Rauch et al., 2009). In addition to uncertainty, a higher level of rivalry (not only within the region but also from abroad) means that companies at this stage must investigate, engage in, and endorse entrepreneurial activities for survival and prosperity (Akhter et al., 2022). Regardless of the more significant uncertainty in the business environment of technology startups, businesses that compete in these sectors may have more opportunities to experiment, innovate, and create risk, given the affirmed instability and opportunities inherent in the environment (Green et al., 2019). Entrepreneurs typically frame seemingly uncertain environments and risks more positively than non-entrepreneurs do because, in uncertainty, they see an opportunity (Blanco-Mesa et al., 2018). Arrak et al. (2020) examined the impact of regional cultural backgrounds on entrepreneurial behaviour in Germany. They discovered that the regional cultural context significantly predicts entrepreneurial behaviour and different cultural factors have varying effects. This implies that cultural influences substantially affect entrepreneurial behaviour under uncertain circumstances.

Several studies have established a significant connection between EO, uncertainty, and ambiguity in low- and high-technology businesses (Swierczek & Ha, 2003). Hence, studies on the connection between EO and uncertainty in businesses with distinct technical orientations are limited. In terms of this relationship, prior studies have used data from Western countries. Given that business environment variations may involve different strategic posture challenges, the impact of uncertainty on EO may vary among business settings (Iqbal et al., 2019). Consequently, this study further examines the existing factors in the relationship between EO and uncertainty in an alternative business setting in Singapore, Australia, and New Zealand. Hahsmi and Siddiqui (2020) stated that from a practical

standpoint, this means that the uncertainty perceptions of key managers, regardless of their EO, are most likely influenced by the regulatory and cultural environments in which they operate. In summary, uncertainty, a key component of VUCA, is widely accepted as a catalyst for entrepreneurial behaviours such as innovation and risk-taking. Further, the importance of adaptation, managerial innovation, and risk-taking in thriving in uncertain settings is emphasised, stressing the importance of firms adopting flexible and innovative methods.

Regional cultural characteristics and their impact on entrepreneurial behaviour in uncertain circumstances are also crucial. When comprehending EO–uncertainty interplay, evaluating the cultural and regulatory framework in which firms operate is critical. The role of uncertainty during societal or economic upheavals, such as during the COVID-19 epidemic, has also been investigated. Despite these discoveries, specific gaps in the literature must be addressed. A complete examination of the relationship between EO and uncertainty across varied geographic and sectoral contexts and sophisticated knowledge of the ways in which EO might assist firms in navigating global crises is required. Further, although the relationship between uncertainty and EO has been thoroughly explored, the interaction between EO and other characteristics of VUCA requires additional investigation. Future studies should address these gaps and expand the understanding of entrepreneurial methods in the current volatile and unpredictable business climate. The section that follows explores the interaction between creativity and uncertainty. This section illustrates how creativity can flourish in uncertain environments, fostering opportunities specifically for tech startups.

2.8 Creativity and Uncertainty

Creative work requires decisions and procedures in the face of uncertainty whereby there is a strong connection between entrepreneurs' abilities to tolerate ambiguity, uncertainty, and creativity (Banerjee & Siebert, 2017). Ibert et al. (2018) indicated that uncertainty cannot be an unavoidable liability that entrepreneurs face. Instead, they highlighted that uncertainty can be an asset for creativity. The degree of uncertainty perceived often distinguishes those who act entrepreneurially from those who do not as a subject of differences in knowledge.

However, willingness to bear uncertainty often distinguishes those who decide to act entrepreneurially from those who do not because of differences in motivation, attitude, or risk propensity (Douglas & Shepherd, 2000). Entrepreneurship always requires action, whether it is conceptualised as the creation of new ventures, the creation of new products, services, processes, or technology (Schumpeter, 1934), or entry into new markets (Lumpkin & Dess, 1996). Given that the action occurs over time and the future is unknown, the action is inherently uncertain and this uncertainty is improved by the novelty intrinsic to entrepreneurial actions (Amabile, 1997), such as creating new products, services, and ventures (Schumpeter, 1934).

Chen (2014) deemed uncertainty as an essential factor in analysing creative processes. Creativity is no longer considered an ability recognised by individual geniuses but is socially integrated into teams, organisations, or contexts, such as societies, networks, and domains (Sawyer & DeZutter, 2009). In the process of creativity, individuals must have awareness, knowledge, expertise, skills, and abilities in the field to gain a better understanding, which helps them think creatively. Some researchers believe that without knowledge, creativity is possible (Rawlinson, 2017); however, these arguments are weak because, without basic knowledge in terms of the field, there is no possibility of creativity. Therefore, researchers believe that levels of creativity can vary in difficult, risky, uncertain, and complex situations (Shilling, 2008).

Accordingly, Amabile's (1988) almost standard definition of creativity as 'the production of novel and valuable ideas' is not limited to individual effort. Instead, it is mainly achieved through social cooperation within diverse groups, teams, organisational networks, or societies of practice. Successful creative collaboration may benefit from deliberately releasing restrictions or may be stimulated by intentionally enhancing uncertainty (Beghetto, 2019). This latter group of contributions indicates the probability that uncertainty is not just a liability but also an asset. Consequently, creative collaborators may have to not only tolerate or reduce uncertainty but also reinforce or unleash uncertainty to benefit from its productive aspects. Engaging in the creation of new loose ends and finding new problems are necessary to maintain creativity.

It is commonly believed that creativity does not work when individuals face constraints. However, an alternative perspective is that creativity works mainly under certain constraints. For example, students can think creatively under pressure because they find new ways to solve problems that are commonly absent at regular times (Beghetto, 2019). Similarly, in the case of tech entrepreneurial startups, creativity can be enhanced during uncertainty, which creates more opportunities for entrepreneurs (Wallerstein, 1998). Creativity can be heightened in uncertain situations in entrepreneurial companies, generating various opportunities for entrepreneurs (Wallerstein, 1998). This dynamic emphasises the significance of a psychologically safe workplace, variety, inclusion, and continuous learning in encouraging risk-taking, harnessing multiple viewpoints, and fostering adaptability, all of which generate creativity (Nembhard et al., 2020).

Additionally, customer and stakeholder preferences have changed. Customers' preferences change more frequently; therefore, uncertainty is always present, especially in tech firms. In this situation, entrepreneurs must keep customers and stakeholders updated (Kaivo-oja & Lauraéus, 2018). Uncertainty has also been found to influence innovative thinking and creativity at individual and group levels (Millar et al., 2018). Despite the cognitive overload and worry that uncertainty can cause, which potentially impedes creativity, it can also encourage people to think creatively (Darvishmotevali, 2019). Perceived work uncertainty during the COVID-19 pandemic emphasises the importance of the relationship between uncertainty and creativity, demonstrating that creative self-efficacy is critical under these circumstances (Tang et al., 2020).

According to the literature, there is a strong correlation between creativity and uncertainty. As a critical component of navigating and excelling in an uncertain environment, creativity transforms uncertainty from challenge to opportunity. It is important to continue exploring the intersection of creativity and uncertainty in order to enhance individuals and society. In Lumpkin's EO paradigm, creativity represents adaptability and innovativeness, which enable entrepreneurs to handle uncertainty whereas accepting and embracing uncertainty as a driver of innovation is a critical component of this approach (Schweitzer et al., 2016). Thus, the role of creativity in Lumpkin's EO model and uncertainty highlights the need for further

investigation. This study adds to the academic understanding and practical applications of creativity and commercial success in uncertain environments.

2.9 Chapter Summary

This chapter reviews and synthesises literature on EO, creativity, and uncertainty. It highlights that EO is an essential part of entrepreneurship success and consists of five dimensions: proactiveness, innovativeness, risk-taking, competitive aggressiveness, and autonomy. In addition, the creative process consists of five stages: problem identification, preparation, response generation, response validation, and communication and outcomes. Three crucial factors contribute to creativity: domain-relevant skills, creativity-relevant skills and task motivation.

By establishing a robust positive relationship between EO and creativity, this chapter highlights the importance of EO and creativity in improving performance under uncertain conditions. It further elucidates that EO and creativity interact in an uncertain environment. Entrepreneurial measures enable creativity to thrive despite constraints, transforming challenges into opportunities, especially for tech startups. Furthermore, EO and uncertainty are related to novelty, addressing a notable gap in the literature.

In addition, this chapter introduces uncertainty as a strategy for addressing the VUCA environment. In addition, this chapter introduces uncertainty as a strategy for addressing the VUCA environment. It provides a comprehensive guide for countering and effectively navigating uncertain conditions. This offers significant insight into the complex relationship between EO, creativity, and uncertainty. These interrelationships must be continually explored to enhance academic understanding and practical application in volatile and unpredictable business environments. Moreover, enquiry into creativity and orientation interactions for startup founders corresponds to a burgeoning interest in cross-level entrepreneurial orientation research, as evidenced by initial IEO endeavours. By migrating robust EO insights into individual differences, this continuum of work further unites micro- and macro perspectives

Chapter 3: Tech Startups' Backgrounds in Singapore, New Zealand and Australia

3.1 Introduction

This chapter summarises Australia, New Zealand (NZ), Singapore and their tech startup ecosystems. This chapter justifies and rationalises the choices of these three countries. In addition, it elaborates on tech startups in the context of the aforementioned countries, including the government support provided and the lifespan of emerging tech startups. These factors are related to the creativity, uncertainty, and EO dimensions. Further, this chapter explains how these startups survived, worked, and thrived during the crisis and clarifies how examining these countries is significant for scholarship. In addition, this chapter elaborates on how tech startups in Australia, New Zealand, and Singapore were able to adapt and remain resilient during times of crisis and uncertainty, such as the COVID-19 pandemic and economic turbulence. This provides insights into how these startups managed to survive and even thrive in the face of challenging conditions, such as lockdowns, market volatility, and shifting consumer demand. This chapter also profiles the tech startup ecosystems in the focus countries, Australia, Singapore, and New Zealand, including government support, emerging startups, and how they navigate crises.

3.2 Rationalisation: Choice of Countries

This chapter first examines the reasoning behind selecting Australia, NZ, and Singapore as the focus of the study. This choice was in accordance with many factors that render these countries particularly well suited to exploring the complexities of the technology startup landscape.

The Asia-Pacific region, defined by its rapid growth and diverse policy landscapes, presents a prime opportunity to examine tech startup ecosystems. This study selected Australia, New Zealand, and Singapore for an in-depth analysis based on a solid rationale rooted in both the prevalence and distinctiveness of these countries.

Prevalence and Significance: These three countries boast thriving tech startup ecosystems that significantly contribute to their respective economies and broader regions. This is evidenced by the high number of startups: Australia leads with over 80,000, followed by New Zealand with over 8,000, and Singapore with over 4,000 (Startup Genome Global Startup Ecosystem Report, 2023). Additionally, impressive funding figures, such as Australia's $16.8 billion in 2022, demonstrate investor confidence and the potential for scaling disruptive innovations. Table 3.1 presents a comparative overview of the startup ecosystems in these three countries.

Table 3.1:Comparative Overview of Startup Ecosystems in Australia, New Zealand, and Singapore

Region	Number of Tech Startups	Tech Startup Density	Funding Raised (2022)	Unicorns
Australia	80,000+	3,196/million	$16.8 billion	41
New Zealand	8,000+	1,609/million	$1.5 billion	5
Singapore	4,000+	6,923/million	$13.2 billion	11

Source: Startup Genome. (2023). Global Startup Ecosystem Report

Unique Challenges and Policy Responses: The entrepreneurial ecosystems (EES) of each country are influenced by their distinct challenges and policy responses. Australia faces stiff competition from global giants, talent gaps, and limited access to venture capital funding (KPMG Startup Ecosystem Report, 2023). New Zealand's small domestic market hinders potential scaling despite the vibrant startup scenario (Information, 2023). Singapore contends with high talent and operating costs as well as potential overreliance on government support (Tech in Asia, 2023). Analysing these diverse challenges and the policy initiatives implemented to address them can provide valuable insights into how entrepreneurs leverage creativity and EO within different contexts. Table 3.2 summarises the challenges and initiatives of each country.

Table 3.2:Challenges and Policy Initiatives in Tech Startup Ecosystems

Region	Main Challenges	Key Policy Initiatives
Australia	Access to talent, limited VC funding, competition from global giants	Digital Economy Strategy, Entrepreneurs' Programme, R&D tax incentive

New Zealand	Small domestic market, limited access to growth capital, brain drain	Innovation for Growth Strategy, Angel investor tax breaks, Callaghan Innovation grants
Singapore	Cost of living and talent, competition from regional hubs, overreliance on government support	Smart Nation Initiative, Startup SG programs, Tax incentives for R&D and innovation

Sources: KPMG. (2023). Startup Ecosystem Report; The Information. (2023); Tech in Asia. (2023)

The previous argument for focusing on Australia, New Zealand, and Singapore is further strengthened by considering the need for greater sensitivity to contextual dimensions in entrepreneurship research. As Zahra et al. (2014) emphasise, national, cultural, and market contexts significantly influence entrepreneurial trajectories. This study acknowledges this importance by delving into three distinct ecosystems within the Asia-Pacific region.

Moreover, as Michailova (2011) highlighted, a comparative cross-country perspective facilitates rich discoveries. This study explores these intriguing questions by examining the three developed economies within this region.

- How do startup processes and experiences converge or diverge across geographically and culturally distinct contexts?
- Do entrepreneurs leverage creativity and EO in similar or different ways to navigate challenges and opportunities in each ecosystem?
- What unique policy nuances impact entrepreneurial behaviour in each country?

Furthermore, this study aligns with recent calls to incorporate context-specific factors and multiple environments into entrepreneurship research, as advocated by Welter and Baker (2021). By grounding the analysis in real-world startup settings within each country, this study can first develop more ecologically valid models that accurately reflect the nuances of each ecosystem. Second, it contributes to the development of broader theories of entrepreneurship by generating insights applicable to diverse contexts.

In conclusion, this study's examination of the tech entrepreneurship landscapes of Australia, New Zealand, and Singapore, through a contextual lens, fulfils two essential needs. First, it embeds research in real-world contexts by analysing actual startup environments generating

practical insights that are relevant to entrepreneurs and policymakers. Second, it furthers theoretical conceptualisations by conducting a comparative analysis that expands the understanding of the interplay between creativity, EO, and the context in shaping entrepreneurial success.

In selecting these three countries, the decision is justifiable not only due to their prevalence and challenges but also because of their potential to facilitate context-aware cross-comparisons and the development of theories in the field of entrepreneurship. By conducting in-depth studies, this study aims to provide valuable insights that are not only applicable to the Asia-Pacific region but also to diverse entrepreneurial ecosystems around the world.

Ultimately, the Asia-Pacific region, particularly Australia, New Zealand, and Singapore constitutes suitable national contexts for examining creativity and entrepreneurial orientation (EO) in tech startups that confront uncertainty. Although distinct, these three countries share VUCA characteristics that influence their startup ecosystems (World Bank, 2023; Deloitte, 2023; DBS, 2023). Table 3.3 summarises the key VUCA characteristics of tech startup ecosystems in Australia, New Zealand, and Singapore, drawing on specific data and references for each element.

Table 3.3: VUCA Characteristics of Tech Startup Ecosystems in Australia, New Zealand, and Singapore

Feature	Australia	New Zealand	Singapore
Volatility:	High dependence on commodity exports (World Bank, 2023)	Frequent changes in government policies and regulations (Deloitte, 2023)	Disruptions in global supply chains (DBS Research, 2023)
Uncertainty:	Rising interest rates and potential housing market correction (The Guardian, 2023)	Uncertainties in post-pandemic recovery and geopolitical dynamics (KPMG, 2023)	Rapid technological advancements and evolving regulatory landscape (McKinsey & Company, 2023)
Complexity:	Diverse tech ecosystem with multiple industries (Startup Genome, 2023)	Limited domestic market necessitates global interactions (Callaghan Innovation, 2023)	Blend of government initiatives, private investments, and academic collaborations (Tech in Asia, 2023)

Ambiguity:	Lack of clarity in taxation regulations for early-stage startups (PwC, 2023)	Evolving data privacy regulations and frameworks for emerging technologies (NZTech, 2023)	Balancing innovation and regulatory control over emerging technologies like AI (NUS Centre for Law & Artificial Intelligence, 2023)
Examples:	5% potential GDP dip due to commodity price fluctuations	5 major policy shifts in the TMT sector in one year	10% potential export decline due to global trade imbalances

Australia's heavy reliance on commodity exports renders its economy and tech sector highly susceptible to price shocks and global demand fluctuations (World Bank, 2023). New Zealand's dynamic regulatory policies for emerging technologies introduce uncertainty in technology startup planning and operations (Deloitte, 2023). Singapore's interconnectedness with intricate global supply chains heightens vulnerability to external disruptions (DBS, 2023).

Moreover, these three countries present diverse startup landscapes spanning industries, academic collaborations, government initiatives, and private investments (Startup Genome, 2023; Callaghan Innovation, 2023; Tech in Asia, 2023). Australia has a multifaceted and intricate tech ecosystem (Startup Genome, 2023). New Zealand’s tech startups must navigate complex global partnerships (Callaghan Innovation, 2023), and Singapore hosts over 50 government startup programs that interact with 100+ VC firms (Tech in Asia, 2023).

In summary, the turbulence arising from economic reliance, policy changes, interconnectedness, and the uncertainty generated by recovery prospects, geopolitics, and regulatory ambiguity present a formidable challenge for tech entrepreneurs in Australia, New Zealand, and Singapore daily. This complex environment is characterised by intricate interactions between sectors and multifaceted partnerships between academia, government, and investment. Given the volatile, uncertain, complex, and ambiguous conditions prevalent in the Asia-Pacific region, it is ideal to explore how tech startups harness creativity and entrepreneurial orientation to overcome these challenges and achieve success. This study provides practical insights for founders and policymakers in fostering resilient ventures and advances the theoretical understanding of entrepreneurial creativity in turbulent

environments. Overall, the VUCA turbulence confronting technology startups in the Asia-Pacific region underscores the importance and timeliness of this study.

Having established the broader environments in this section, the following section explores the pivotal realm of tech startups. Recognising the significant potential of startups as agents of disruption and economic progress, Section 3.3 examines their operational structures, fundamental characteristics, opportunities, and challenges.

3.3 Countries That Have Emerging Entrepreneurs

The global entrepreneurship landscape varies significantly between countries, given that certain countries offer environments that are more conducive to startups and entrepreneurial endeavours. This observation is included in the 2019 GEM report, which considers many factors, such as successful startup numbers, government support and policies, access to financial resources, the availability of a skilled workforce and a prevailing culture of innovation and entrepreneurship (Lewandowska, Bilan, and Mentel, 2021).

Denmark is renowned for fostering a vibrant entrepreneurial culture and implementing streamlined processes to initiate and manage businesses. Qazi et al. (2021) highlighted that Denmark's efficient regulatory framework and varied public and private funding opportunities are attractive for entrepreneurial activities. In addition, Denmark's well-trained workforce, impressive physical and digital infrastructure, and commitment to fostering innovation further contribute to its appeal to entrepreneurs (Nielsen et al., 2021).

The United States is also a globally recognised hub for entrepreneurship. It hosts a plethora of successful startups and nurtures a robust ecosystem that supports innovation and burgeoning business ventures (Szerb et al., 2019). The United States' well-established financial market, advanced infrastructure and supportive entrepreneurial ecosystem make it ideal for aspiring entrepreneurs (Woolley, 2017). Similarly, Canada provides a favourable environment for entrepreneurship, which is bolstered by supportive government initiatives and a strong, stable economy. Cukier and Hassannezhad Chavoushi (2020) indicated that Canada's diverse and multicultural society offers a wide range of markets and consumer groups, rendering it an attractive destination for entrepreneurs.

Although numerous countries present significant entrepreneurial opportunities, this study focuses on Australia, NZ, and Singapore because of their distinct entrepreneurial ecosystems, unique regulatory environments, and the substantial academic interest they have attracted. Extensive research has focused on the specific dynamics that shape entrepreneurial activity in these three countries (Toh, 2022). It is important to note that the objective here is not to rank countries according to their entrepreneurial capabilities but to examine the distinct dynamics that contribute to entrepreneurial activity in Australia, NZ, and Singapore. After reviewing several countries' entrepreneurial environments, the sections that follow comprehensively analyse the tech startup sectors in Australia, NZ, and Singapore. Then, these countries' startup ecosystems are summarised, emphasising geographical and operational advantages, government support, life spans, and performance indicators.

3.4 Australian Tech Startups

Australia, well known for its dynamic technology industry, particularly in the field of IT, derives advantages from its strategic location in the Asia-Pacific region, which bolsters its entrepreneurial relationships with both Asia and the Western world (Lammers et al., 2021).

In addition, the ecosystem thrives because of government support, university collaboration, and an environment conducive to networking and innovation (Bliemel et al., 2016). Australia's legal system and intellectual property rights attracted international entrepreneurs. The evolving trends in this ecosystem demonstrate its growth potential and maturity. By employing innovations such as AI and blockchain technology, the emerging fintech, healthcare, and tech industries are breaking the boundaries of conventional companies (Bliemel et al., 2016).

Despite its tremendous development and strengths, Australia's tech startup ecosystem faces significant problems that are similar to those encountered in comparable environments. These include geographical isolation and limited access to financing, which may impede the expansion and worldwide competitiveness of a country's technological companies (Walsh et al., 2021). Given Australia's unique geography, there is occasionally a need for greater exposure to international markets and networks (StartupBlink, 2023). Furthermore, although

local funding attempts are commendable, venture capital that is available pales in comparison to their global counterparts, such as Silicon Valley or London (Startup Genome, 2019).

3.4.1 Government Support for Tech Startups

The tech startup scene in Australia is a vibrant and dynamic ecosystem that has the potential to contribute A$109 billion to the country's GDP. Startup hubs such as Sydney, Melbourne, and Perth are preferred locations that foster cultures that encourage innovation and entrepreneurship (Merchant, 2021).

Despite challenges such as obtaining funding, recruiting top talent, and dealing with regulatory hurdles, resilient startups have repeatedly demonstrated adaptability (Expert-Market, 2023). The government has implemented various initiatives to support these startups, including R&D tax incentives and entrepreneurship programs, which offer tax relief and support for eligible R&D activities (Statista, 2022b). Despite predictions for a difficult year in 2023, the Australian tech startup ecosystem continues to surpass growth records, showcasing its remarkable strength and endurance (Redrup & Smith, 2023).

Innovation plays a crucial role in startups' success. The continuous development of groundbreaking products or technologies is essential for achieving sustainable growth and gaining a competitive edge. In addition, attracting investments, specifically venture capital, corporate venture capital, angel investment, and crowdfunding, is vital for funding the growth and expansion of startups (Singh & Bala Subrahmanya, 2022).

Further, startups that secure early venture capital investments tend to experience better growth and performance outcomes (Li & Zhao, 2022). Prominent examples of successful Australian tech startups, such as Canva, Prospa, Spaceship, Judo Bank and Atlassian, highlight the importance of these factors (Dutta & Mahatara, 2023). In 2021, Australian startups received A$10 billion in funding, which was more than triple the funding of the previous year, underscoring the immense growth potential of the sector (Alariss Global, 2022).

In conclusion, the performance of Australian tech startups is influenced by numerous factors, including innovation, investment attraction, big data analytics capabilities, and government

support. Despite these challenges, these startups consistently demonstrate remarkable growth and resilience, significantly contributing to the Australian economy (Dutta & Mahatara 2023).

3.4.2 Life Spans of Tech Startups in Australia

The lifespan of Australian technology startups and other businesses has decreased significantly over the past five decades, with the average dropping from 65 to 10 years. This is particularly noticeable in Australia and can be linked to various circumstances. These considerations include the rapid pace at which technology is changing and the growing relevance of flexibility and agility in responding to market adjustments (Hyfen Consulting, 2022).

Despite these obstacles, the Australian tech startup sector has seen some success in Canva, SafetyCulture, LinkTree, and Pet Circle. These firms have achieved unicorn status with values ranging from A$1 billion to A$40 billion (Sainsbury, 2023). However, the overall trend of Australian business longevity is alarming. The country faces challenges in scaling up startups into sustainable firms worldwide (Hyfen Consulting, 2022). Startup failures in Australia and elsewhere are frequently related to a lack of marketing, financial, and business management abilities. Further, Australian entrepreneurs are frequently considered to lack focus, which may contribute to the country's high startup failure rate (StartupBlink, 2023). Despite these hurdles, the Australian startup landscape is expanding, and the technology industry is providing new opportunities for innovators and investors. Given that the country is attempting to create a favourable environment for entrepreneurs, it is critical to maintain support, mentoring, and resource allocation (Startup Oasis, 2021).

3.4.3 Emerging Tech Startups in Australia

Australia's tech startup sector is witnessing rapid growth, which makes the country unique to the global tech market. This expansion can be credited to favourable government policies, a highly skilled workforce, and an atmosphere that promotes startup creation (StartupBlink, 2023). Atlassian and Canva were extraordinary successes in the Australian software startup scene. Atlassian, a software business, transformed project management and team

communication by delivering effective productivity solutions. Canva, an online visual design tool, has received widespread acclaim for its user-friendly interface and configurable design templates (Marshall, 2023).

In addition to these established firms, some rising digital startups have made essential contributions to their respective industries. Rumin8, a startup that concentrates on agricultural solutions, and Fable Food, a food technology firm that provides plant-based meat alternatives, are two examples. Catheon Gaming, Q-CTRL, Baraja, Dovetail, Katonic.ai, Cauldron, Paypa Plane, and Fivecast are notable startups in Australia (Fybish, 2023).

The Tech Council of Australia recently revealed a 78% surge in the establishment of new startups between 2019 and 2022, compared to 2013 and 2015 (Tech Council Australia, 2022). Surprisingly, Australia has successfully produced 28 technological unicorns over the past two decades. This remarkable increase in entrepreneurial activity can be attributed to the constant pursuit of innovation and the unwavering determination of Australian entrepreneurs. Moreover, this extraordinary growth owes its existence to an environment that is capable of nurturing the development and triumph of these ventures (Tech Council Australia, 2022).

3.4.4 Impact of These Factors on Creativity, Uncertainty and Entrepreneurial Orientation

Government support, startup success, and emerging tech startups are key to innovation and entrepreneurial orientation (EO) in Australia's tech ecosystem. Government initiatives, including financial incentives and ICT infrastructure development, are essential to foster a risk-taking and innovative environment (Startup Genome, 2023).

The success of technology businesses has had a significant impact on Australia’s innovation, unpredictability and EO. Successful firms serve as role models for budding entrepreneurs, demonstrating the rewards of originality and initiative (Horng et al., 2023). In addition, high-performing businesses attract money, talent, and resources, encouraging an inventive and creative culture. However, underperforming startups can increase unpredictability and discourage future entrepreneurs from starting new enterprises (Ferreira et al. 2020).

Further, the long life span of digital businesses in Australia has considerably influenced innovation, unpredictability, and EO. Startups with a long life foster a stable atmosphere that supports innovation and encourages entrepreneurs to take chances and pursue novel ideas. However, high startup failure rates can heighten uncertainty and dissuade potential entrepreneurs (Beckman et al., 2012).

Undoubtedly, emerging Australian tech startups are instrumental in fostering creativity and economic growth by introducing novel products and disrupting conventional practices, thereby enriching entrepreneurial culture (Muramalla & Al-Hazza, 2019).

Finally, policymakers, entrepreneurs, and other stakeholders must recognise and comprehend the ways in which government support, startup performance, longevity, and developing tech startups affect creativity, uncertainty, and EO within the Australian tech startup ecosystem (Muramalla & Al-Hazza, 2019). This understanding will aid the growth and success of Australian tech startups.

3.5 Singaporean Tech Startups

Singapore, at the heart of Southeast Asia, has become a key hub for technology startups because of its strategic location and strong government support. Its diverse technological scene includes industries such as fintech, health technology, AI, and e-commerce (Pangarkar & Vandenberg, 2022).

A notable advantage that Singapore offers to tech entrepreneurs arises from its strategic location: it is a vital crossroad for major trade routes and provides easy access to emerging markets in the region. State-of-the-art infrastructure and proximity to burgeoning markets, such as China and India, mean that Singapore attracts digital startups and global companies that are seeking to establish their presence in this thriving ecosystem (Breul & Revilla Diez, 2021).

Further, Singapore's leadership in the technology startup sector is bolstered by government initiatives such as the Smart Nation program and financial schemes, which have contributed to the growth of sectors like fintech, as noted by Pangarkar and Vandenberg (2022).

Moreover, the city-state is recognised as a hotbed for AI startups because of its increasing emphasis on AI and machine learning. In addition, the increase in Healthtech companies using technology to enhance healthcare indicates a promising future for this sector (Low et al., 2021). The diverse industries that operate within Singapore's tech startup ecosystem and their innovative contributions are testaments to the dynamism and potential of this thriving landscape.

3.5.1 Government Support for Tech Startups in Singapore

The government has implemented supportive legislation, funding programs, and initiatives to foster innovation and enhance the economy (Cheah et al., 2016). The National Research Foundation and Startup SG are noteworthy contributors to this ecosystem by providing startups with funding opportunities and strategic guidance. Startup SG is an all-inclusive platform that facilitates access to resources, funding and mentorship (National Research Foundation, n.d.). These government-supported financial incentives include startup tax exemption and funding programs, such as the Early-Stage Venture Fund and the Technology Enterprise Commercialisation Scheme (Eliasz et al., 2021).

Furthermore, incubators and accelerators, such as ACE and IMDA, in addition to innovation hubs, such as JTC LaunchPad and Block71, strengthen the technology startup landscape (Eliasz et al., 2021). Considerable emphasis is placed on talent development, as evidenced by initiatives such as SkillsFuture, which equip Singaporeans with the skills necessary for the digital economy (Cheah et al., 2016). Notably, Singapore's dedication to R&D has significantly increased patents and scientific publications, surpassing technology exports from resource-rich countries such as the UAE (Cheah et al., 2016). Consequently, the country's entrepreneurial support system, characterised by a network of comprehensive incubators and banks that are favourable towards startups, continues to attract global attention (Trivedi, 2016).

In conclusion, the remarkable growth of Singapore's tech startup sector can be attributed to the government's unwavering support and commitment to innovation, and broader global implications are possible (Pangarkar & Vandenberg, 2022).

3.5.2 Performance of Singaporean Tech Startups

Singaporean tech startups have recently significantly influenced the financial realm. In the first quarter of 2023, these enterprises secured US$1.1 billion in funding. This injection of substantial capital highlights investors' trust and confidence in these ventures and their recognition of their potential for growth and profitability. Within the dynamic tech landscape, certain startups have emerged as leaders (Economic Development Board, 2023). An example is Grab, which obtained the most funding over its counterparts as of May 2022 (Statista, 2022a).

The persistent yearly growth of approximately 60 new technology startups reflects the thriving entrepreneurial climate in Singapore despite experiencing a minor downturn in 2020 and 2021 owing to the pandemic's economic consequences, as reported by Statista (2022a).

Evaluating these startups' performance extends beyond considering finances and rates of growth; key performance indicators (KPIs) are also significant. These KPIs include metrics, such as unit economics, which assess the profitability of each unit sold or acquired by the customer. In addition, essential KPIs include the cost of acquiring a new customer, the total revenue expected from a single customer over their entire relationship and the time required for a startup to recover its customer acquisition investment, known as the payback period (Silicon Valley Bank, 2023).

Singaporean tech startups' impressive performance and growth can be attributed to several factors. The first is robust government support through numerous initiatives, including grants, educational programs, and infrastructure development (Central Midori, 2022). Second, the pro-business environment in Singapore is characterised by low rates of tax, excellent infrastructure, and a business-friendly atmosphere that attracts foreign investment and encourages the establishment of R&D centres (Development Asia, 2023).

Further, startups can access diverse funding sources such as venture capital, government grants, and accelerators, which provide the necessary financial boost for success (Statista, 2022a). Moreover, a skilled workforce comprising professionals specialising in technology and other relevant fields is a significant advantage (100 fastest growing companies, 2022).

In conclusion, Singaporean tech startups' performance is characterised by robust financial performance, steady growth rate, prominent KPIs, and various contributing success factors. With substantial funding, a favourable business environment, comprehensive government support, and a wealth of talented individuals, these startups are exceptionally positioned for sustained success and innovation.

3.5.3 Life Spans of Tech Startups in Singapore

Singapore's tech startups attracted record funding in the first quarter of 2023, surpassing other regions in Southeast Asia (Economic Development Board [EDB] Singapore, 2021). Yet, despite the nurturing ecosystem, the survival rates of these tech startups vary significantly. Notably, more than half of the newly established companies across all sectors in Singapore demonstrate resilience by surviving for five years (Rikvin, 2023). However, identifying the tangible business problems that these startups aim to solve remains a challenge for early-stage founders in Singapore, posing potential challenges in attracting funding (Yu, 2021).

A comprehensive approach is necessary to enhance the longevity of Singaporean technological startups. Addressing challenges such as identifying relevant business problems, securing funding, and bridging talent gaps is a starting point (Yu, 2021). Moreover, fostering a culture that embraces risk-taking and encourages entrepreneurship is crucial to startups' long-term success (Development Asia, 2023). The complex blend of opportunities and challenges results in an intriguing journey and a potential lifespan for tech startups in Singapore.

In summary, early-stage founders face numerous challenges and have different life expectancies. These factors underscore the need for an environment that encourages innovation and willingness to take risks while ensuring continued support. If Singapore meets these basic requirements, it can potentially consolidate its position as a world-renowned startup centre, strengthening its emerging technology companies' long-term viability and success.

3.5.4 Emerging Tech Startups in Singapore

Singapore has undergone a remarkable transformation and has emerged as a leading global hub for state-of-the-art technology startups. These startups have established a strong presence in various sectors, including fintech, AI, Medtech, cleantech and Edtech (Pangarkar & Vandenberg 2022). Singaporean startups have successfully exploited the tech-savvy nature of their population and a highly skilled workforce, which has propelled them to the forefront of their respective fields. In fintech, disruptors such as FOMO Pay and SeaMoney have revolutionised the digital payment landscape (Currencycloud & Moov, 2022). Simultaneously, startups, such as Biofourmis and Docquity, use data analytics and digital platforms to redefine healthcare delivery in Medtech (Wong et al. 2020).

A group of five exceptional startups exemplify the growth trajectory of Singapore's tech startup scenario. Doctor Anywhere, a telehealth platform, has successfully expanded its services throughout Southeast Asia, demonstrating the potential scalability of digital health care. Similarly, Endowus, a digital wealth management platform, gained global recognition as the World Economic Forum 2023 Technology Pioneer (Ching Yuen Luk, 2023). In caregiving, Homage secured significant Series C funding while expanding the coverage of its services. Having substantial Series B funding and notable sales achievements, Flash Coffee, a food and beverage startup, has significantly influenced the industry (Chen & Habibi, 2023). In addition, Pace, an online payment platform, solidified its position within the Asian market by acquiring the regional 'buy now, pay later' pioneer Rely (TechNode Global, 2022). Collectively, these success stories exemplify Singapore's thriving tech startup ecosystem, inspiring aspiring entrepreneurs worldwide.

3.5.5 Impact of These Factors on Creativity, Uncertainty and Entrepreneurial Orientation

Singapore's creativity, uncertainty, and EO are heavily influenced by various factors, including government support. In addition to factors such as lifespan and evolving technology, government support is critical in influencing the entrepreneurial scene. This support includes financial assistance, regulatory relief, intellectual property rights protection,

education and training programs and networking and collaboration facilitation (Singh & Ashraf, 2020).

Despite its favourable effects on entrepreneurship, it is crucial to recognise the unintended implications of government financial support. For example, policy changes can inadvertently hinder innovation and create an uncertain environment, resulting in bureaucratic inefficiencies (AIContentfy, 2023). Thus, a balance between developing an environment that promotes entrepreneurship and minimising potential disadvantages is critical.

In turn, startups' creativity and entrepreneurialism are significantly shaped by their lifespan. When startups grow and mature, they often face challenges in maintaining their innovative spirit and entrepreneurial mindset. Various factors, such as increased competition for funding in the later stages, can hinder the ability to scale and expand globally (Yan, 2022). In addition, societal attitudes towards failure within the startup industry can influence entrepreneurs' willingness to take risks and innovate (Quek, 2019).

Furthermore, emerging tech startups in Singapore face economic uncertainty because of increasing interest rates, weak near-term growth, and cautious scaling. Startups may need to adapt their strategies to cope with this uncertain environment, which may affect their EO dimensions. For example, startups may need to focus more on profitability than on rapid growth, which may affect their willingness to take risks (Phua, 2022).

3.6 New Zealand Tech Startups

Forbes listed NZ as the best country for entrepreneurship (Badenhausen, 2012). Similarly, the World Economic Forum ranked NZ as the top country for entrepreneurship (Broom, 2019). However, in the Asia-Pacific region, Frederick (2018) noted that NZ is the second-highest country in entrepreneurship, whereas Australia is the first. NZ is considered to be the top country for entrepreneurship because of several factors. First, it is a simple and streamlined process to start a business, with minimal bureaucracy and a supportive business environment (Broom, 2019). The country has a flexible labour market, a low minimum wage, and easy access to capital (Bellan, 2021). Second, NZ has a well-developed startup ecosystem that includes various government and private funding options such as grants, loans, and

equity investments. Several venture capital firms and angel investor networks in NZ provide funding and mentorship to early-stage startups (Badenhausen, 2012; Bellan, 2021).

In addition to the above, NZ has a strong culture of innovation and creativity, which is reflected in its high level of patent registration and R&D spending. Furthermore, the government has established several innovation hubs and research centres that provide support and resources to startups and entrepreneurs (Omisakin & Adegoke, 2022). A country's high quality of life, robust social safety net, and excellent healthcare system add to its appeal for entrepreneurs. Networking opportunities through incubators and accelerators further encourage collaboration and partnerships (Bellan, 2021). The rise of disruptive technologies (AI, blockchain, and VR), the emergence of collaborative workspaces, and supportive government policies have significantly changed the environment for tech startups in NZ (Kluwgant, 2022).

3.6.1 New Zealand Government Support for Tech Startups

The thriving technology startup scene in NZ owes much of its success to unwavering government support. The government has implemented various policies and initiatives to stimulate capital growth and encourage innovation (Muramalla & Al-Hazza, 2019).

Further, the government offers various financial awards and grants to startups to enable them to cover project costs and invest in the necessary equipment. This contribution shows that the government is committed to empowering these organisations (Muramalla & Al-Hazza, 2019).

Furthermore, the government supports startups by creating a highly conducive entrepreneurial ecosystem. By introducing streamlined licencing procedures, favourable tax regimes, reduced import duties, and robust intellectual property protection measures, operational barriers for startups can be effectively reduced (Mazey & Richardson, 2020).

Undeniably, comprehensive support from the government, including financial aid, legal incentives, and training initiatives, has significantly fostered growth in the digital startup ecosystem (Muramalla & Al-Hazza, 2019). However, to ensure the continued success of this thriving landscape, it is crucial that policies continuously evolve to adapt to the ever-evolving

technology startup sector (Mazey & Richardson, 2020). The government's relentless efforts have made NZ a global leader in tech startups and underscored the government's central role in fostering an environment that is conducive to growing digital businesses (Fath et al., 2021).

3.6.2 Life Span of Tech Startups in New Zealand

The startup lifespan is very important in the thriving NZ tech startup scene. In this environment, intriguing insights can be gained regarding the average life span, factors that affect the average life span, and prevailing trends in the sector (Startup Genome, 2022).

Although comprehensive data on the exact life spans of tech startups in NZ are lacking, it is evident that businesses across various sectors demonstrate differing survival rates over 10 years. These rates range from 20% in information media and telecommunications to 36% in agriculture, forestry, and fishing (Kluwgant 2022). Multiple influential factors shape the startup life spans in NZ. Notably, the longevity of startups is directly affected by access to early venture capital, which has notably increased because of government initiatives and foreign investments (Bellan, 2021). Government agencies such as New Zealand Growth Capital Partners (NZGCP) have significantly increased access to capital through initiatives such as the Elevate Fund (Bellan, 2021). Industries such as the life sciences and Agritech provide particularly promising environments for startups, further contributing to their likelihood of survival (United Nations Development Program, 2020).

In terms of the trends that affect startup life spans tech investment in the NZ surged by 8.2% in 2022, defying a global decline. This suggests positive prospects for startups' life expectancy (Thomsen, 2023). Moreover, gender diversity has improved, and women-led firms secure 27% of the total startup investment in NZ, indicating a more inclusive ecosystem and the potential for diverse survival patterns (Shanahan, 2023). Although Auckland remains the primary hub, emerging regional ecosystems in cities such as Wellington and Christchurch are expanding the landscape for prolonged longevity (Startup Genome, 2022). Several promising NZ tech startups have gained global recognition and exhibited resilience, which may extend their lifespan in the global market (Kluwgant, 2022).

3.6.3 Emerging Tech Startups in New Zealand

Various factors have driven NZ's recent establishment as a prominent centre for technology startups. These factors include the availability of highly skilled professionals, proactive government support, attractive tax incentives, and a forward-thinking approach to fostering a startup-friendly environment (Kluwgant, 2022). Further, the tech startup ecosystem has witnessed a remarkable surge in venture capital investment, in which NZ$726 million was injected into 154 deals in 2022 (Thomsen, 2023).

NZ proudly displays various rapidly expanding startups, as detailed in Failory (2023). Notable mentions on this list include Ninja Kiwi, a gaming enterprise purchased for NZ$203 million; Vend, a provider of retail management software that was acquired for NZ$455 million; and X, a business management software company purchased more than NZ$100 million (Failory, 2023).

The NZ startup ecosystem is distinguished by a strong sense of community, an appealing business regulatory framework, and a high standard of living. As a central startup hub, Auckland accommodates half of the country's workforce. Moreover, the technology sector has emerged as NZ's primary export industry, experiencing a 23% increase in ICT exports from 2020 to 2021 (Invest Auckland, n.d.).

3.6.4 Performance of New Zealand Tech Startups

The tech startup scene in NZ has grown significantly in recent years, and the emergence of successful companies and notable achievements have gained worldwide recognition. Notable examples are Xero, Pushpay, Aroa Biosurgery, Vend, Seequent, Halter and Rocket Lab (Bellan, 2021). This expansion is further evidenced by a substantial increase in early-stage funding, given that NZ startups nearly doubled their funds raised between 2020 and H1 2022 from the previous 36-month period (Startup Genome, 2022).

In 2022, NZ had an 8.2% increase in venture capital investment, totalling NZ$726 million, that was spread across 154 deals, which was largely fuelled by investments from foreign sources (Thomsen, 2023). The country's technology sector has demonstrated promising potential across various domains, including healthcare, cleantech, AI and big data, Industry

4.0 Agtech, and New Food (Startup Genome, 2022). Government and foreign investors have played a pivotal role in enhancing the accessibility of early venture capital funding, specifically through entities such as NZGCP, which provide capital to venture capitalists in NZ and invest in Series A and B funding rounds (NZGCP, 2023).

However, despite the overall growth and achievements of the technology startup ecosystem, NZ startups continue to face challenges. These obstacles are often related to limited access to technology, investments, and expansive customer markets (Dumas, 2023). Further, when compared with similarly sized advanced economies such as Finland, Ireland, and Estonia, the investment pool in the NZ is considered relatively shallow (TMF Group, 2023). Nevertheless, the overall success of the tech startup ecosystem can be attributed to factors such as the presence of highly skilled individuals, government support, tax incentives, and a progressive attitude towards startups (Failory, 2021).

3.6.5 Impact of These Factors on Creativity, Uncertainty and Entrepreneurial Orientation

The NZ Government fosters a vibrant, creative, economic, and entrepreneurial landscape. Creative New Zealand, an agency dedicated to nurturing the arts and creative industries, significantly enhances national creativity. The government has successfully elevated the country's creativity by providing grants, developing robust creative ecosystems, and seamlessly integrating arts into the education system. Consequently, artists thrive and significantly contribute to NZ's cultural and economic development (Frommherz & Narayan, 2023).

Moreover, the government's support extends to effectively managing uncertainty, specifically during periods of economic instability and social upheavals. Targeted policies and programs to counteract such uncertainties ensure stability and instil confidence during turbulent periods. For example, during the 2008 global economic crisis, the government's comprehensive stimulus package and extensive social safety nets exemplified its commitment to providing the necessary assistance and stability (Kim et al., 2022).

In addition, the government's efforts to foster EO are pivotal to the country's economic development. Resources such as business incubators and the Young Enterprise Scheme provide vital support, education, and resources for aspiring entrepreneurs. By facilitating access to funding and reducing regulatory barriers for startups, the government has created an environment that is conducive to entrepreneurial success. Consequently, economic growth, job creation and innovation are promoted (Sulistyani & Suhariadi, 2022).

Creativity, uncertainty, and EO are crucial not only for increasing entrepreneurship but also for the longevity of tech startups. The success story of the tech startup ecosystem in NZ testifies to this. Various factors have contributed to this success, including government funding, the availability of a skilled talent pool, attractive tax incentives, and a progressive societal attitude towards startups (Startup Genome, 2022). By embracing uncertainty and maintaining a strong focus on innovativeness, risk-taking, and proactiveness, startups in NZ position themselves for sustained success and longevity in a fiercely competitive tech startup scene (Linton, 2019). Following an overview of the tech startup ecosystems in Australia, NZ, and Singapore, the following section explores the ways in which startups adapt to the challenges of the COVID-19 pandemic.

3.7 How Do Tech Startups Work, Survive and Thrive During Crises and Uncertainty?

During times of uncertainty and crisis, such as the COVID-19 pandemic, tech startups in Australia, NZ, and Singapore have had to navigate unique challenges to survive, work, and thrive.

In Australia, the pandemic significantly influenced the startup ecosystem, and many companies were forced to lay off staff, reduce spending, and shift their focus in response to changing market conditions (Alam et al., 2021). However, the government implemented a range of measures to support startups during this time, including the creation of an A$250 million JobMaker Digital Business Plan, an extension of the R&D tax incentive (George & Tarr, 2021), and the introduction of the Coronavirus SME Guarantee Scheme. The pandemic also affected NZ's startup ecosystem, and many companies experienced a

decline in revenue and limited access to capital. Despite this, the government was proactive in supporting the tech sector, offering assistance through initiatives such as the COVID-19 business advisory fund and the regional business partner network (EQ Consultants, 2023). Furthermore, the country's successful management of the pandemic helped create a more stable and predictable environment for startups.

In Singapore, the pandemic accelerated growth in the technology sector, and many companies implemented new business models to adapt to changing market conditions. The government introduced a range of measures to support startups during this time, including launching the SGUnited Jobs and Skills Package (Jowell et al., 2020), creating a Digital Resilience Bonus (Meng & Saravan, 2020) and establishing the COVID-19 Research Fund (Meng & Saravan, 2020). Despite the challenges posed by the pandemic, many tech startups in Australia, NZ, and Singapore have continued to thrive. For example, the Australian e-commerce platform Kogan reported a 60% increase in revenue during the first half of 2020 (Kogan, 2021), and the NZ-based software company Xero reported a 30% increase in revenue for the 2020 financial year (Kogan, 2021). In Singapore, the online grocery delivery platform RedMart experienced a surge in demand during the pandemic, leading to its acquisition by ride-hailing giant Grab (Chum, 2021). Thus, to survive, work, and thrive during times of uncertainty and crisis, tech startups in Australia, NZ, and Singapore must be adaptable and innovative, pivoting their business models, developing new products and services, and collaborating with partners and stakeholders.

Technology startups that successfully navigate crises and uncertainty use various strategies. For example, they prioritise financial stability and reduce external capital (Liñares-Zegarra & Wilson, 2023), demonstrating the risk-taking dimension in Lumpkin and Dess's (1996) EO model. Consequently, they thoroughly assess their financial standing and make the necessary adjustments to mitigate risk in a volatile market environment. This process includes cost-saving measures, exploration of alternative funding avenues, and establishment of collaborations or partnerships to share resources (Nandi et al. 2021).

In addition, tech startups have adapted their business models to meet customers' evolving needs and demands during crises. Lumpkin and Dess's (1996) EO model defined

innovativeness as identifying new opportunities and aligning products or services with emerging trends. For example, numerous tech startups have shifted their focus to remote work solutions, healthcare technology, and e-commerce platforms during the COVID-19 pandemic (Modgil et al., 2022).

Furthermore, successful tech startups prioritise continuous learning and innovation during crises and periods of uncertainty. Their products and services are constantly enhanced, they experiment with new technologies, and they remain ahead of their competitors (Ngoc-Vinh et al., 2022). They can determine new growth opportunities even during crises because they foster a culture of innovation and learning (Haneberg, 2021). This aligns with the proactiveness and innovation dimensions of Lumpkin and Dess's (1996) EO model.

Tech startups that survive and thrive during crises and uncertainty demonstrate strong leadership and crisis management skills (Dwiedienawati et al., 2021). Similarly, a crisis management plan outlines the ways that a company responds to potential risks and challenges (Alves et al., 2020). In Lumpkin and Dess's (1996) EO model, these plans demonstrate Lumpkin and Dess's competitive aggressiveness by minimising disruptions, ensuring employee safety and maintaining business continuity.

Tech startups strive to build resilience by diversifying their customer base and revenue streams. To reduce dependence on a single market or customer, they can expand to new markets or target diverse customer segments (Huang and Farboudi Jahromi, 2021). Technology startups can foster customer loyalty and trust by cultivating strong relationships. To achieve this, effective communication, outstanding customer service and flexible solutions tailored to meet customer needs are essential (Maduku & Mathaba, 2022). Given that tech startups navigated an uncertain environment during the COVID-19 pandemic, resilience and customer focus align with Lumpkin and Dess's (1996) autonomy dimension.

The aforementioned examples demonstrate the ways startups and companies globally display their EO during uncertainty and crises; however, the actual strategies of tech startups in Australia, NZ, and Singapore have been the subject of a dedicated study.

3.8 Scholarly Significance of Studying Australia, New Zealand and Singapore

This study aims to understand the role of creativity and Lumpkin and Dess's (1996) EO model in startups' adaptation to uncertainty by analysing tech startups in Australia, NZ, and Singapore. In these countries, unique approaches have been developed to encourage the technological sector, thus providing diverse contexts for exploring Lumpkin and Dess's economic development model.

First, scholars can learn from the strategies developed by these countries to support startups and the ways in which policy environments influence EO dimensions. For example, during the COVID-19 pandemic, the Australian government's initiatives may have influenced startups' strategic flexibility and proactiveness (Parajuli et al., 2022).

It is also important to examine the ways in which tech startups in these countries have survived and thrived during times of uncertainty and crisis to better understand how EO and creativity can help companies thrive in such challenging conditions. During the COVID-19 pandemic, NZ startups displayed resilience and adaptability (Kleitman et al., 2021). Insight into this may prove valuable in understanding the role of risk-taking, innovativeness, and other elements of EO in crisis management.

Finally, examining the unique characteristics of the technological ecosystems in Australia, NZ, and Singapore can provide insights into the ways in which different contexts influence innovation and EO. Singapore's startup ecosystem's collaborative and supportive culture (EDB Singapore, 2021) may contribute to EO autonomy.

Studying tech startups in Australia, NZ, and Singapore facilitates a better understanding of the ways in which policies, experiences, and contexts shape EO and creativity in different countries. This knowledge can inform future studies, policies, entrepreneurship, and innovation practices. In addition, it contributes to the study's aim of understanding the ways that startups adapt to uncertain environments through creativity and EO. Studies, policies, and practices regarding entrepreneurship and innovation can be informed by studying technology startups in Australia, NZ, and Singapore. Effective strategies and support systems

can be developed by understanding the ways that startups adapt to uncertain environments through creativity and Lumpkin and Dess's (1996) EO model. Ultimately, scholars can gain valuable insights into the role of policy environments in fostering startups' strategic flexibility and proactive nature by analysing the strategies developed by these countries. It is also possible to gain a deeper understanding of the ways in which EO and creativity can help companies navigate challenging situations by examining the survival and thriving of tech startups during times of uncertainty and crises.

3.9 Chapter Summary

This chapter provides an overview of the technology startup ecosystems in Australia, New Zealand, and Singapore. It began by rationalising the choice to focus on these three Asia-Pacific countries based on the prevalence and significance of their start-up sectors, as well as the unique challenges and policy responses shaping each ecosystem.

The chapter then provides a detailed analysis of government support, performance indicators, lifespan trends, and emerging startups in the tech sectors of each country. This chapter also discusses how tech startups adapt during times of crisis or uncertainty. Strategies include mitigating financial risk, pivoting business models to suit changing customer needs, embracing innovation and learning, demonstrating leadership and planning, building resilience through diversification and nurturing customer relationships. Finally, the scholarly significance of studying startups in the three countries was highlighted to provide insights into how policy ecosystems shape dimensions, such as risk-taking and autonomy, and how entrepreneurial creativity and orientation enable crisis navigation.

Chapter 4: Methodology

4.1 Introduction

This chapter provides an overview of the theoretical orientation and research approach employed in the study of EO and creativity in tech startup firms from the perspective of entrepreneurs in Singapore, NZ, and Australia. The reasons for and implications of using qualitative methods and details of the qualitative research design are addressed.

This chapter begins by discussing the conceptual framework used to guide this study. It then explains and justifies the research paradigm and reasons for choosing a qualitative method. Thus, it describes the study design, including the selection of participants and the data collection methods and procedures. The proposed data analysis methods were also outlined. In addition, this chapter provides a discussion of the potential limitations of the research approach and methods used in this study. This chapter outlines the qualitative methodology used, including the interpretivist paradigm, interview methods, participant selection, data collection and analysis processes, and the steps to ensure trustworthiness.

4.2 Research Objective

The purpose of this study is to add to the existing body of knowledge on entrepreneurship theory, creativity theory, and theory related to entrepreneurial activities, with a specific focus on entrepreneurs' perspectives in tech startups in Australia, NZ, and Singapore. To achieve this objective, the following research questions were posed:

> RQ1: How does creativity relate to Lumpkin and Dess's (1996) five dimensions of entrepreneurial orientation from the perspective of entrepreneurs in tech startups?
> RQ2: How do entrepreneurs engage in creativity and entrepreneurial orientation in times of uncertainty?
> RQ3: How do entrepreneurs demonstrate creativity and entrepreneurial orientation in the early stages of a startup?

4.3 Research Methodology

4.3.1 Research Philosophy: Interpretivist Paradigm

The methods of investigating human behaviour in social science depend heavily on the researcher's paradigmatic assumptions (Johannisson, 1995). The interpretivist approach is often employed by researchers to emphasise the perceptions and meanings of social actors (Günbayi & Sorm, 2018). The interpretivist paradigm's appreciation for the social construction of reality comes into play (Johannisson, 1995). An interpretivist approach that emphasises subjective meanings and lived experiences is adopted. This aligns with calls to prioritise founder lenses in entrepreneurship research (Müller & Korsgaard, 2018). The flexible nature of the methodology provides space for unanticipated factors and insights to emerge beyond predetermined notions, fitting the growing contextualisation of entrepreneurship scholarship (Rousseau, 2020). This aligns with the purpose of this study, which is to understand the processes, orientations, and creative ingenuity that founders leverage to launch and sustain digital enterprises in uncertain environments. By carefully foregrounding founder perspectives, this approach facilitates the emergence of key themes, including the unforeseen factors crucial to digital venturing success.

Ontologically, interpretivists view reality as a socially constructed and subjective phenomenon that is constantly evolving (Tuli, 2010). Thus, this paradigm asserts that the meanings of social theories must originate from the concepts and meanings of social actors (Blaikie & Priest, 2019). The epistemological stance of this paradigm promotes deep understanding and focuses on situational nuances, underlying realities, and subjective meanings that influence entrepreneurs' activities (Weber, 2004). It views knowledge as multilayered and complicated and relies primarily on subjective and personal experiences. This approach emphasises the importance of an individual's experience as a primary source of information (Weber, 2004). Interpretivism, as defined by Mason (2002), foregrounds people and their interpretations, perceptions, meanings, and understandings as the primary sources of data.

The ontological assumption in entrepreneurship considers reality as socially constituted and entrepreneurs as competent and ready to participate socially (Johannisson, 1995). In this

context, entrepreneurs are subjectivists because they operate in line with their own perceptions of reality, relying on their emotions, intuition, and intellect to build a future in which they may have faith (Karp, 2006). In short, they make decisions according to their unique perspectives and feelings about the world around them, the opportunities they see for creating value as entrepreneurs, and the impact of various courses of action (Karp, 2006). Building on this, the analysis of entrepreneurial perspectives is related to the interpretivist approach in that, unlike the objectivist view, the subjectivist view provides a deeper understanding of the nature of the intricate relationship between EO and creativity (Wales, 2016).

According to the interpretivism paradigm, it is impossible to have an accurate understanding of an individual's actions without first learning about their motivations, beliefs, and preferences (Howe, 1988). In attempting to discover how individuals interact, methodologies can provide more situational data from the empirical world and derive more interpretations from the views of respondents than the positivist approach can (Blaikie & Priest, 2019; Weber, 2004). To gain comprehensive knowledge of these events, the interpretivism approach allows researchers to gain an in-depth understanding of individuals' behaviours (Jack, 2010; Johannisson, 1995). Consequently, entrepreneurs' perspectives on the dynamic complexity of entrepreneurial processes are an important part of studying these relationships. Researchers believe that the qualitative methods that underpin the interpretivism paradigm (Howe, 1988) enable them to comprehend entrepreneur relationship development processes more thoroughly than is feasible using a quantitative approach (Jack, 2010).

Unlike quantitative methods, qualitative approaches allow researchers to discover unique insights by illuminating the intricate dynamics and nuances of the relationship between creativity and entrepreneurial tendencies (Creswell & Creswell, 2017). Mason (2002) identified in-depth interviews as a qualitative data collection and analysis technique to generate meaning from natural contexts. Considering these perspectives, in-depth interviews make it possible to obtain rich details and insights from natural research contexts (Qu and Dumay, 2011). The qualitative approach was chosen because it allowed for an in-depth exploration of participants' experiences, aligning with the study goals of understanding the nuances of their responses.

This study used an interpretivist method and conducted in-depth interviews. The purpose of the qualitative data collected from entrepreneurs was to gain a better understanding of their unique experiences and how they view and use creativity in the context of their entrepreneurial activities. This technique is consistent with the goal of capturing and analysing the unique experiences of digital entrepreneurs and the impact of these events on their EO and creativity. Using the interpretivist paradigm, this study aims to enhance the understanding of entrepreneurship, creativity, and entrepreneurial activities (Roundy et al., 2018). The focus is on the views of entrepreneurs in Australian, NZ, and Singaporean tech startups. This thematic focus is consistent with the primary research objective of advancing the current state of knowledge in these disciplines. To summarise, this study aimed to better understand the interaction dynamics among network actors, the relationship between EO and creativity, and entrepreneurs' perspectives on these factors during their entrepreneurial journeys. As a result, this study aims to contribute theoretical and practical knowledge on entrepreneurship and creativity theory in the setting of early-stage tech businesses.

4.3.2 Research Approach and Design

Research in entrepreneurship research requires approaches that support discovery and theory building (Cooper et al., 2010). For theory building in entrepreneurship, using the qualitative method is appropriate (Antoncic & Hisrich, 2000). Further, exploring entrepreneurs' experiences is a rich source of data (Larty & Hamilton, 2011). EO literature has argued that the qualitative approach is more appropriate for a richer understanding of EO research (Linton, 2016). In addition, qualitative approaches have been considered to fit well with studying underexplored, novel, or hard-to-measure entrepreneurship phenomena (Van Burg et al., 2022). Therefore, a qualitative approach is deemed essential for developing theories on emerging phenomena such as digital entrepreneurship, lean startups, and sector-based entrepreneurship (De Massis et al., 2018). Thus, this study's exploratory nature suggests that a qualitative method is more appropriate (Kusumawardhani, 2013) to demonstrate the relationship between EO and creativity in Singapore, Australia, and NZ tech startup firms according to entrepreneurs' perspectives and by using an interview method for data collection.

According to DiCicco-Bloom and Crabtree (2006), semi-structured interviews are generally organised around a set of predetermined open-ended questions, with other questions emerging from the dialogue between the interviewer and interviewee/s' (p. 315). Semi-structured interviews are the most frequently used format for qualitative studies (DiCicco-Bloom & Crabtree, 2006). Furthermore, it is versatile and flexible (Kallio et al., 2016), and its structural rigidity can vary depending on the purpose of the study and research questions (Qu and Dumay, 2011). Researchers contend that unstructured interviews are ambiguous because it is impossible to collect data entirely without structure. However, to highlight this difference, structured interviews employ standardised questions to generate quantitative data (Mason, 2002).

Researchers deem the semi-structured interview a substitute that indicates a more flexible approach to the interview process (Ryan et al., 2009) and a slighter degree of standard interview questions (Mason, 2002). The flexibility of semi-structured interviews allows 'the interviewer to pursue a series of less structured questioning and also permits the exploration of spontaneous issues raised by the interviewee to be explored' (Ryan et al., 2009, p. 310). Further, it allows the respondent to modify the course of the discussion and introduce new subjects that the researcher had not previously imagined (Lune & Berg, 2017). Furthermore, it offers the researcher an opportunity to understand the significance of human experiences as described from the actor's perspective and interpreted by the researcher (Lune and Berg, 2017). This signifies an efficient method for obtaining insight into participants' ways of understanding the world (Milena et al., 2008). Consequently, this flexibility endorses significant research area perceptions and simplifies new theoretical directions. The process of conducting in-depth interviews allows for the elaboration of a plan that facilitates the identification of sources of participants, information, and faithfulness to ethical standards for research, in addition to methods that facilitate the illustration of guidelines for conducting interviews (Mason, 2002).

In this study, semi-structured, in-depth interviews were conducted because they have proven beneficial in providing in-depth analysis. Thus, it has been proven to be an appropriate method for investigating and understanding the relationship between EO and creativity in tech startups, according to entrepreneurs' perspectives. The qualitative approach is consistent

with the research objectives and questions, which relate to examining the relationship between EO and creativity in Australian, NZ, and Singaporean companies. My preference for a qualitative technique, specifically in-depth interviews, is well suited to answering the research questions. The rich data obtained through in-depth, semi-structured interviews allowed for an in-depth exploration of entrepreneurs' perspectives on creativity and EO. Further, the qualitative approach provides a more nuanced understanding of the ways that entrepreneurs participate in innovation in the early stages of their businesses. Semi-structured interviews allowed me to delve into entrepreneurs' personal experiences, feelings, and thoughts about the creative process during their early entrepreneurial journey and capture the intricate, context-specific elements that define this relationship (Eisenhardt & Graebner, 2007). Moreover, the in-depth interview method was expected to provide vivid accounts of the strategies used, challenges encountered, and ways in which these entrepreneurs manage uncertainty. Along with rigorous qualitative analysis, interview data should yield new insights that build on existing knowledge of how entrepreneurs leverage EO and creativity to cope with uncertainty and thrive, in addition to existing theoretical knowledge. In this study, the qualitative approach, specifically in-depth interviews, provides a comprehensive and diverse understanding of the relationship between EO and creativity in technology companies in selected countries. The adaptability of this approach allows unique insights and emerging themes to be explored from the perspective of entrepreneurs, adding to the existing literature on entrepreneurship and creativity theories.

A) Role of In-Depth Interviews in Research

The in-depth interview method is broadly prescribed in entrepreneurship (Jack, 2010), especially in EO studies (Chan et al., 2020) and creativity studies (Cameron et al., 2018). For example, in EO and creativity studies, Chan et al. (2020) and Tajeddini et al. (2013) adopted in-depth interviews as an appropriate approach to study the perceptions of entrepreneurs in tech startup firms.

In-depth interviews have been identified as the ideal research method when the study intends to investigate EO's dynamic activity, structural subject (Linton, 2019), and creativity (Shaw & Carter, 2007). Qualitative interviews are conducted when the research objective is

inductive and exploratory rather than descriptive (Kallio et al., 2016). Therefore, considering that this study's objective was to explore the pattern and content of the relationship between EO and creativity in tech startups from the entrepreneurs' perspective, the in-depth interview method exemplifies a good fit.

Furthermore, this type of interview approach is suitable for 'how' research questions and those adopting processes (Blaikie & Priest, 2019). According to Milena et al. (2008), in-depth interviews are a 'technique designed to elicit a vivid picture of the participant's perspective on the research topic' (p. 1279), which allows the researcher to draw out specific information and ideas into the research field. Further, the data collection and in-depth interview analysis process present opportunities for distinguishing new theoretical directions. In-depth interviews are an appropriate qualitative method in the early phase of studies when researchers pursue new matters in-depth (Qu and Dumay, 2011).

However, the in-depth interview approach is not without criticism (Saunders et al., 2003). According to Saunders et al. (2003), 'a number of data quality issues can be identified to the use of semi-structured and in-depth interviews, related to reliability; forms of bias; and validity and generalisability' (p. 357). Qualitative scholars contend that these matters are inappropriate for qualitative research because they are influenced by assessing the quantitative approach (Golafshani, 2003). For example, some reservations have been indicated about the lack of reliability of qualitative methods as a result of the lack of standardisation (Saunders et al., 2003). Nevertheless, this study investigates the process of gaining a deeper theoretical understanding of EO and creativity in tech startup firms in Singapore, NZ, and Australia. For such types of studies, 'the value of using non-standardised interviews is derived from the flexibility that you may use to explore the complexity of the topic' (Saunders et al., 2003, p. 328). Therefore, given that this study has the purpose of 'generating understanding' instead of 'the purpose of explaining' (Stenbacka, 2001, p. 551), 'an attempt to ensure that qualitative, non-standardised research could be replicated by other researchers would not be realistic or feasible without undermining the strength of this type of research' (Saunders et al., 2003, p. 328).

Another issue is linked to the lack of validity of the research outcomes (Golafshani, 2003); thus, the degree of validity is enhanced once the interviews are conducted thoroughly (Golafshani, 2003; Saunders et al., 2003). According to Saunders et al. (2009), 'semi-structured and in-depth interviews can achieve a high level of validity/credibility where conducted carefully using clarifying questions, probing meanings, and by exploring responses from a variety of angles' (p. 400). Creswell and Miller (2000) suggested that a study's validity is influenced by researchers' insights into its validity and their selection of paradigm assumptions. Moreover, qualitative research validity can be obtained if participants are given an opportunity to voluntarily express their knowledge constructs (Stenbacka, 2001). Therefore, several steps were considered in this study to perform interviews cautiously, ensuring the interviewees' voluntary participation and data confidentiality.

Furthermore, another controversial criticism is that generalisations cannot be made from in-depth interviews (Blaikie & Priest, 2019). Stenbacka (2001) indicated that generalisability in qualitative methods is possible but not on a statistical basis. In connection with qualitative research, generalisations are analytical rather than statistical (Yin, 2003). This perception implies that generalisations are made for 'theoretical propositions' (Saunders et al., 2009, p. 502). Thus, enhancing qualitative research's generalisability is made possible via the strategic selection of research participants (Stenbacka, 2001).

An in-depth interview is a suitable qualitative method for this study because it allows for an exploratory and inductive approach. It is possible to draw specific information and ideas from the research field, leading to the development of new theoretical directions as a result of this method.

Although the in-depth interview approach has been criticised for its lack of reliability, forms of bias, validity, and generalisability, qualitative researchers contend that this criticism is inappropriate. For exploratory studies that aim to generate an understanding rather than explain a phenomenon, non-standardised research is more suitable. Validity can be ensured through thorough interviews, and generalisations can be made through analytical propositions. Furthermore, the use of in-depth interviews in this study presents an opportunity to contribute to the limited understanding of EO and creativity in tech startups

from the perspective of entrepreneurs in Singapore, NZ, and Australia. The strategic selection of participants can enhance the generalisability of the research.

The in-depth interview method was selected for this study because it aligns with the research objectives, allowing for a deep exploration of the relationship between EO and creativity in tech startups from the entrepreneurs' perspective. Although this method is not without its limitations, steps were taken to ensure data quality and validity, making it suitable for this study.

4.4 Research Design

Research design is the overall strategy that a researcher chooses to integrate the various components of a study in a coherent and logical manner to ensure that the research problem is effectively addressed. Further, it serves as a blueprint for data collection, measurement, and analysis (De Vaus & de Vaus, 2013). This study uses an interpretivist paradigm that assumes that reality is socially constructed and subjective, as is the interpretative phenomenological analysis's (IPA) interest in understanding individual experiences from participants' perspectives. The study's research questions are consistent with the nature of the entrepreneurial journey and IPA's ability to process complex and ambiguous experiences (Langdridge, 2007). The design of this study is an interpretative IPA. A qualitative research approach was used to provide a detailed and comprehensive account of human experience. It is best suited to exploring the ways that individuals make sense of their significant life experiences (Larkin et al., 2021).

According to this study, the entrepreneurial journey involves creativity, innovation, risk-taking, and resilience, all of which are significant life experiences. An IPA design provides an optimal opportunity to examine these phenomena from the perspective of entrepreneurs. In this study, I conducted in-depth interviews with entrepreneurs of tech startups in Australia, Singapore, and NZ. The interviews were designed to include detailed narratives about how these founders dealt with creativity, uncertainty, and Lumpkin and Dess's (1996) five EO dimensions in tech startups. After collecting the data, I conducted a thematic analysis to identify patterns and themes in entrepreneurs' narratives. From the collected data, I was able to derive meaningful insights and answer my research questions. Overall, the chosen IPA

design played a critical role in shaping my study, from the formulation of the research questions to the data collection and analysis, and helped provide rich, detailed, and nuanced insights into the complex relationship between creativity and entrepreneurship in tech startups.

Figure 4.1 presents the sequence of qualitative data collection and analysis in this study.

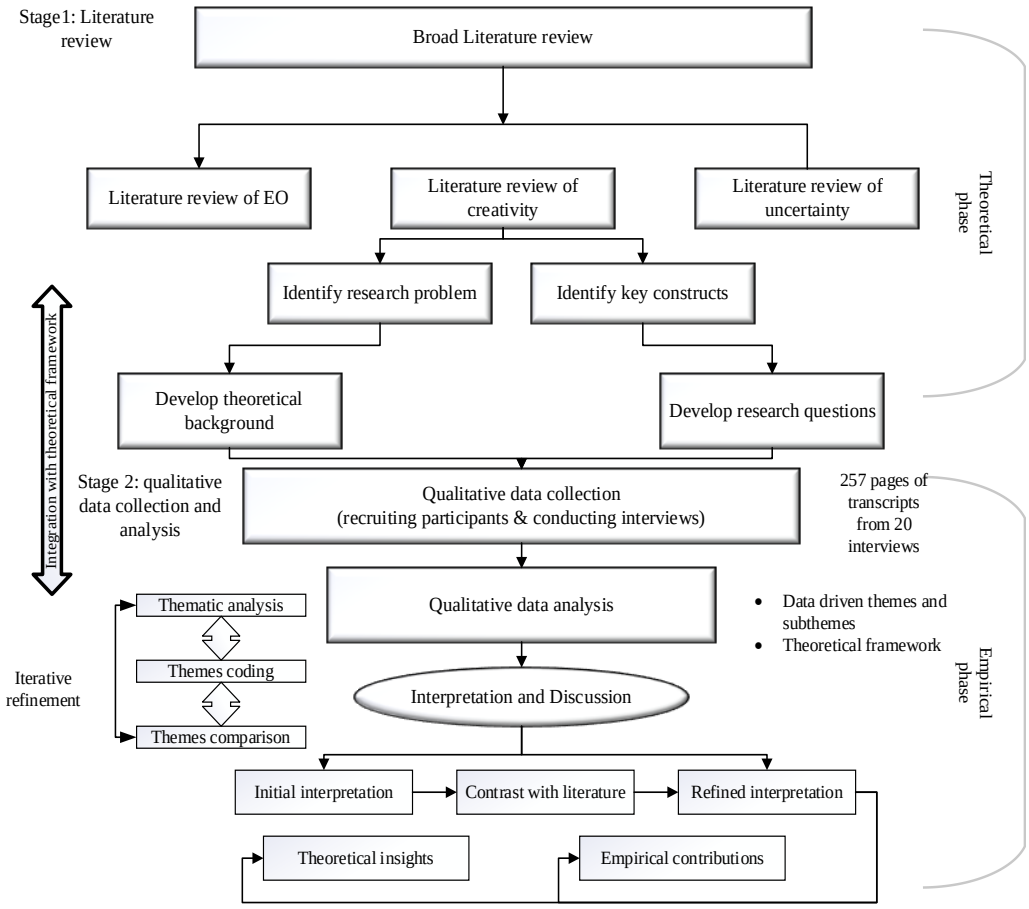

Figure 4.1: Stages of Research Design (Developed for Study)

This study begins with an extensive review of the literature on EO, creativity, and uncertainty. The literature review aided the development of the theoretical background as well as the design of the research objectives and research questions. The final constructs were then operationalised, and research instruments were created. The next step was to determine the sample frame to be used in the data collection.

The second stage was qualitative data collection and analysis. The data collection stage involved two activities: developing an interview schedule and recruiting participants. Then, 20 semi-structured interviews were scheduled and conducted with entrepreneurs from Singapore, NZ and Australia. In the data analysis stage, 257 pages of interview transcripts were obtained from participants. The interview data were analysed using thematic analysis facilitated by NVivo 12 Plus software. Accordingly, thematic analysis was performed, and themes were coded, compared, and finalised to produce the study findings. Furthermore, in Chapter 6, these findings are compared with existing literature and theories to develop a theoretical framework. Chapter 7 concludes the study by answering questions, presenting theoretical and practical implications, identifying limitations, and suggesting future directions and recommendations.

4.4.1 Research Interview Design

This section outlines the sectors that were studied, the number of interviews that were conducted and the method of participant selection.

A) Interview Sector: Technology Startup Firms

The current study was conducted in the context of technology-based businesses. In this context, prior studies have defined technology firms using two approaches: the business characteristics approach and the industrial categorisation perspective (Mason, 2002). This study focuses on the technology startup sector, that is, companies that include manufacturing and service activities related to technology. This broad definition, derived from Glasson et al. (2006) and the North American Industry Classification System (Heckler, 2005), includes various subsectors such as energy, life sciences, digital content, and software development. Three main factors influence the decision to focus on technology companies.

First, this study focuses on early-stage technology startups in Singapore, Australia, and NZ. Each of these countries has unique strengths in the technological ecosystem, making them particularly suitable for this study. For example, Singapore is a hub for innovation, ranking third in the world according to Bloomberg's 2018 Innovation Index, and is home to more than 4,000 technology-focused startups (EDB, 2021). The Singaporean government has

consistently supported this sector through programs and subsidies to ensure the growth of the deep tech industry (Startup Genome, 2019). NZ has thrived in the technology sector. It is the easiest place to start a business and is considered the most corruption-free country (Startup Genome, 2019). The country ranked twenty-fourth in the world in the 2019 Bloomberg Innovation Index (NZ Herald, 2019). Australia is also valued for its favourable startup climate, given its robust physical infrastructure, dynamic domestic market, and accommodating economic and regulatory frameworks (Maritz et al., 2022).

The second factor is the unique characteristics of early-stage technology companies. These firms are characterised by a high level of dynamism and the need for tangible and intangible resources (Narvekar & Jain, 2006). In addition, they often face a volatile and uncertain environment, which leads entrepreneurs to use personal networks to acquire necessary resources (Rannikko, 2012).

Finally, the main objective of this study is to understand the interplay between EO and creativity in tech startups, specifically from an entrepreneur's perspective. Prior studies have largely focused on the Western context and ignored the Asia-Pacific region (Li et al., 2011). According to Auckland NZ (2021), NZ has 'a vibrant and growing tech sector, which is creating high-value jobs and generating sustainable, weightless exports to the world' (p. 1). Furthermore, Singapore appears to be on track to become Asia's 'Silicon Valley' (TechCrunch, 2020), while Australia is among the most developed countries in this area (Haines, 2016).

B) Number of Interviews

In qualitative research, prior studies have revealed no general standards for interviews (Dworkin, 2012). Qualitative researchers frequently focus on generating in-depth meanings, explorations, and explanations; thus, each participant must spend an extended period of time (Blaikie & Priest, 2019). Qualitative research is concerned with understanding the nature, descriptions, and explanation of phenomena in-depth rather than quantifying data through frequency or numerical measurements (Labuschagne, 2003). Therefore, a small number of interviews was likely to be sufficient (Dworkin, 2012). Dworkin (2012) stated that an

extremely large number of articles, book chapters, and books recommend guidance and suggest anywhere from 5 to 50 participants as adequate' (p. 1319).

Efforts have been made to increase the number of participants. In-depth semi-structured interviews are broadly advocated in the entrepreneurship field (Jack, 2010). For entrepreneurial activity (Rosa et al., 2006), academic entrepreneurship (Jain et al., 2009), and entrepreneurial migration (Salamanca & Alcaraz, 2019), 20 in-depth, semi-structured interviews were employed as appropriate methods for exploring the perceptions of entrepreneurs about their entrepreneurial activities, skills, and competencies. Moreover, for a study on entrepreneurial skills, Loué & Baronet (2012) conducted 29 interviews with entrepreneurs, including 9 from France, 10 from Algeria and 10 from Canada. Furthermore, currently, the number of entrepreneurs in tech startup firms in Singapore, Australia, and NZ is relatively low compared with previous years because of the effect of COVID-19 (Deloitte, 2020). Therefore, the target number of interviews was limited to the number of entrepreneurs who owned early-stage tech startup firms (a startup is one month to 42 months in operation) and who met the research criteria.

C) Participants and Participation

The research sample selection technique was adopted for the research questions (Saunders et al., 2003) because an informative sample was required to explore these questions and 'obtain theoretical insights' (Saunders et al., 2009, p. 297). This includes classifying and choosing individuals or groups of individuals who have specific knowledge of, or experience with, the phenomenon of interest (Cresswell & Clark, 2011).

In the recruitment process, a non-probability convenience sampling technique is used instead of ensuring representation from all regional tech startups (Andrade, 2021). Despite this limitation, the demographic and trait characteristics of the collected participants' data displayed a significant resemblance to established founder attributes (GEM, 2021):

- 89% of the participants were male (compared to 87% globally)
- The average age of the participants was 38 years (similar to 40 years globally)

- 76% of the participants had postgraduate education (comparable to 75% of Singaporean founders)
- 11% of the participants were female (comparable to 14% in New Zealand)

The study's constraints prevented complete generalisability but still provided a valuable investigation into the orientations and creativity of this startup context. The recruitment process aimed to capture the maximum variation across various tech verticals, including software, hardware, energy, biotech, and related services. In addition, the recruitment process aimed to capture the maximum variation across various tech startup sizes, including small, medium, and large sizes. Surprisingly, the study found that all tech startups were small to medium-sized startups (SMEs). To be eligible for inclusion, startups had to have been in operation for 1- 48 months, have clearly integrated technology, and demonstrate an orientation toward innovation.

This sample, although not randomly selected, was carefully chosen based on strategic cross-sectional fitting rather than providing a comprehensive representation. Including respondents from various countries and industries allows for meaningful comparisons of how uncertainty affects entrepreneurial creativity. Despite the contextual disconnect, the fundamental similarity of these respondents to the broader population of tech founders enables context-specific observation. In summary, this non-probability yet purposeful convenience sample, grounded in population similarity in crucial founder traits, facilitates insightful investigations into how creativity and orientation can be leveraged in uncertain entrepreneurial environments.

D) Interview Sample Criteria

The selection criteria for participants generally considered (1) business ownership, creation, and management criteria, (2) the technology industry; and (3) the early business stage (startup stage).

The first criterion is entrepreneurial business ownership, creation, and management. The interviews were designed to involve entrepreneurs' startup businesses. The entrepreneur's startup business was not previously purchased or inherited. The entrepreneurs participated in

the business's management of daily activities and possessed the most business equity. All entrepreneurs who participated in this study had initiated, were involved in management and possessed most of the equity for their firm that was in the startup stage.

The second criterion is sector. In this study, the decision was made to explore entrepreneurs' experiences in several types of technological businesses. This study targeted technology startup firms that used innovative technology or identified a scalable business model and showcased an innovative product or technologically oriented service output. This study focuses on high-growth startups, which typically fall into scalable or buyable types of firms (Blank, 2017). However, this study focuses on high-growth scalable startups. Entrepreneurs (founders) of scalable startups start firms to earn money and make a difference in the world. They hope that wealthy investors appreciate their business potential and invest in the firm, unlike entrepreneurs of high-growth buyable startups, who start with little capital, develop the business, and sell it to large firms to make money before reinvesting in another business to make money (Blank, 2017).

The third criterion is a firm's early startup stage. It is also called the startup stage or seed stage. NVCA (2013) defined the startup stage as 'the state of a company when it has just been incorporated and its founders are developing their product or service' (p. 74). The startup stage starts with the initial work on a startup (i.e. entrepreneurs start working on an initial idea). Usually, it ends with the startup receiving Series A financing or the startup being terminated. Companies are usually funded through founders' savings, friends, family, angel investors, or seed funding (Spiegel et al., 2016). These labels are well suited to technology-based companies, which are known for their dynamic nature (Granstrand, 1998). A firm's age does not reveal the development stage, that is, whether it is in the startup or early growth stages.

Moreover, the length of the development phase differs between the product and service technology companies. For example, it may take several months for a software company to start. However, it takes several years to start manufacturing biotechnology products and bringing them to the market (Cooper et al., 2010). For this study, the hiring of the first full-time employee or the achievement of the first commercial sale were used as markers to

determine the sample's development stage. Thus, this study used the startup's stage operation time between one month and 48 months of venture creation to distinguish the venture startup stage's endpoint and the early growth stage's starting points.

E) Sample Identification and country selection

The decision to concentrate this study on the startup ecosystems of Australia, New Zealand, and Singapore is underpinned by several compelling factors. First, these countries boast flourishing tech startup communities that significantly contribute to economic growth, as evidenced by indicators such as the number of startups and funding levels (Startup Genome, 2023). Second, each country faces unique challenges in shaping its entrepreneurial landscape, necessitating tailored policy responses. Lastly, scrutinising these diverse developed economies enables valuable cross-country comparisons and stimulates new theoretical advancements, answering calls for increased context sensitivity in entrepreneurship research (Zahra et al., 2014). In essence, investigating these varied Asia-Pacific regions allows for a nuanced enquiry into how entrepreneurs harness creativity and orientation in different ecosystems.

Entrepreneurs of 20 tech startup firms were designated to participate in this study in accordance with the meeting of the research eligibility criteria and participants' cooperation and availability during the data collection phase. In this study, the sample involved virtual interviews with a total of 20 entrepreneurs from Singapore, Australia and NZ. A potential list of tech startup firms was developed, which provided a potential sample during the data collection stage (June 2021–August 2022). An accurate and comprehensive database listing entrepreneurs who owned tech startups in Singapore, Australia, and NZ was available. Thus, to identify a potential tech startup firm between June 2021 and August 2022, an attempt was made to identify them using various methods. These include government institutions, investment companies, technology business accelerators, technology associations, and database platforms.

The first stage of contact was made with government institutions, specifically the Ministry of Trade and Enterprise New Zealand, Enterprise Singapore (statutory board under the Ministry of Trade and Industry in Singapore), and the Ministry of Trade and Tourism

Australia, between June 2021 and August 2022. The main issue was that most lists in these government institutions were arranged into categories, which resulted in technology enterprises being dispersed across many industrial sectors. For example, a business in web or internet services would be categorised in the service industry alongside non-technology enterprises. Thus, distinguishing technology enterprises from non-technology firms became challenging. As a result, it was impossible to use these listings to obtain detailed information on technological firms owned by entrepreneurs. Furthermore, because of the enormous number of entrepreneurs in the database and the lack of accurate details, such as email or phone, approaching entrepreneurs who were featured in these lists was challenging. Thus, information from government institutions was unsuitable for compiling a list of entrepreneurs who own tech startups and could not be relied upon to assist in identifying a possible study sample.

To build a representative potential sample and avoid accessing data from a single platform, the second stage of contact was made using various public database platforms registered between June 2021 and August 2022. These database platforms provide a list of registered entrepreneurs, and there are no restrictions on contacting listed entrepreneurs.

The researcher followed several steps and criteria to obtain a potential list of tech startups using these database platforms. These steps were registered in the databases, including signing up or registering, choosing the account type (free), filling out the registration form, agreeing to the terms and conditions, and verifying the registered email. Then, the researcher was required to choose the targeted region and country of the databases. In this step, the researcher conducted separate research for each target country (Singapore, NZ, and Australia). This stage led the researcher to obtain a wide range of results that included all registered firms in each country (startups, established, and existing firms). The following step comprised the inclusion and exclusion criteria (Whittemore & Knafl, 2005).

The inclusion aspects indicated that the business fulfilled the research eligibility requirements, whereas the exclusion aspects indicated that the firm did not. These factors assisted in determining whether tech startups belonged to the research population. Negative results for any of the following criteria indicated that the firm did not meet the research

inclusion criteria: (1) the startup has operated for one to 42 months; (2) it is classified as a technology startup; (3) it showcases a creative product or service output that is technologically oriented; and (4) it uses smart technology or has identified a scalable business model.

Therefore, to source entrepreneurs in Singapore, Startup SG Trade (Singapore), Crunchbase, and Pitchbook databases were used. For NZ, the Startup Blink (New Zealand) database, Crunchbase Database and Pitchbook database were used. For Australia, Startup Blink (Australia), Crunchbase, and Pitchbook databases were used. Furthermore, the Crunchbase and Pitchbook databases collated a potential list of all tech startup firms from all sectors (trade, industry, services, fintech, aerospace, agriculture, AI, blockchain, semiconductor, construction, and other sectors) in Singapore, Australia, NZ, and worldwide. These database platforms included all information about entrepreneurs, such as venture creation, employee range, firm type, venture capital, investment stage, entrepreneur name/s, firm location, emails, and other contacts. Thus, using this potential list to obtain clear indications of tech startup firms and entrepreneurs is easy. Another attempt was made through Startup SG Trade (Singapore), Startup Blink (Australia), and Startup Blink (New Zealand) as local databases to confirm the tech startup list collated from the Crunchbase and Pitchbook databases. Thus, the information was matched, and the tech startup firm's existence was confirmed. The entrepreneurs' details and methods of contact were credible.

A total of 215 potential companies from Singapore, NZ, and Australia were selected from various sources, such as Startup SG Trade, Startup Blink, Crunchbase, and Pitchbook databases (see Table 4.1). However, a total of 30 tech startup firms–16 from Singapore, nine from NZ, and five from Australia–repeated among the various database platforms. After excluding repeated names, the list included 185 tech startup firms. These databases provided an extensive pool of tech startups during the data collection phase, which was diverse and comprehensive. The following section describes how the potential sample was screened through email and telephone to identify the final list of tech startup firms.

Table 4.1*:* Database Sources and Number of Tech Startup Firms Identified

Name of Database Provider	Number of Tech Startup Firms
Singapore	
Startup SG Trade (Singapore)	64
Crunchbase Database	10
Pitchbook database	12
New Zealand	
Startup Blink (New Zealand) database	60
Crunchbase Database	8
Pitchbook database	11
Australia	
Startup Blink (Australia) database	20
Crunchbase Database	16
Pitchbook database	14
Total	215

Ultimately, the registered database process, specifically using all these national and global database platforms to gather information and reach the entrepreneurs of the tech startups in Singapore, Australia, and NZ, helped the researcher to develop a good understanding of entrepreneurship in the tech startup sector. Two main points can be distinguished. First, the number of entrepreneurs who own entrepreneurial firms in the technology sectors in Singapore, Australia, and NZ is relatively high. A large number of tech startup ventures are registered in the targeted countries despite the effects of COVID-19.

Second, technology firms' interests can be labelled as a recent phenomenon (Mosey et al., 2017). The increasing number of entrepreneurs in Singapore, Australia, and NZ over the past five years (PwC, 2020) is notable. The phenomenon of technology entrepreneurship has aroused policymakers' interest as a result of its considerable influence on economic progress (Mosey et al., 2017) and economic development (Schumpeter, 1934). Many researchers have identified technology entrepreneurship as the crossroads between two deep-rooted but interrelated disciplines: entrepreneurship and technological innovation (Beckman et al., 2012). According to the twenty-fifth annual global CEO survey, PwC (2022) indicated that

‘Asia-Pacific CEOs are more optimistic about global and regional development potential, even as they rebalance their emphasis’. Thus, this can reflect the recent development of the entrepreneurial ecosystem in Singapore, Australia, and NZ, which has attracted potential technology entrepreneurs. Further, this shows the ongoing innovative policies and significant government subsidies that foster the development of new businesses (PwC, 2020).

F) Email Invitation and Recruitment

A plain language statement from the invitation email was sent to an eligible list of entrepreneurs of tech startup firms in Singapore, Australia, and NZ to participate in the research project. The invitation email provided participants with an overview of the proposed research aims, participation and benefits, confidentiality, risk of participation for entrepreneurs in tech startup firms, interview method, and duration of the interview. The eligible list of entrepreneurs of tech startup firms in Singapore, Australia and NZ met the inclusion factors criteria of the research project. The inclusion factors reflected that the company fulfilled the research eligibility criteria, whereas the exclusion factors indicated that the company had not fulfilled these criteria. These factors facilitated the determination of incorporation or otherwise of entrepreneurs of tech startup firms in Singapore, Australia, and NZ in terms of the research population. Contradictory replies to any of the following criteria revealed that the company did not meet the research inclusion criteria:

- **The startup has been in operation for one to 42 months**: Companies in business equal to or less than 42 months and more than one month.
- **Classified as a technology startup**: A novel business unveiling formerly concealed value involves the enhancement of a novel product or service or a great development in an existing product that initiates more value or a better offering (Satell, 2017). Technology startups also operate in the trade, industry, services, fintech, aerospace, agriculture, AI, blockchain, semiconductors, construction, and other sectors (Glasson et al., 2006).
- **Showcase a technologically oriented creative product or service output**: Technology-based startups contribute significantly to productivity growth, employment, innovation of products, and export of goods (Wu & Atkinson, 2017).

Technology-based startups have higher survival rates: 78% of new technology-based firms survived in the first year, and 41% survived through the fifth year. Furthermore, they have contributed to the economy more than other types of startups: their share of business R&D jobs is 58.7%, R&D investment is 70.1%, and exports are 27.2% over other industries (Wu & Atkinson, 2017).

- **Use of smart technology or identifying a scalable business model**: Scalable startups are derived from the perception of transforming the world. Unlike small business entrepreneurs, scalable startups intend to create equity to make public limited liability companies with million-dollar paydays (Blank, 2017).

From the potential list, some of the companies were exempted from the study for three main reasons. These reasons reveal the current study's exclusion criteria, which include the following:

- **Lost contact during the data collection phase**: Companies met the eligibility criteria, and a preliminary agreement was reached to participate in the research. Nonetheless, during the data collection stage, when they were contacted to organise a meeting, there was no response.
- **No response**: Contact was made via email at least twice, and the entrepreneurs did not respond to any of the emails.
- **Unwillingness to participate**: Companies met the research criteria but were not willing to participate in the research project.

Using the invitation email, an Excel spreadsheet document was created to list the entrepreneurs' responses to tech startup firms in Singapore, Australia, and NZ. Of the 86 Singaporean tech startup companies, 71 did not reply, and six were unwilling to participate, and four lost contact during the data collection phase. This resulted in a total population sample of five companies that participated in the current study. Of the 20 Australian tech startup companies, 11 did not reply, no companies were unwilling to participate, and no companies lost contact during the data collection phase. This developed a total population sample of nine companies that participated in the current study.

Of the 79 NZ tech startup companies, 67 did not reply, and four were unwilling to participate, and two lost contact during the data collection phase. This developed a total population sample of six companies that participated in the current study. An initial agreement with the entrepreneur participants during the data collection phase was developed approximately one to three weeks before the data collection period. Consequently, the final population sample included entrepreneurs from 20 tech startup companies from Australia, NZ, and Singapore who were willing to participate in this study. Before the interviews, each entrepreneur signed a copy of the consent form for the participants involved in the research.

4.4.2 Data Collection

The data collection phase of the qualitative approach employed numerous procedures. This procedure was used in in-depth interviews. It incorporated developing handwritten maps about tech startup entrepreneurs' experiences of starting and developing their businesses in three areas: EO, creativity and uncertainty, which those tech startup entrepreneurs revealed in the interviews. The interview process was used to strengthen the validity of the research and to obtain more accurate data to answer the research questions. In the in-depth interview design, data were collected to investigate the tech startup entrepreneurs' experiences of starting and developing their businesses in three areas: EO, creativity and uncertainty. In addition, before conducting the data collection, the researcher performed his interviewing techniques with expert research members and obtained feedback to counter the potential for partialities. The data collection procedures are outlined thoroughly so that this study can be easily reproduced using other populations or in other environments. The following section outlines the data collection procedure used for the interviews.

A) Research Interview

A formal interview protocol was developed during the initial phase of data collection (Patton & Patton, 2002) as a guide for managing and employing the research interviews (Castillo-Montoya, 2016) and to affirm the ethical guidelines of the data collection process. The use and development of the interview protocol helped the study in three main ways: first, this protocol facilitated the development of a comprehensive approach to data collection methods and guidelines, which maintained research methodology consistency across interviews and

endorsed flexibility of answers by the research participants (Kallio et al., 2016); second, this protocol assisted in the documentation of the chronology of events during an interview and set out directions to avoid the interviews diverging from the research design framework; and third, the research interview protocol assisted the interviewer in narrowing the interview questions in ways that generated meaningful data (Qu and Dumay, 2011). The interview protocol was developed based on key concepts from the literature review to address the research aims and to allow for open-ended responses. Nevertheless, the use of the interview protocol did not limit the types of information collected because it contained some degree of flexibility, as appropriate. The semi-structured, in-depth interviews eased the extraction of new information and endorsed participants to tell and present possible new guidance and theoretical topics.

Semi-structured interviews were used to assess participants' perceptions of entrepreneurial factors that helped them in their venture creation. The interviews were directed by a series of questions that facilitated entrepreneurs to share their experiences of starting and developing their tech startup ventures. The main questions were pursued as appropriate, using a range of questions connected to the discussion. This method involves creating more critical details about entrepreneurs in the tech startup stage instead of using a very distinctive form of precisely defined questions. The primary purpose was to motivate entrepreneurs to speak freely about starting and developing firms. The primary purpose of the interview was to develop an in-depth understanding of the lived experiences and meanings that the interviewee endorsed (Qu and Dumay, 2011). The interviews were semi-structured and communicative in style and were conducted with each entrepreneur from 20 tech startup ventures in Singapore, NZ, and Australia. The interviews were guided by a 25-question interview protocol (see Appendix 2) that included open-ended questions. The research interview process consisted of four parts: participants' background, EO, creativity, and uncertainty.

The first part of the research interview process primarily tried to obtain information about participants' backgrounds (age, education, pre-entrepreneurial experiences, firm size, firm type, firm sector, products, and services). At this stage of the interview, several questions involved a discussion about the participants' and tech startups' backgrounds.

The second part of the research interview process tried primarily to understand the five dimensions of EO that Singaporean, Australian, and New Zealander entrepreneurs in tech startup firms used to start and obtain the resources that they required. At this stage of the interview, several questions involved a discussion about the nature of the primary characteristics and skills of the entrepreneurial business, such as 'What are the primary characteristics that you think form the entrepreneurial business?' 'What factors influenced your decision to start a business in Singapore/New Zealand/Australia?' The other questions addressed the EO dimensions that were reached and used while initiating and growing the business, such as 'How would you describe the strength of the relationship between the number of new ideas generated and their successful implementation?' 'How do you think your business is continually pursuing new opportunities?' 'How do you usually seize new initiatives or strategic movements that directly encounter the existing stance held by your competitors?' 'What will you do if you are unsuccessful in securing your business opportunity?'

The third part of the research interview was essential to extract and illustrate more about the creativity of Singaporean, Australian, and New Zealander tech startup entrepreneurs and their experiences. Interviewees were asked to outline the main factors that influenced their entrepreneurial creativity and the primary resources they obtained through the early stages of the business, such as 'Which problems did you encounter? How vital was technology to achieve your goals?'. Additionally, the study aimed to understand how entrepreneurs' creative insights influence their decision-making over time. Furthermore, some questions were asked of entrepreneurs who had been involved in high-growth tech startup businesses. As a result, this was a good form of learning about managing creativity in entrepreneurial pursuits and lowering risks in uncertain times.

The fourth part of the research interview aimed to delve into the uncertainties faced by tech startup entrepreneurs from Singapore, Australia, and New Zealand and explore the challenges and opportunities they encounter within these regions. Technology-based companies are known for their dynamic nature (Granstrand, 1998) and often operate in chaotic and rapidly evolving environments marked by intense competition. Such conditions present both challenges and opportunities for new venture creations. To gain deeper insight,

interviewees were asked to discuss their understanding of uncertainty, the risks associated with their business opportunities, and how they ensured sustainability in their entrepreneurial initiatives. Questions included: 'What is your perception of uncertainty in a business environment?' and 'Describe a situation in which you had to respond to a major change. How did you cope?'. Through these discussions, this research sought to comprehend how the evaluation of uncertainty factors might predict the future success of their firms.

Therefore, the research interviews were conducted to understand the main attributes that tech startup entrepreneurs exemplify in EO–creativity and entrepreneurs' creative insights and decision-making in the context of time via the chronological stages of the entrepreneurial process, which involves the identification and opportunity evaluation stage, development of the business plan stage, determination and evaluation of resource requirements, and business formation (managing the resulting enterprise; Hisrich et al., 2007). The interviews were conducted remotely using Zoom Video communication due to the lockdown procedures caused by the COVID-19 pandemic. The interviews with each entrepreneur lasted from 50 to 90 minutes. Considering the busy schedule of entrepreneurs and to avoid a very long interview, the interviews were intended to be performed within an hour, even though some entrepreneurs enjoyed conversing about their business experiences, shared a video tour of their creative space at the tech startup firm, and expanded the length of the interview. All interviews were audio recorded with participants' consent.

In conclusion, conversations with tech startup entrepreneurs provided a comprehensive understanding of the factors crucial to the creation of their ventures. These factors encompassed Entrepreneurial Orientation (EO), creativity, and uncertainty, among other elements intrinsic to the entrepreneurial journey during the tech startup phase. A handwritten map was developed to visualise these insights, detailing the main elements discussed by the participants. This map shows how various factors, such as EO, creativity, and uncertainty, assisted entrepreneurs in generating insights about their startups and informed their decision-making over time. For instance, entrepreneurs have discussed the origins of their firms, the motivations behind their decisions to launch a business, and how navigating uncertainties is central to their entrepreneurial strategy. These rich data gathered from the interviews were

instrumental in the analysis phase, providing an in-depth perspective on the experiences and roles of tech startup entrepreneurs in the business creation process.

B) Interview Questions Design

Using semi-structured interviews, this study employed a qualitative method to collect the data. Thus, open-ended questions were included in the research interview questions. To successfully measure what was intended to be measured, the question-creation process must be enhanced correctly. This approach requires the use of construct validation techniques to create a genuine query (MacKenzie et al., 2011). Using Lazarsfeld's (1958) concept measurement scheme, this study operationalised variable measurements. In accordance with this scheme, measurements can be developed by using material validity items and methods. At this stage, key concepts must be operationalised by the researcher. It is essential to establish definitions before observing and evaluating them, that is, to formulate questions (or qualities of data in qualitative research) that indicate the definition.

Rather than using more structured qualitative surveys, in which open-ended questions predominate, I devised a semi-structured survey for this study that avoided the disadvantages of more structured surveys (Qu & Dumay, 2011). To determine the substantive validity of the measurement objects, the expert panel continuously evaluated the questions according to the study objectives. Through these, the strengths and weaknesses of the interview questions, in terms of their format, length, and arrangement, can be determined.

In qualitative research, data analysis involves the interpretation of data to identify themes and patterns that emerge. The literature review helps researchers to interpret the data by providing a theoretical lens through which to view the research. It enables researchers to identify themes and patterns that are consistent with existing theories or knowledge and to explore new themes and patterns that may challenge or expand existing theories. Following a review of the literature on creativity and entrepreneurship, the researcher developed a priori ideas and themes to examine the data. A review of related literature led to the extraction of preliminary constructs and items.

4.4.3 Data Storage and Data Protection

The interviews were transcribed and stored to complete the analysis phase. Consequently, the transcribed interviews were stored in the form of computer files. To maintain concealment and privacy, all the participants' identities and company names were encoded. The data contained approximately 257 pages (1.5-spaced text and 12-point text size of Times New Roman), delineating approximately 12,558 words. Interview files were created for each participant. These comprised the research interview questions and participants' answers. The interviews were transcribed, saved, and analysed using the language of the interviews; all the research interviews were conducted in English.

Furthermore, given that English was the second language of the participants from Singapore who were interviewed, representative examples may sometimes contain grammatical inaccuracies or seem to be not descriptive in the language. The researcher securely stored the data to minimise any risk to participants—in accordance with Victoria University's (VU's) privacy policy and data protection code. Each interview was recorded after obtaining consent from the interviewees. To enhance confidentiality, participants were assigned code names based on specific themes, such as 'E0001', ensuring their identities remained anonymous. The digital files of the recorded interviews and transcripts were stored in computer files and saved on Victoria University R: Drive storage at the university campus office, to which only the researcher had access.

After publishing the study, all files and transcripts were sent to the university's research drive storage. The university's code of data security states that 'VU is committed to holding your personal and health information securely, and accordingly, it will take reasonable steps to protect this information from misuse, loss, unauthorised access, modification, and disclosure. Moreover, the personal information code states that 'the university will ensure that personal information is kept for no longer than is necessary for the purposes for which it may lawfully be used and thereupon securely destroyed'. These codes, in addition to other privacy policy guidelines, can be found on the university's website.

4.4.4 Data Analysis

According to Richards and Morse (2012), interviews are ‘normally audio recorded and transcribed in preparation for analysis’ (p. 127). The research data were collected through in-depth interviews with entrepreneurs from 20 startup firms in Singapore, Australia, and NZ. The researcher audio-recorded the interviews and took handwritten notes from each interview.

The interviews were conducted in English. The researcher simplified the questions by rephrasing them when the interviewees experienced confusion. This approach enabled interviewees to freely share their opinions, which resulted in in-depth and extensive information. The researcher then transcribed all interviews from audio recordings and notes taken during the interviews. By doing so, the researcher adhered to Lapadat and Lindsay (1999), who argued that transcribing by researchers enables their ‘interpretive thinking that is needed to make sense of the data’ (p. 82).

A) Transcription Process

The audio-recorded interviews lasted for 50 to 90 minutes. The transcription and validation approaches took approximately two months. The transcribed interviews were between seven and 14 pages long. Once finalised, the transcriptions were confirmed and verified by the supervisor. This validation ensured that all audio-recorded forms were coordinated with the transcription version. This validation offered additional benefits to the researcher because it indicated several English and clerical mistakes that were then amended. This preliminary phase of amendments to the transcribed scripts alleviated the researcher's work in the analysis with the support of NVivo 12 Plus software because it enabled the researcher to determine the appropriate concepts and themes.

B) Memo-Writing

In the field of qualitative research, the concept of memo writing is often employed to record the observations and experiences of researchers (Ezzy, 2013). The idea behind memo writing is to describe the observations and experiences of the researcher while capturing the essence of the concept (Strauss & Corbin, 1998). The researcher decided to use memo writing to

record the observations and experiences of the participants as he performed the interview. The researcher used a formal memo-writing format to record his notes. Memos were initially written at the start of the study and continued until the findings chapter was complete. The study used memos to record ideas on new categories, secret codes, and the relationships between them. Given that notes were taken at the time, they were typed or handwritten and recorded as they occurred. During the data analysis and generation of results, the researcher used a memo in which he noted events and actions that helped him.

C) Thematic Analysis and Coding

Once the interviews were transcribed, the researcher determined useful themes for coding and thematic analysis of transcripts. Boyatzis (1998) stated that thematic analysis is 'a process for encoding qualitative information' in which 'the coding requires an explicit code' (p. 4). Boyatzis described explicit code as 'a list of themes; a complex model with themes, indicators and qualifications that are causally related, or something in between these two forms' (p. 4). Boyatzis described in more detail that themes are 'a pattern in the information that at minimum describes and organises the possible observations and at maximum interprets aspects of the phenomenon' (p. 4).

Thematic analysis is an approach for categorising, investigating, and reporting forms (themes) in data. It systematically describes and organises a dataset. Further, it is a direct procedure of qualitative analysis, specifically one that does not need the described theoretical and technical comprehension of discourse and content analysis (Braun & Clarke, 2006). Furthermore, Lapadat (2013) defined thematic analysis as:

> A systematic approach to the analysis of qualitative data that involves identifying themes or patterns of cultural meaning; coding and classifying data, usually textual, according to themes; and interpreting the resulting thematic structures by seeking commonalities, relationships, overarching patterns, theoretical constructs, or explanatory principles' (p. 926).

Themes are normally inductively developed from general information or deductively developed from theory and previous research (Boyatzis, 1998). In this study, I first inductively generated themes and subthemes from the analysis of the transcripts by using

coding. These broad themes, developed using an inductive approach, allowed us to present the research findings from the dominant, significant, or frequent themes from raw information without the restrictions imposed by structured methodologies.

Thematic analysis is a categorising strategy. Ayres (2008) stated that thematic coding is a data reduction and analysis strategy by which data are segmented, categorised, summarised, and reconstructed in a way that captures the important concepts within a data set' (p. 867). Researchers typically start with a list of anticipated or known themes found in the data. Researchers must consider the relationships among these categories. Ayres elaborated that 'data that have been decontextualised through coding retain their connection to their sources' (p. 868). The researcher identified themes and subthemes and coded them from the transcripts. The researcher labelled the themes and subthemes according to the main research questions or themes.

Braun and Clarke (2006) argued that six steps were involved in the thematic analysis. The steps taken by the researcher for qualitative data analysis are illustrated in accordance with those proposed by Braun and Clarke. The components of reliability and validity were considered in the analysis. The process of collecting and analysing qualitative data is essentially a collaborative process (Lune and Berg, 2017). Data analysis normally started during the data collection phase, when the interviews were conducted. The first data analysis phase started immediately after each interview, in which the researcher paid attention to what had been taped. This helped establish the significant elements and assist in improving the interview technique for subsequent interviews. Eisenhardt (1989) recommended that the analysis of data should be conducted after each interview.

The next phase involved transcribing the interviews. It is important to transcribe the interviews because this is instrumental in making knowledgeable decisions about the text, especially given that punctuation can change the meaning of a sentence. Janghorban et al. (2014) suggested that a transcribed interview not only omits distortions, oversights, condensation, developments and other alterations of data that typically occur in written comments but also provides an unbiased foundation for evaluating the capability of interview data in terms of interview performance. McMillan and Schumacher (2010) stated that the use

of recorded data is a strategy that increases validity in a qualitative research model. Doing so offers more knowledge of the data than acquiring it by simply reading the transcript. According to Robbins and Coulter (2007), by writing out the interview, the researcher can generate ideas about the data and differentiate the important concepts, events, and themes that emerged in the interview.

The third phase of qualitative data analysis included the procedure for writing the interview texts. Although it is a time-consuming process (Gibbs, 2018), for this study, I wrote out all the interview transcripts myself. Robbins and Coulter (2007) suggested that doing so improves the researcher's knowledge about the significant points and their meanings. Consequently, while writing the transcripts of each interview, comments were occasionally made when valuable concepts, events, or themes appeared in the interviews. Further, Lamnek (1988) stated that transcribing data allows researchers to 'clean' the transcript by erasing contradictions and errors.

The fourth phase of qualitative analysis was a detailed examination of the interview data. To complete this task, the scholar listened to and reviewed all recorded interviews and created definitive comparisons between the transcripts. Ponterotto (2005) emphasised that this process is critical for ensuring the precision of the interview data and strengthening its reliability. Significant themes were obtained from the interview data and then identified and improved in accordance with previous studies. Uncoded data can be subjected to precise testing, from which categories are developed to separate emerging themes: participants' backgrounds, EO, EO dimensions, factors influencing EO, creativity, factors influencing creativity, and factors influencing tech startups, among others. Other relevant themes may have emerged from these interviews.

The fifth phase related the themes to the descriptions. For data analysis, two types of coding (a priori coding and inductive coding) were obtained. A priori coding refers to codes that were developed before testing the interview data. Inductive coding concerns the codes that were advanced by the scholar during an examination of the interview data. Miles and Huberman (1994) stated that inductive codes are, in effect, post-data coding and allow the researcher to retain the variety and perspective of the data, thus allowing the data to 'speak

for itself' and codes and categories to emerge naturally. These were in accordance with the participants' statements that would be appropriate for the themes or subthemes of this study.

In the final phase of the analysis, the researcher continually revisited and compared the transcripts with the developed themes, ensuring that no significant insights or patterns were missed as new themes emerged. Patton and Patton (2002) suggested that a qualitative analyst must repeatedly review data to observe whether the categories, constructs, interpretations, and clarifications make sense. This makes it possible to search for 'uncertain data' on specific themes (Creswell, 1998). Data were analysed using thematic analysis involving multiple stages of coding from the initial conceptual stage to derive key themes (Braun & Clarke, 2006).

D) Analysis Process Using NVivo

Once the interviews were transcribed, the researcher imported the transcriptions in Microsoft Word format into NVivo 12 Plus software. No pictures, audio, videos or literature reviews were imported to be employed in the analysis. Only transcribed interviews from participants were used in the coding process. Twelve items were coded as major themes that incorporated the subthemes. Moreover, 90 memos were noted for the child nodes and the coded parents. These memos formed definitions for each coded item in accordance with the participants' perspectives and a few direct quotations from participants.

E) Coding Approach and Levels of Coding

In qualitative research, coding is the process of categorising and organising data to identify patterns, themes, and relationships within the data (Braun & Clarke, 2006). In this study, I used a thematic analysis approach to code and analyse the data collected from semi-structured interviews. Thematic analysis involved identifying and analysing patterns and themes in the data to gain insights into the research questions.

In the current study, I used a multilevel coding approach that involved coding data at various levels of abstraction. The following are the levels of coding used in this study:

1. Initial coding: This is the first level of coding, which involves identifying and labelling words or phrases in the data that are relevant to the research questions (Braun & Clarke, 2006). I used this level of coding to identify and label various aspects of the data related to creativity and EO.
2. Descriptive coding: This level of coding involves creating more detailed and specific labels for the initial codes (Braun & Clarke, 2006). I used this level of coding to provide more detailed descriptions of the various aspects of creativity and EO that were identified in the initial coding.
3. In-vivo coding: This level of coding involves using participants' own words or phrases to label the data (Pennacchio et al., 2003). I used this level of coding to identify and label the participants' own language and expressions related to creativity and EO.
4. Conceptual coding: This level of coding involves creating abstract labels for data that reflect broader themes or patterns (Braun & Clarke, 2012). I used this level of coding to identify broader themes and patterns related to creativity and EO that emerged from the data.

In general, I used a multilevel coding approach to ensure that the data were analysed at various levels of abstraction and to capture the complexity and nuances of the data. This approach allowed me to identify and analyse the various dimensions of EO, their relationship with creativity, and the ways in which these dimensions were demonstrated in the early stages of tech startups in uncertain environments. Overall, the multilevel coding approach used in this study allowed the author to analyse the data systematically and rigorously. This helped to ensure the credibility and reliability of the study's findings.

Additionally, the iterative coding process across multiple interview transcripts underscores the significance of inductive analysis, which allows for the emergence of salient discovery themes directly from qualitative data rather than relying on predetermined theoretical constructs. This approach is well suited to the study's phenomenological foundations, which aim to describe entrepreneurs' lived experiences in launching tech ventures. By allowing central concepts to emerge from founders' narratives, this methodology prioritises their perspectives over external models, thereby enhancing the credibility of the research and

reducing the potential for researcher bias. Ultimately, inductive, founder-centred analysis facilitates the development of robust theoretical directions that are grounded in the phenomenon under investigation.

4.4.5 Data Analysis Techniques

Qualitative analysis was performed to reveal the meaning contained in the acquired data. The first hurdle for the researcher was to consider the data. In general, qualitative techniques generate a large amount of raw data, which are then organised and condensed to determine their meaning (Marshall & Rossman, 2014).

In this study, several techniques were applied to interpret the data and generate themes related to the study questions. I used a variety of qualitative methods to analyse the data. I began by reviewing responses and identifying recurring themes. Next, I compared the themes with the original research questions to determine whether the data were relevant. Finally, I analysed the text of each response to identify the most relevant themes and record their definitions. In brief, two major techniques were applied in the current study, which are outlined as follows:

A) Clustering

Clustering is a data analysis method that groups similar observations into clusters or groups according to their similarities (Gibbs 2018). I used cluster analysis to group similar responses related to creativity, orientation, and uncertainty navigation in line with the core research questions. In particular, a hierarchical clustering algorithm was used to aggregate participant responses based on similarities in keywords, concepts, and codes tied to creativity manifestations, EO dimensions, and uncertainty navigation approaches. This enabled clusters of responses regarding how creativity is associated with strategic orientation (RQ1), how founders demonstrate creativity when engaging in uncertainty (RQ2), and what creative and entrepreneurial behaviours manifest in nascent ventures (RQ3).

The multilayered grouping facilitated distilling patterns related to the research questions on founder creativity, orientation, and uncertainty management. Overall, the clustering technique was aligned with the exploratory goals of the study and supported a participant-centric inductive analytical lens.

The ‘single-link’ clustering technique was used to group responses using the same theme in the data. Using this technique, a single response is linked to another response that has the same theme. Diagramming is an extension of clustering. The advantage of diagramming is that it provides an overview of these relationships. In this study, clustering was performed using a diagramming and mapping technique in NVivo 12 Plus software.

B) Comparative Analysis

In the concept development process, a constant comparative method was used to illustrate the similarities and differences between incidents (Ezzy, 2013; Strauss & Corbin, 1998). A constant comparative analysis was employed to categorise concepts from the data under the categories of higher-order elements (Strauss & Corbin, 1998). The constant comparative method is a comparison of one case to another case, which is then used to develop a category. For example, in the present study, the response of a participant was categorised as a category of higher-order elements. The constant comparative method was applied by comparing participants’ responses to other responses in the study. This process was used to illustrate the similarities and differences in the responses of participants. A constant comparative analysis technique was used in this study to compare participants’ opinions, agreements and disagreements on specific points.

4.5 Trustworthiness of Study

In this study, I used a qualitative approach to explore the perceptions of entrepreneurs. The term trustworthiness in qualitative research is a counterpart of validity in quantitative research. The term validity describes the accuracy of a measurement and is one of the core principles of the scientific method (Price et al., 2015). The term validity is also used to define the trustworthiness of a study, as in the current study, in which we used a qualitative approach to explore the perceptions of entrepreneurs.

Yardley (2015) argued that the quantitative criteria employed to evaluate qualitative research are incorrect. As a result, trustworthiness is crucial for evaluating qualitative researchers (Braun and Clarke, 2006). Its significance also stems from the fact that it gives researchers a chance to highlight the benefits of qualitative expression independently of the criteria used

in the context of quantitative research. The following sections highlight the reasons for the trustworthiness of the current study.

4.5.1 Credibility

According to Stenbacka (2001), good validity requires good interaction with respondents because the goal of qualitative studies is to understand individuals' realities according to their experiences. Credibility is the qualitative equivalent of validity in a quantitative study and is used in qualitative research. Credibility is the extent to which a researcher can be trusted to interpret the data and provide valid interpretations. Credibility is also referred to as 'researcher credibility'. Credibility is a complex concept that cannot be fully captured using a single definition. To be considered credible, a researcher must demonstrate a range of characteristics, including trustworthiness, rigour and responsiveness to the context (J. K. Smith & Heshusius, 1986).

To achieve a high degree of consistency and trustworthiness, I used a qualitative paradigm, data collection, analysis methods, and an appropriate sample of participants. Furthermore, I openly recognised and reflected on my own beliefs and biases throughout the research process. Throughout the data collection and interpretation stages, I was mindful of these beliefs and biases, ensuring that they influenced neither the formulation of the questions nor the development of the theoretical concepts. An approach to data collection and analysis known as triangulation is used in qualitative research. Triangulation aims to understand the phenomenon under study by combining multiple research methods. Credibility was addressed through member checking, triangulation of startup sectors, and a thick description. This approach is primarily used to collect and analyse data, although it can sometimes be applied to sources as well (Rothbauer, 2008). This study ensured data validity by adopting four credibility criteria, which are discussed as follows:

- Sources of triangulation: Data were collected from various industries and fields of tech startups, such as biotechnology, gaming, and AI. Various data sources support the validity of the study.
- Semi-structured in-depth interviews: Through this method, interviewees were encouraged to discuss their beliefs, experiences, and perceptions of creativity and EO

management within companies. The aim was to understand the strategies they used for management and to delve deeper into their perspectives.

- Using probes: Researchers use probes to enhance the quality of information obtained from respondents and to motivate them to produce additional information by clarifying the issues under study. To clarify the data series, I repeated the information gathered and their interpretations to the participants.
- Using qualitative analysis software: I was able to demonstrate the study's integrity, robustness and trustworthiness by using qualitative software NVivo 12 Plus.

4.5.2 Transferability

According to qualitative studies, transferability is equivalent to the concept of generalisation in quantitative studies. Unlike generalisation, transferability refers to the ability of qualitative researchers to transfer their findings to other contexts or settings. This ability is often associated with the ability to generalise the results of a particular study to other settings. Transferability is often used in discussions on the replicability of qualitative research, which refers to the ability of a study to be repeated in other settings or contexts. According to Given and Saumure (2008), a qualitative study's value is not related to how widely it can be applied but to the extent to which others can identify relevant contexts to apply the findings. This study covered tech startup entrepreneurs across a variety of fields and three countries within its scope to ensure the generalisability of the findings. Furthermore, the researcher provided a comprehensive description of the study, which should help readers decide whether it is applicable in different contexts. Theoretical generalisation, rather than population generalisation, was considered in the current investigation because of its qualitative nature.

4.5.3 Subjectivity

In contrast to objectivity, subjectivity refers to an individual's feelings, views or preferences. I explicitly avoided being subjective throughout the research process because subjectivity can influence how data are analysed in qualitative investigations (Siegesmund, 2008). To address subjectivity, I took steps to ensure transparency and reflexivity throughout the research process. This involves researchers acknowledging their own biases, assumptions, and values and being transparent about their research design, methods, and data analysis. I

also took steps to ensure the trustworthiness and credibility of the findings using multiple data sources, engaging in member checking, and providing descriptions of the research context and participants.

In terms of maintaining an independent view, While I was actively involved in the research, I consistently strived to maintain an objective distance from participants, ensuring that my perspective remained impartial and critical. For example, I used open-ended questions to encourage participants to share their experiences and perspectives and to avoid leading or suggestive questions that could bias the data.

4.5.4 Dependability

Dependability in qualitative research is the ability to achieve a high degree of consistency in the collected data, which yields a high-quality interpretation of the findings (Guest et al., 2012). Dependability is a key component of reliability because it provides a framework for ensuring the reliability of the data. Increasing the dependability of qualitative data is a challenging task; however, there are several ways to improve the quality of data without sacrificing richness and depth (Golafshani, 2003). Various measures were implemented to improve the dependability of the data and ensure consistency in the data collection and analysis processes. For example, the study used a well-defined interview protocol to ensure that all participants were asked the same set of questions in the same manner. I also used NVivo 12 Plus software, which was designed for qualitative data analysis, to help me systematically organise and analyse the data. In addition, I conducted peer debriefing and member checking to ensure that the data were accurate and reliable.

4.6 Researcher Role

The researcher's role in this study was similar to that described by Lincoln and Denzin (2003). In this study, I acted as a human instrument for data collection and conducted semi-structured interviews using thematic analysis. As the sole researcher, I recognise that my business education background has shaped my perspectives. To manage bias, I engaged in reflexive memo writing and took an iterative approach. Accordingly, I have described the relevant aspects of myself, including any biases, assumptions, expectations, and experiences

that were necessary to qualify my ability to conduct the study (Greenbank, 2003). To delve deeper into the insights shared during the interviews. I asked probing questions, listened to, thought about, and asked more probing questions. This enabled me to identify themes and patterns in the data, using ideas and theories from various sources. I also acknowledged potential biases and reflected on the ways that my own experiences and assumptions may have influenced the research process.

In general, my role as a researcher involved several key activities, including:

1. Conducting a literature review to identify gaps in knowledge and develop research questions or hypotheses
2. Designing and developing a research methodology and data collection tools
3. Collecting and analysing data using a qualitative method
4. Interpreting and reporting the results of research studies
5. Ensuring ethical principles were upheld, including obtaining informed consent from participants and protecting their privacy and confidentiality
6. Communicating the research findings through publications, presentations or other means
7. Collaboration with other researchers or stakeholders to advance research in the field.

Given the global health problems, I changed my research method from traditional in-person interviews to virtual interviews using platforms such as Zoom. Although this may seem to be a compromise, conducting interviews in a virtual environment offers numerous advantages, such as flexibility in scheduling and the ability to overcome geographic barriers. Given this flexibility, it was possible to interview entrepreneurs from Singapore, Australia, and NZ, which greatly expanded the scope of the study.

However, there are also some obstacles to using virtual interviews that could have altered the data that was obtained. For example, technical issues, such as poor Internet connection, software glitches, and device malfunctions, could disrupt the interview process and affect the quality of responses. In addition, the loss of physical presence can affect the relationship between the interviewer and interviewee, compromising the depth and quality of responses. Despite these obstacles, the idea of using virtual interviews in qualitative research is not new.

Researchers have successfully conducted qualitative interviews using methods such as Skype and Zoom (Janghorban et al., 2014). As a result, a growing body of literature has identified ways to mitigate these issues and effectively use these tools.

This shift from traditional face-to-face interviews to virtual interviews was not only a response to an unexpected global disaster but also a testament to the adaptability and resilience of the research community. This experience provides great insight into the possibilities and challenges of virtual qualitative research and contributes to the ongoing discussion on this emerging methodological approach.

4.7 Research Ethics

Research ethics is a collection of practical and philosophical considerations generated by a researcher to ascertain the possible repercussions of a study involving participants (Steneck, 2006). Given that the current study aims to investigate the relationship between creativity and EO in the context of new ventures of tech startups at an early stage in Singapore, Australia, and NZ, informed consent and approval are the most crucial ethical concerns to address. In addition, confidentiality must be retained when dealing with participant protection and information. To be morally legitimate, informed consent must be informative and comprehensible.

Ethical approval was obtained from the Victoria University Human Research Ethics Committee for this study (Ethics approval number HRE21-004 on 2 February 2021; see Appendix 1). The committee assessed this study on its design, methodology, language, and content of the interview questions and protocol, participant recruitment, and any COVID-19 policies related to ethics. A consent form was collected from the participants involved in the study, and participants acknowledged that their participation was voluntary and that they could withdraw at any time. The participants were given contact information from the researcher and principal supervisor to report any issues regarding the study. The consent form for interview participants, letter of invitation, and information to interview participants are in Appendixes 3 and 4.

4.8 Chapter Summary

This chapter provides the research methodology and plan to answer the research questions developed for this thesis. It examined the various research paradigms and methodologies involved in research, specifically qualitative analysis. The advantages and significance of using the qualitative research method, choice and details of the sample, plans of the data analysis, and validity and reliability of the data are also discussed.

Chapter 5: Analysis and Findings

5.1 Introduction

This chapter presents the key findings that emerged from the thematic analysis of the interview data. It is organised by the research questions, covering the relationships between creativity and entrepreneurial orientation, strategies for managing creativity and entrepreneurial orientation during uncertainty and demonstrating these in early-stage entrepreneurs. Participant demographic information was provided at the outset to offer context. This chapter provides an in-depth analysis of the data and results of interviews conducted with tech startup founders across three distinct countries: Australia, NZ, and Singapore. A total of 20 entrepreneurs were interviewed. Five were from Singapore, six from NZ, and nine from Australia. NVivo 12 Plus software was used for the qualitative interviews, which allowed for comprehensive insight and identification of themes emerging from the experiences and perspectives of the participants.

To provide context for the experiences and perspectives of the interviewees, the chapter initially outlined the participants' information. Subsequently, this chapter is structured into three sections, each of which is centred on a specific aspect of the research questions. The first section delves into the relationship between creativity and Lumpkin and Dess's (1996) five dimensions of EO in tech startups. A thorough analysis of the ways in which creativity contributes to each dimension of EO was conducted, shedding deeper insight into the relationship between creativity and EO.

The second section of this chapter investigates how entrepreneurs engage in and manage creativity and EO during uncertain times. Insights and practices that enable successful startups to flourish are highlighted, shedding light on successful strategies and their supporting practices and providing a comprehensive understanding of such practices to define how successful startups adapt to an uncertain environment.

The third section explores the ways in which entrepreneurs demonstrate creativity and exhibit EO in the early stage of their tech startups, providing essential insights into the behaviour and practices that facilitate the development of these entrepreneurial skills, which are

particularly valuable to new entrepreneurs interested in honing these key traits. Finally, the chapter concludes with a summary of the overall analysis and the results.

5.2 Demographic Information of Entrepreneurs

Familiarity with the participants' backgrounds provided a better understanding of this study. Each entrepreneur's profile in this section includes the entrepreneur's gender and age at the business startup, education level and background, nature of the tech startup, and past work experiences. Table 5.1 presents the participants' information.

Table 5.1: Participants' Information

Entrepreneur ID	Gender	Age	Education Level	Education Background	Tech Sector	Pre-Entrepreneurial Expertise (Years)	Country
E0001	Male	35	Bachelor	Engineering	Gaming tech	10	Singapore
E0002	Male	28	Bachelor	Business	Fintech	5	Singapore
E0003	Male	24	Bachelor	Computer science	Blockchain	1	Singapore
E0004	Male	29	Bachelor	Engineering	Commercial	6	Singapore
E0005	Male	30	Bachelor	Business	Software	7	Singapore
E0006	Male	29	Bachelor	Art	Software	6	New Zealand
E0007	Male	28	Bachelor	Business	Prop tech	5	New Zealand
E0008	Male	38	Bachelor	Business	Fintech	13	New Zealand
E0009	Male	46	PhD	Computer science	AI	22	New Zealand
E0010	Male	59	PhD	Immunology	Biotech	33	New Zealand
E0011	Male	34	Bachelor	Engineering	MedTech	10	New Zealand
E0012	Male	25	Bachelor	Engineering	AI	2	New Zealand
E0013	Female	26	Bachelor	Business	Fintech	2	Australia
E0014	Male	31	Master	Business	Fintech	8	Australia
E0015	Male	29	Bachelor	Engineering	Software	6	Australia
E0016	Male	32	Bachelor	Business	Blockchain	10	Australia
E0017	Male	23	Bachelor	Engineering	Software	1	Australia
E0018	Female	36	Master	Engineering	Software	12	Australia

E0019	Male	31	Bachelor	Engineering	AI	8	Australia
E0020	Male	35	Bachelor	Computer science	Software	11	Australia

In summary, most of the participants were male, and two were female. The participants' ages when they started their businesses ranged from 23 to 59 years. In terms of education level, all participants held a university qualification and had at least a bachelor's degree. Their educational qualifications were based on various backgrounds, including engineering, business, computer science, art, and immunology. This shows that the research participants had strong academic backgrounds, and most were from the fields of engineering, business, and computer science.

In terms of their past experiences, all participants had work experience before their current tech startup firm, and all participants worked in the same field. Participants' pre-entrepreneurial expertise ranged from one to 33 years; therefore, some participants had limited work experience.

5.3 Presenting and Discussing Findings

By following a thematic analysis of participants' answers, the findings of this study are effectively displayed and discussed, providing a comprehensive understanding of the relationship between creativity and entrepreneurial orientation (EO) in tech startups. The initial data analysis was conducted without imposing the Lumpkin and Dess (1996) framework a priori to allow themes to emerge naturally from data. After several cycles of open coding, overarching themes were identified, which were then selectively coded and mapped to EO dimensions.

The presentation and discussion of the findings aim to highlight the inductively derived themes and subthemes while also reconciling them with the established EO theory. The key themes that surfaced depict the role of creativity in cultivating innovation, enabling proactive thinking, pushing boundaries through risk-taking, driving productive competitiveness, and supporting independent decision-making. The subthemes under each theme provided nuanced insights into entrepreneurs' perspectives.

By giving primacy to inductive findings, this mitigates potential bias and allows entrepreneurs' voices to shine through. Integration with Lumpkin and Dess's (1996)

framework comes after this initial exploration to show associations while still keeping the organic analysis process transparent. The participants' quotes and examples provided vivid support for the identified themes and subthemes. This presentation clarifies the relationship between creativity and key dimensions of EO in tech startups.

5.4 Creativity on Entrepreneurial Orientation Dimensions

To answer the first main question of my study, this section investigates the relationship between the creativity of entrepreneurs and their employees in the five dimensions of EO in tech startups in Australia, NZ, and Singapore. As expected from related literature, creativity sparks innovation, and entrepreneurial thinking can lead to increased business success (Thompson, 2021). This study is interested in how the relationship between creativity and EO can be translated into employees who are part of their own businesses. Therefore, I asked the participants several questions related to this topic to answer the enquiry and respond to this assumption. The next step was to synthesise their words according to the relationship between creativity and each EO dimension. Several themes emerged from the data analysis.

Five main themes were identified in accordance with the EO dimensions. As stated by the participants, the creativity of entrepreneurs and their employees is related to all EO dimensions. These relationships are discussed further in the subsections that follow. Table 5.2 presents a summary of the themes and subthemes of the relationship between creativity and the five EO dimensions that emerged from the interviews. Meanwhile, a discussion of these themes and subthemes is presented in detail in the subsections that follow.

Table 5.2: Thematic Analysis of Relationship Between Creativity and Entrepreneurial Orientation Dimensions

Summary of Findings and Themes	Subthemes
Support Innovation	Encouragement of new ideas
	Inspiring people and employees
	Cognitive flexibility
	Diversity of ideas from a diverse team
	Trust
	Learn and grow
Proactive Thinking	Alertness to opportunity
	Problem Sensitivity
	Continual growth and diversification
	One goal and multiple opportunities
	Opportunity through communication with clients
	Open-minded and adventurous
	Desire to be pioneers
Pushing Boundaries	Lessening the fear of failure
	Inspiring new ideas
	Increasing willingness to experiment
	Efficient risk assessment
Productive Competitiveness	Increased individual competitiveness
	Competition is less intimidating
	Quick response and aggressive attitude
Decision Independence	Reduced reliance on others
	Creating own ideas
	Feeling less in control

5.4.1 Support Innovation

The results of the data analysis show that individuals' creativity supports innovation within startups. In other words, startups are willing to take significant risks in pursuing opportunities, creativity, and peace of mind by creating a receptive culture to adopt and implement new ideas. According to the participants' answers, several subthemes related to supporting innovation were developed as follows:

1) Encouragement of New Ideas

When I asked interviewees about the relevance of creativity in innovation, their answers provided valuable insights into this relationship. Using an analysis of participants' answers means that creative leaders and employees create an atmosphere that encourages people to express their ideas without any fear of criticism. In this regard, one participant stated:

> In our company, we have a creative mindset, whether from leaders or employees; therefore, the company has an environment that encourages its employees to experiment with new ideas and take calculated risks. (E0020)

This point was echoed by the founder of a commercial tech startup:

> In our company, we prefer to have and develop creative team members who are more likely to promote and work to implement the team's ideas if they feel that the team fosters open and honest communication and knowledge sharing and encourages the development of new ideas and solutions. (E0004)

From these answers, it is clear that creative leaders and creative employees create an environment that encourages people to express their ideas without fear of criticism.

2) Inspiring People and Employees

The participants' answers indicated that leaders' creativity is essential for increasing innovation within startups. Creative leaders can spread creative culture within their companies, which can, in turn, inspire others to build new problem-solving techniques. To accomplish this, leaders can act as role models for behaving creatively. This theme was extracted from the participants' responses to the researcher's enquiries. Creative leaders see the possibility that others do not. They can also develop new strategies and approaches that can help companies to stay ahead of the competition. Consequently, they can create an innovative environment for their employees. By being creative, leaders can inspire others to do the same, leading to increased innovation in their organisations. For example, one interviewee stated:

> In my opinion, the perception of the entrepreneurial desirableness of employees may be influenced by entrepreneurial and creative role models. (E0003)

In addition to developing ideas for new products and improving internal processes, a creative mindset and culture inspire individuals to be creative in their marketing strategies. According to this analysis, creativity is essential to successful marketing campaigns. When creativity is used effectively, it can add a unique perspective to a product or service, making it more appealing to consumers. This can be achieved by providing opportunities for employees to experiment with new ideas and to create a supportive culture. In this regard, the founder of an AI company said:

> To serve our customers and thrive in the market, we try to create a creative climate that could involve setting up brainstorming sessions or encouraging employees to come up with new slogans or taglines. In addition, apply new marketing strategies rather than traditional ones. (E0019)

3) Cognitive Flexibility

The analysis of interviewees' data shows that creativity can enhance innovativeness when it is reflected in the ability to think differently and can easily break current modes of thinking. Therefore, it may require flexibility and empowerment at work when managers strive to make their creative ideas a reality. In conclusion, all these factors, creativity, thinking differently, breaking current modes of thinking, flexibility and empowerment, are essential for innovation success. One participant stated:

> When you are creative, you can come up with a large range of distinctive ideas because you can divert your attention from one situation to another to solve a problem. This means that you are capable of adapting quickly to new developments. (E0010)

The founder of a software provider company made a similar point when he said:

> To improve the efficiency and productivity of an organisation's activities, whether they are products or services, creative management is essential. A changing and complex environment has made creative management necessary in today's organisations, which require flexibility in the thinking mode. (E0005)

4) Diversity of Ideas from Diverse Team

According to the data analysis, creative startups usually hire diverse teams that have multiple viewpoints to enhance innovation in their organisation. In other words, creativity in individuals fosters creativity in the workplace, which in turn increases innovativeness through a variety of ideas. To have a creative team, it is vital to consider hiring individuals from various backgrounds and who have various viewpoints. For example, creative people may be better at developing new ideas if they have diverse experiences. This can be accomplished by including members of different ethnicities, ages, and genders in a team. Not only will this help promote creativity within the company, but it will also give employees a broader perspective on ways to solve problems and think outside the box. In this regard, one participant stated:

> In our company, mentality and culture focus on hiring diverse team members who can enrich the idea-generation process rather than hiring the same type of people. (E0007)

This was emphasised by the founder of the software provider startup when he said:

> Diversity of thought is crucial for building successful teams. Moreover, a company's hiring practices should include an assortment of races, genders, sexual orientations, geographic locations, and more. (E0005)

5) Trust

Data analysis unravelled a crucial element in the advancement of innovation: the establishment of trust within an organisation. When leaders display confidence and support for their employees, the latter are inclined to share their concepts and participate in the innovation process. This outcome is facilitated by fostering an environment of transparency and cooperation, which in turn promotes ingenuity and original thinking. One participant shared:

> In our company, trust is a fundamental value that we prioritise. When employees feel trusted and supported, they are inclined to share their ideas and contribute to the innovation process. This trust-based environment encourages creativity and fosters a culture of innovation within the organisation. (E0015)

The founder of a fintech firm emphasised the importance of trust, saying:

> Establishing trust among team members is crucial for fostering innovation. When employees feel that their ideas are valued and that they have the support of their leaders, they are more willing to take risks and think creatively, ultimately leading to greater innovation within the organisation. (E0002)

Thus, it is vital for tech startups to consider trust as an indispensable aspect of their success and incorporate policies and practices that foster an environment of trust among their team members. By doing so, they can establish a dynamic company culture that encourages innovation, promotes creativity, and ultimately enables them to achieve long-term objectives.

6) Learn and Grow

Data analysis revealed the relevance of continuous learning and progress. This extends beyond solely keeping up with contemporary trends or improving one's skill set and entails nurturing a mindset of exploration and readiness to undertake risks. By stimulating the workforce to learn from experiences, explore novel areas, and broaden their knowledge, organisations can effectively cultivate an atmosphere of innovation and adaptability that permeates across all levels. One participant shared:

> In our organisation, we emphasise the importance of continuous learning and growth. By providing opportunities for personal and professional development, we nurture a culture of innovation and adaptability that allows us to stay competitive in the market. (E001)

A founder of a fintech firm stressed the significance of learning and growth, saying:

> Continuous learning and growth are essential for driving innovativeness. When team members are committed to improving their skills and expanding their knowledge, they will be better able to generate creative ideas and contribute to innovation. In our company, we found that fostering a culture of learning and growth is instrumental in driving the development of innovative products and services. (E0014)

In conclusion, promoting a corporate culture of continual learning and personal or professional development is a prerequisite for startup companies operating in the tech industry. By prioritising the promotion of innovation and creativity while providing ample

opportunities for exploration, startups can nurture a dynamic environment that fosters success and growth for the firm as a whole.

Figure 5.1 depicts the central theme of support innovation and its subthemes, as drawn on the NVivo 12 Plus software.

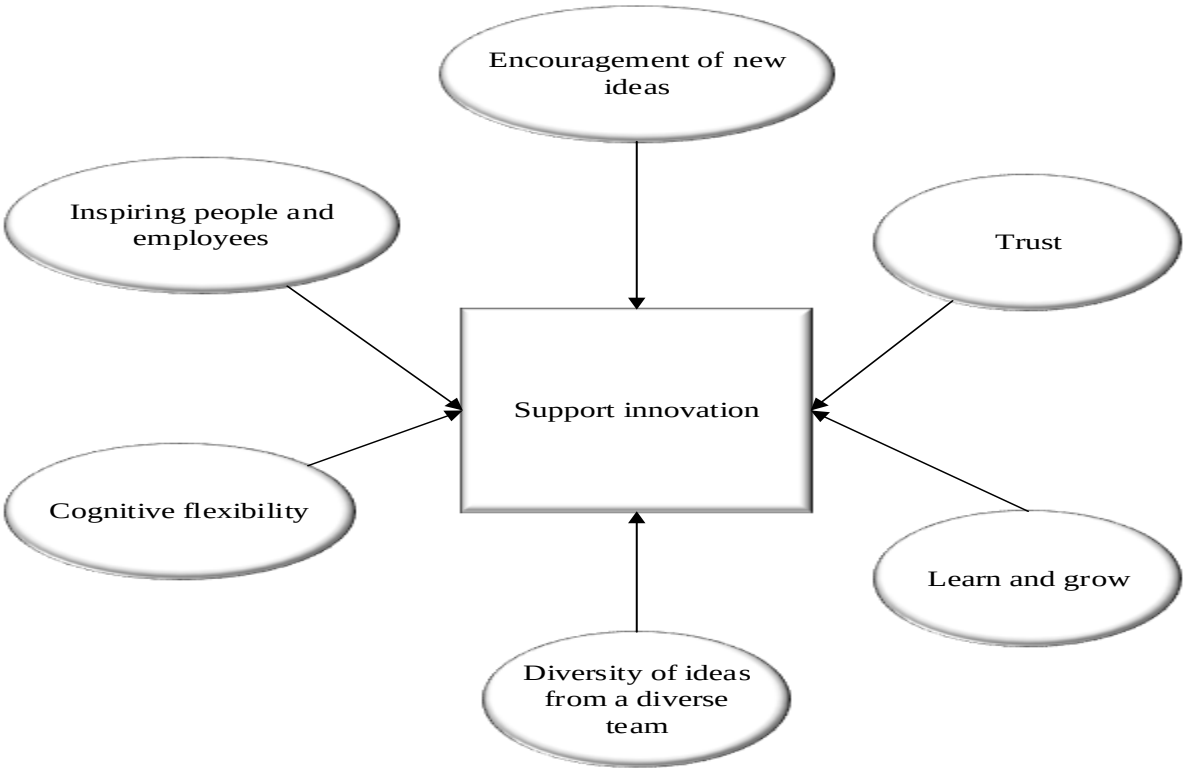

Figure 5.1: Relationship Between Creativity and Support Innovation

According to the aforementioned analysis, individual creativity supports innovation and, thus, plays a significant role in startups' success. This study aimed to explore the ways in which creativity contributes to innovativeness and identify the subthemes that underlie this relationship. It is evident that the supporting innovation theme and its subthemes are relevant to the EO dimension of innovativeness. The findings indicate that startups with higher levels of creativity are more likely to take significant risks, pursue opportunities, cultivate a culture of innovation, and embrace new ideas. Lumpkin and Dess's (1996) model provides a framework for understanding startup innovation. In conclusion, the empirical finding that creativity enables and shapes innovation mirrors Lumpkin's dimensions. Both this organic theme and Lumpkin's model place innovativeness at the core of long-term organizational

success. Lumpkin and Dess's (1996) model and the identified subthemes are summarised in Table 5.3.

Table 5.3*:* Alignment of Creativity Subthemes and Lumpkin and Dess's (1996) Entrepreneurial Orientation Model for Startup Innovativeness

Subtheme	Alignment with Lumpkin and Dess's Model Innovativeness Dimension
Encouragement of new ideas	Fostering a culture that promotes and embraces new ideas
Inspiring people and employees	Leadership behaviour that inspires creativity and innovation
Cognitive flexibility	Flexibility in thinking and adapting to new developments
Diversity of ideas from a diverse team	Embracing diverse viewpoints and experiences for innovative ideas
Trust	Establishing a trust to foster a culture of innovation
Learn and grow	Continuous learning and personal or professional development

Table 5.3 shows the clear one-to-one mapping between the components of Supporting Innovation and Innovativeness, as conceptualised by Lumpkin and Dess (1996). This reconciliation revealed strong theoretical connectivity and validation. As such, Table 5.3 illustrates the alignment between creativity and innovativeness in startups, as outlined in Lumpkin and Dess's (1996) EO model. The identified subthemes, including the encouragement of new ideas, inspiring people and employees, cognitive flexibility, diversity of ideas from a diverse team, trust, and emphasis on learning and growth, all contribute to enhancing innovativeness within startups. Lumpkin and Dess's model emphasises the importance of fostering a culture of innovation, inspiring and empowering employees, thinking flexibly, embracing diverse perspectives and establishing trust. Thus, creativity is crucial in promoting EO, specifically a dimension that Lumpkin delineated as innovativeness.

5.4.2 Proactive Thinking

This analysis aimed to investigate the relationship between creativity and proactiveness within startups. The primary goal was to identify the extent to which creativity fostered proactive thinking in these businesses by analysing the collected data. The research outcomes revealed that startups with an increased level of creativity tend to be more involved with their surroundings. Consequently, they generate new and innovative ideas, resulting in heightened proactive thinking. To put it simply, this study emphasises that creativity plays a critical role in shaping the proactive thinking of startups. The gathered data indicate that creative thinking and proactive thinking are closely intertwined concepts, and one influences the other. In essence, proactive thinking can be enhanced by increasing the number of subthemes as follows:

1) Alertness to Opportunity

Using evidence from participants, the analysis indicates that more creative people are more alert to opportunities and tend to be more proactive in their thinking. This may lead them to take advantage of new opportunities as they arise, thus resulting in greater success. In addition, being creative may help individuals see problems from a different perspective and devise solutions that no one else has thought of. This result was reflected in the interviewees' answers. For example, one participant stated:

> In our company, if you are not creative, you are just not going to make it. Creativity is like the lifeblood of our company. Creative people in a company are more alert to opportunities from different perspectives. (E0008)

The director of the gaming company said:

> As a result of major changes in society, technology, and regulations, entrepreneurial opportunities often arise in situations where market demands are not fully met or resources are not fully utilised. Entrepreneurs' ability to recognise opportunities in the market is enabled by their awareness of such changes. Their entrepreneurial advantage lies in their ability to be creative in identifying opportunities, along with their cognitive capabilities to value them and the prior information they possess. (E0001)

However, one participant disagreed that creativity necessarily translates to proactive behaviour, noting that:

> "Ideas without execution are meaningless." (E0017)

This contrasts with the view that creativity sparks alertness to opportunities, suggesting that, while creativity generates ideas, proactive thinking requires taking action to realise them.

In conclusion, creativity is an indispensable element for heightening an individual's proactive thinking. This unparalleled capability to detect and exploit opportunities distinguishes creatives in the entrepreneurial arena, frequently paving the way for greater levels of triumph.

2) Problem Sensitivity

Related to the prior theme, problem sensitivity is also a characteristic of creative people that contributes to the proactive ability of startups in Singapore and NZ. They can see opportunities and problems in their surroundings and address these issues proactively, which is essential for any startup.

In this regard, the founder of the software company stated:

> I consider myself a creative person who is able to see problems that others miss because I am sensitive to seeing the smallest details. (E0006)

This was echoed by the founder of an AI and digital human company who stated:

> A creative person is capable of identifying and analysing any problem in its entirety, in addition to inventing scientific solutions to problems in the workplace and organisation. (E0009)

Participants' responses strongly reinforced the theme of problem sensitivity. Problem-sensitive individuals possess a heightened sense of awareness and attentiveness towards their environment, which allows them to detect subtle cues that often go unnoticed by others. Those who possess this quality demonstrate great foresight in anticipating challenges and upcoming changes, thus enabling them to take necessary measures proactively. Startups that possess this quality are better equipped to navigate new challenges and emerging situations

with ease while fostering an innovative workplace culture. Given their ability to anticipate ever-changing market trends, these startups can proactively take necessary measures to stay ahead of the competition.

In conclusion, problem sensitivity is a crucial trait that creative individuals must possess, specifically in startups. This quality enables individuals to identify potential obstacles and opportunities effectively and empowers them to take proactive steps towards overcoming any issue.

3) Continual Growth and Diversification

According to the findings, creativity is behind the tendency of entrepreneurs to continuously search for growth by diversifying their market activities, such as penetrating untapped markets. Insightful and forward-thinking entrepreneurs constantly seek new opportunities to grow their businesses by diversifying their market activities. This allows them to tap into new markets and expand their customer base, which leads to increased profits. By being creative and open-minded, entrepreneurs can achieve success in any industry.

In this regard, one participant stated:

> Technology firms may pursue growth in new markets to diversify their offerings and increase their customer bases. This is because new markets offer a greater potential for innovation and growth. (E0011)

This also resonated with the founder of commercial and industrial facilities, who said:

> By expanding into new markets, technology firms can tap into untapped opportunities, which can lead to increased profits. Moreover, by attracting new customers, technology firms can develop stronger relationships with clients and build trust that can be leveraged for additional business partnerships or acquisition opportunities. (E0004)

Being creative and open-minded is essential for all entrepreneurs. By pursuing growth in new markets, technology firms can draw on untapped opportunities, which can lead to increased profits. Moreover, by attracting new customers, technology firms can develop stronger

relationships with clients and build trust that can be used for additional business partnerships or acquisition opportunities.

4) One Goal and Multiple Opportunities

The findings revealed that creative entrepreneurs set goals and seek to achieve them by exploring multiple options and perspectives. Creative entrepreneurs are more likely to explore external opportunities, develop and test their ideas, use others' ideas and perspectives, and adapt quickly to change. One participant said:

> Creativity means that you set general goals but, at the same time, try to seek opportunities and options available to reach them without being biased toward your ideas. If one focuses on only one idea, one may not be able to develop viable solutions. (E0008)

A founder of the enterprise software resonated with this and stated:

> Creativity refers to the exploration of options and perspectives. It is about having a primary goal but being willing to explore the multiple opportunities and options available to reach that goal. When focusing primarily on one idea, one may not even consider other viable options. When you embrace creativity, you are more likely to explore multiple options and perspectives, develop and test your ideas, use ideas and perspectives from others, and quickly adapt to new information and circumstances. (E0015)

5) Opportunity Through Communication With Clients

According to the interview analysis, startups should go to customers to build creative ideas according to their needs. In other words, businesses should strive to develop good communication with clients to proactively articulate their needs, expectations, and challenges. In this context, one participant commented:

> It is imperative to solicit customer needs and resolve problems, even if they do not mention them themselves. (E0007)

The founder of a blockchain and software-as-a-service company echoed this and stressed that creativity stipulates establishing good communication channels with customers to address their needs and expectations. He said:

> For us to understand the needs and expectations of our customers as entrepreneurs, we must be open and proactive in communicating with them. In addition to selling, we should pay close attention to what our clients want and need. (E0003)

In conclusion, startups should visit their customers to obtain a better understanding of their needs and expectations. This will help them to develop creative solutions that meet their clients' needs. Furthermore, good communication is essential for establishing trust and fostering strong relationships with customers. This ultimately results in greater success for startups.

Additionally, the proactive theme connects to the competitive aggressiveness dimension, as creativity-fuelled alertness to opportunities often underpins rapid market responses and the desire to lead the emergence of new solutions. Hence, proactive thinking aligns closely with the "quick response and aggressive attitude" facet of competitiveness.

6) Open Minded and Adventurous

The analysis revealed that creative people have a more open mindset, which allows them to be more adventurous and innovative. Entrepreneurs must be receptive to new opportunities. In this sense, startups must be creative and open to learning from various solutions worldwide.

In this sense, one participant stated:

> There are many successful entrepreneurs all over the world who do a lot with few resources. Creative people can also learn from others and gain new ideas by learning from their business models. (E0004)

The founder of a biotechnology company emphasised this point when he said:

> Entrepreneurs can experiment with and take risks, be creative and unorthodox, and challenge conventional thinking. They can also cultivate a sense of curiosity and openness to new ideas, which helps them think outside the box. (E0010)

Thus, creativity is a key attribute of entrepreneurs. They need to be open-minded and adventurous to think outside the box and devise innovative solutions. This is essential if they

wish to succeed in the business world. It is important to note that creativity not only comes from within but can also be learned from others. Thus, openness to learning and experimentation are two other important traits for successful entrepreneurs.

7) Desire to be Pioneers

According to the analysis, creativity can enhance the proactive thinking of startups by increasing their desire to become pioneers in their industry. In other words, creativity can lead to proactive behaviour that results in businesses being the first to market new products or services. In turn, this can give startups a competitive advantage and improve their chances of success. In this regard, one participant said:

> When you are creative, you do not just sit there and wait for things to happen. You go and discover things that are going on and things that are happening in the world. You become an explorer, you go and find those things out, and you try to become a pioneer in your field. That is what drives you; that is, what makes you want to create. (E0012)

The director of an enterprise software company resonated with this and stated:

> Creativity is about being a pioneer in your field: going out there and finding out what other people do not know. It is about being a trailblazer, and you want to be the best at what you do. If you are not, you want to find out what is going on in your field and be the first to do something. (E0017)

In summary, pioneers constantly seek new ideas, approaches, and solutions due to their desire to be pioneers. Engaging in uncharted domains and shaping the future of their industries is indicative of their forward-thinking mindset.

Figure 5.2 depicts the central theme of proactive thinking and its subthemes, as drawn on the NVivo 12 Plus software.

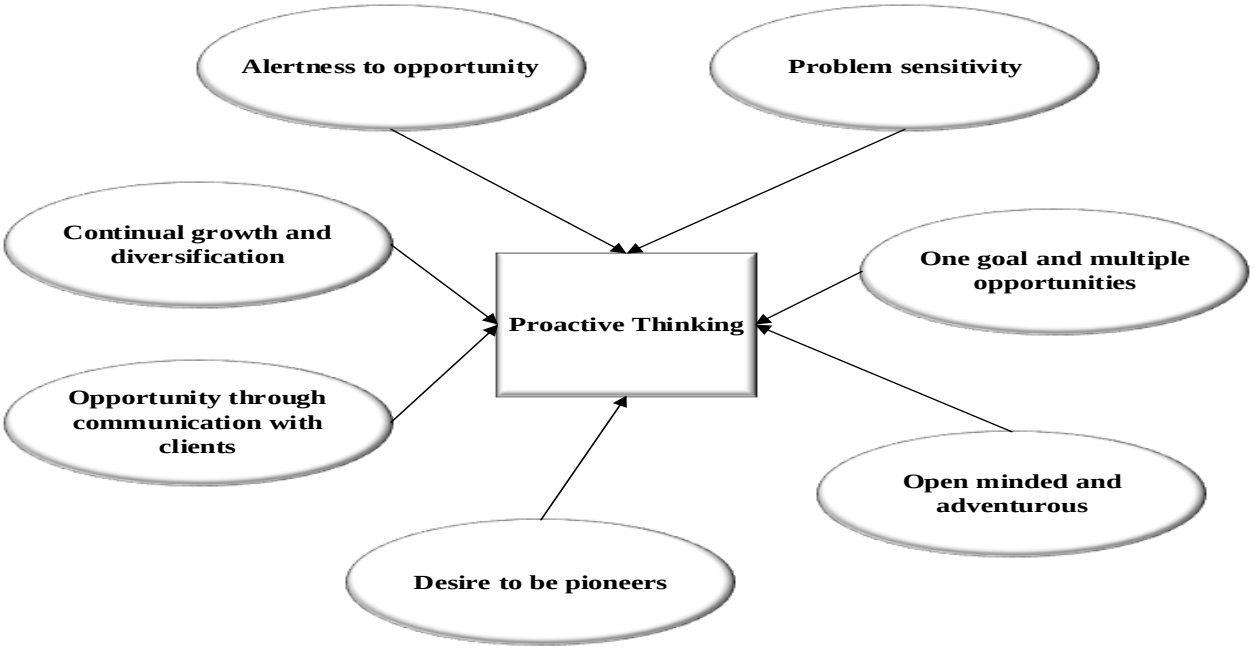

Figure 5.2: Relationship Between Creativity and Proactive Thinking

The aforementioned analysis explored the relationship between creativity and proactive thinking in startups. The goal was to inductively uncover how creativity manifests in forward-looking behaviours without imposing the proactiveness dimension a priori. After several iterations, subthemes emerged, showing the role of creativity, flexible thinking, a growth mindset, and creativity in enabling alertness to opportunities. These data were then organically developed and linked to the proactiveness domain conceptualised in Lumpkin and Dess's (1996) model. As shown in Table 5.4, creativity influences companies' proactive thinking by making them more aware of their surroundings, eager to pivot tactics, and focused on growth. Essentially, empirical themes closely correlate with Lumpkin's concept of proactiveness in terms of seeking development and improvement.

Furthermore, the one-to-one mapping between subthemes and proactiveness characteristics strengthens this connection. For example, Lumpkin's focus on researching new markets is mirrored by the company's constant development and diversification. The desire to become a pioneer emphasises the evolution of industry. This demonstrates the high level of theoretical consistency.

Table 5.4*:* Alignment of Creativity Subthemes and Lumpkin and Dess's (1996) Entrepreneurial Orientation Model for Startup Proactiveness

Subtheme	Alignment with Lumpkin and Dess's Proactiveness Dimension
Alertness to opportunity	Actively seeking and capitalising on opportunities in the external environment.
Problem Sensitivity	Proactively identifying and addressing challenges before they become significant obstacles.
Continual growth and diversification	A forward-looking approach to business growth and exploring diverse markets
One goal and multiple opportunities	Focused pursuit of opportunities while considering multiple possibilities and perspectives
Opportunity through communication with clients	Engaging with clients to identify opportunities and tailor products and services to their needs
Open-minded and adventurous	Embracing novelty, challenging conventional thinking and exploring new opportunities
Desire to be a pioneer	Aspiring to be industry leaders, setting new standards and shaping the future of the industry

Table 5.4 illustrates the link between creativity and the dimensions of proactiveness in startups, aligning them with Lumpkin and Dess's (1996) EO model. The identified subthemes, including alertness to opportunity, problem sensitivity, continual growth and diversification, one goal and multiple opportunities, opportunity through communication with clients, open-mindedness, an adventurous mindset, and a desire to be pioneers, all contribute to enhancing proactiveness within startups. According to Lumpkin's model, these subthemes emphasise the active search for and capitalisation of opportunities, addressing challenges proactively, seeking growth and diversification, considering multiple options, engaging with clients, embracing innovation and novelty, and aiming to lead the industry. According to Lumpkin's model, creativity plays a key role in driving EO's proactiveness dimension.

5.4.3 Pushing Boundaries

The data analysis findings indicate that creative people are more willing to push boundaries and take risks than less creative people. This likely stems from creative individuals' tendency

to continually explore new possibilities, which leads them to venture beyond their ordinary limits. Additionally, highly creative people may have greater confidence in their abilities, which allows them to push boundaries and accept risks in actualising innovative ideas. Ultimately, creativity correlates with and enables boundary-pushing behaviour, spanning increased risk-taking, confronting fears, and pursuing bolder innovations.

Using thematic analysis of participants' answers, several subthemes emerged regarding how creativity can increase startups' willingness to take risks.

1) Lessening the Fear of Failure

For most participants, creativity reduced entrepreneurs' fear of failure. Creativity was found to help entrepreneurs feel more confident in their ideas and have less fear of failure. This confidence can lead to greater innovation and risk-taking. One interviewee commented on this, saying:

> Creativity can be a powerful tool for overcoming fear and helping people overcome new challenges. (E0008)

Similarly, the founder of an AI and digital human company stated:

> I think that creativity lessens the fear of failure because it teaches people not to be afraid of trying new things and not to be afraid of making mistakes. It also helps people to learn from their mistakes and grow from them. (E0009)

It was evident from the participants' answers that the subtheme of lessening fear of failure resonated strongly with them. They stressed the importance of embracing failure as a learning opportunity, cultivating a positive attitude towards failure, and fostering resilience in the face of setbacks. Their perspectives underscored their commitment to creating an environment that supported risk-taking and learning from failure.

2***) Inspiring New Ideas***

Interviewees emphasised that creative people's willingness to take risks and think of new ideas motivates others to follow suit. Consequently, creative ideas have become increasingly diverse. One participant stated this when he said:

> Creativity culture in our company is essential to inspire others to express their ideas without any fear. (E0010)

The founder of the AI company declared:

> Taking risks is a part of creativity in our company, as we believe that entrepreneurship does not exist in safe environments, as new ideas always come from people's confidence in accepting their ideas. (E0019)

This quotation from a participant on the importance of creative culture in their company emphasises that creativity is not only encouraged but also necessary for success. Risk-taking and new ideas are vital ingredients in any business, and it can be difficult to find spaces in which these qualities are encouraged and rewarded. This also reinforces the idea that companies that have creative cultures are more likely to thrive in an environment of constant innovation.

3) Increased Willingness to Experiment

According to these findings, creative people are more open to new opportunities than non-creative people, and creative individuals are more willing to take risks than non-creative individuals. Consequently, they may be more inclined to try new things and take on new challenges in order to increase their companies' competitive advantage. One interviewee said:

> We tend to hire people and encourage them to express their creative ideas, as we believe that creativity will unleash their potential and desire to experiment with new challenges. (E0006)

This also resonated with the director of the fintech company, who said:

> Since we believe creativity unlocks potential and inspires the desire to take on new challenges, we encourage them to express their creative ideas and encounter challenges without fear of failure. (E0002)

Therefore, by fostering a culture that encourages creativity and experimentation, organisations can increase employees' willingness to take risks and innovate to improve the quality of their products and services. This may result in increased customer satisfaction and, consequently, increased business profitability.

4) Efficient Risk Assessment

According to the data analysis, entrepreneurship demands risk-taking to achieve the zenith of triumph. Despite this convention, adopting a cautious and astute approach that prioritises efficient risk assessment to curb potential damage is wise. Invaluable insights from successful entrepreneurs and business experts have helped to explain plausible strategies for effectively managing high-risk situations. To limit risks in uncertain ventures, meticulous research on potential investments is crucial. In addition, business strategists should keep their plans sufficiently flexible to embrace the intrinsic unpredictability of a dynamic market. Equally, they must remain aware of the legal implications of averting unintended consequences.

Entrepreneurs must be mindful of the probable downsides associated with any decisions or ideas that carry a certain level of risk. This helps them maintain a balanced approach by reducing the risk of incurring significant losses while pursuing opportunities that could boost their ventures. Even though taking risks is vital to entrepreneurs, creative people consider the lowest possible level of risk to avoid any ramifications. This was reflected in the answers of participants who advocated tips to avoid high levels of risk, including researching potential investments carefully, always being prepared to pivot if necessary, and being aware of the legal implications of any business decisions made.

Overall, entrepreneurs must be cognisant of the potential downsides of any decision that they make or risky ideas to minimise potential losses while still taking advantage of opportunities. For example, one participant stated:

> Before I invest in anything, I spend hours, if not days, conducting extensive research. Therefore, it is critical to eliminate as much confusion as possible. If the market shifts or new information becomes available, I am ready to pivot. And, of course, each legal decision, no matter how minor, necessitates a conversation with my legal counsel to ensure that I am on sound ground. (E0009)

This was echoed by the founder of the gaming company when he said:

> I always conduct a ton of research before any investment, and if there is any doubt in my mind, I will not invest. Additionally, I am always prepared to pivot my business if necessary. Lastly, I make sure to consult with an attorney whenever making any legal decisions that could have ramifications for my business. (E0001)

The insights from participants highlight practical tips to mitigate high levels of risks, such as thorough research on potential investments, readiness to pivot business strategies when necessary, and awareness of legal implications. Entrepreneurs must remain mindful of the potential downsides associated with decisions and risky ideas to minimise losses while capitalising on opportunities. Figure 5.3 depicts the central theme of pushing boundaries and its subthemes, as drawn on the NVivo 12 Plus software.

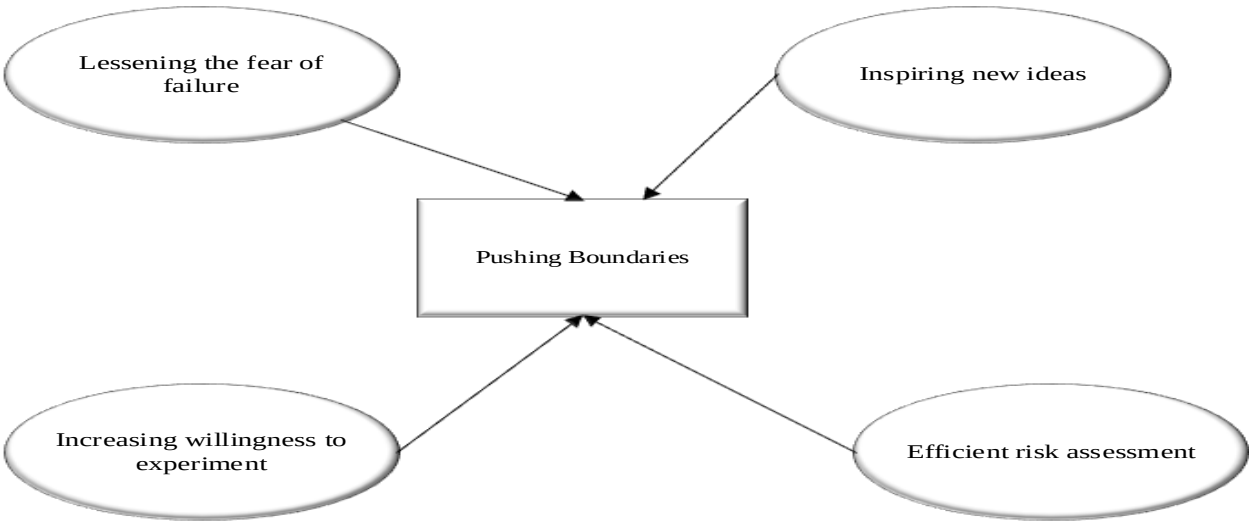

Figure 5.3: Relationship Between Creativity and Pushing Boundaries

After this exploratory coding, the themes were mapped to theory, showing that creative startups are bolder in venturing beyond limits than less creative ones. This empirical finding

aligns with Lumpkin's conceptualisation of risk-taking as a willingness to commit significant resources to opportunities featuring a reasonable chance of costly failure.

Furthermore, the one-to-one mapping between the subthemes and facets of risk-taking reinforces this connectivity. For instance, the increased willingness to experiment mirrors Lumpkin's emphasis on promoting a culture of experimentation. An efficient risk assessment reflects a focus on balanced risk analysis. This reveals strong theoretical consistency.

In summary, the interplay between the inductively derived Pushing Boundaries theme and Lumpkin's theorised risk-taking dimension demonstrates the integral role of creativity in shaping startups' willingness to venture beyond existing limits and undertake bold initiatives featuring uncertain outcomes.

Table 5.5 highlights the derived subthemes and their alignment with the influence of creativity on startups' proclivity to push boundaries and take risks:

Table 5.5*:* Alignment of Creativity Subthemes and Lumpkin and Dess's (1996) Entrepreneurial Orientation Model for Startup Risk-Taking

Subtheme	Alignment with Lumpkin and Dess's Model Risk-Taking Dimension
Lessening the fear of failure	Fostering confidence and resilience in the face of failure
Inspiring new ideas	Encouraging a culture of innovation and diverse thinking
Increased willingness to experiment	Promoting a culture of experimentation and risk-taking
Efficient risk assessment	Integrating systematic risk evaluation and mitigation

According to Table 5.5, creativity enhances startups' risk-taking dimensions. They are more likely to take risks because of their ability to reduce their fear of failure, inspire new ideas, encourage experimentation, and conduct efficient risk assessments. Startups can foster a culture that encourages innovation, diversifies solutions, promotes experimentation and mitigates potential risks by embracing these subthemes. Consequently, creativity drives startups' risk-taking behaviour. Creativity profoundly affects startups' willingness to take

risks. Owing to reduced fear of failure, inspiration for new ideas, an increased willingness to experiment and efficient risk assessments, creative individuals are more likely to take risks. Startups can develop a risk-taking culture, boost their competitive edge and enhance their chances of long-term success by understanding and leveraging these subthemes.

5.4.4 Productive Competitiveness

Using this analysis, it was found that creativity enhances productive competitiveness in the marketplace. Using this analysis, it was found that creativity enhances productive competitiveness in the marketplace. This suggests that creative individuals have a greater inclination and capacity for fruitful competition tied to business growth and advancement. This is fuelled by heightened self-understanding of strengths and weaknesses. Additionally, highly creative entrepreneurs have less fear of competition and a greater willingness to calculate risk-taking in ambitious pursuits. The findings were divided into two related subthemes.

1) Increased Individual Competitiveness

The analysis showed that creativity enhances an individual's tendency to compete fiercely to win. In competitive environments, individuals are more likely to be creative because they are forced to develop solutions quickly and independently. This increased creativity can lead to the discovery of new concepts or inventions, which in turn can improve a person's productivity or ability to compete in their field. In addition, competition can encourage individuals to push themselves beyond their normal limits to win. By doing so, they may be better prepared to overcome future challenges. Overall, competition led to increased creativity and productivity.

In this regard, one participant said:

> Competition forces one to be more creative. In a sense, this makes you want to stand out and be different. (E0004)

A founder of an enterprise software company added that creative people always seek to win a competition when he said:

> In our company, the people who are really creative always try to find a way to win. They are always looking for new ways to do things and are better than everyone else. (E0017)

Conversely, one participant argued that:

> Competition can sometimes dampen creativity by creating pressure. (E0015)

This presents an alternative perspective to the notion that creativity enables greater individual competitiveness, suggesting that competition may also carry the risk of undermining creative expression if excessive pressure ensues.

Thus, increased individual competitiveness can lead to the discovery of new concepts or inventions, which in turn can improve a person's productivity or ability to compete in their field. In addition, competition can encourage individuals to push themselves beyond their normal limits to win. By doing so, they may be better prepared to overcome future challenges.

2) Competition is Less Intimate

In addition to increasing people's competitiveness, the findings indicate that creativity helps entrepreneurs be less afraid of competition. These findings suggest that creativity may help entrepreneurs become less fearful of competition and, as a result, are more likely to engage in competitive behaviour. For example, one participant remarked:

> Creativity is key to success in any field. It is how you differentiate yourself from your competition and how you can come up with new and innovative ideas that will help you stand out. This is why I think creativity is so important. It helps you overcome any fear of competition, which can ultimately lead to greater success. (E0002)

Similarly, the founder of a biotechnology company stated:

> Fear of competition dissipates when you have an innovative idea. You feel like you have something that nobody else has, and as a result, you become more confident in your ability to succeed. (E0010)

The findings suggest that creativity may be an important tool for entrepreneurs facing competition. In addition, they suggested that creativity can help reduce the fear of

competition, leading to tremendous success. It is likely that these findings will have a positive impact on entrepreneurs because they may help them become more competitive and successful in their endeavours.

Additionally, creativity's role in reducing the intimidation of competition has meaningful connections with proactive thinking. By lessening barriers to engaging in competitive dynamics, the resultant openness and drive to excel can translate into enhanced motivation and future-oriented behaviours centred on staying ahead.

3) Quick Responses and Aggressive Attitudes

In addition to these two themes, the creativity of tech startups can accelerate their responses to competitors' movements in the market. Furthermore, a creative person has an aggressive attitude, which provides a significant advantage in-game competition. One interviewee commented:

> The creativity of our team has allowed us to rapidly respond to changes in the market and develop new products. (E0015)

The director of the Fintech company echoed this by saying:

> Creativity leads to possessing an aggressive attitude towards competition. This allows startups to move quickly into the market and develop new products. (E0013)

Therefore, creativity can lead to an increase in innovation because it leads to a rapid response to changes in the market and the development of new products. Furthermore, this aggressive attitude provides a great advantage over competitors. Therefore, creativity is essential for tech startups that want to maintain their position in the market. Figure 5.4 depicts the central theme of productive competitiveness and its subthemes, as drawn on the NVivo 12 Plus software.

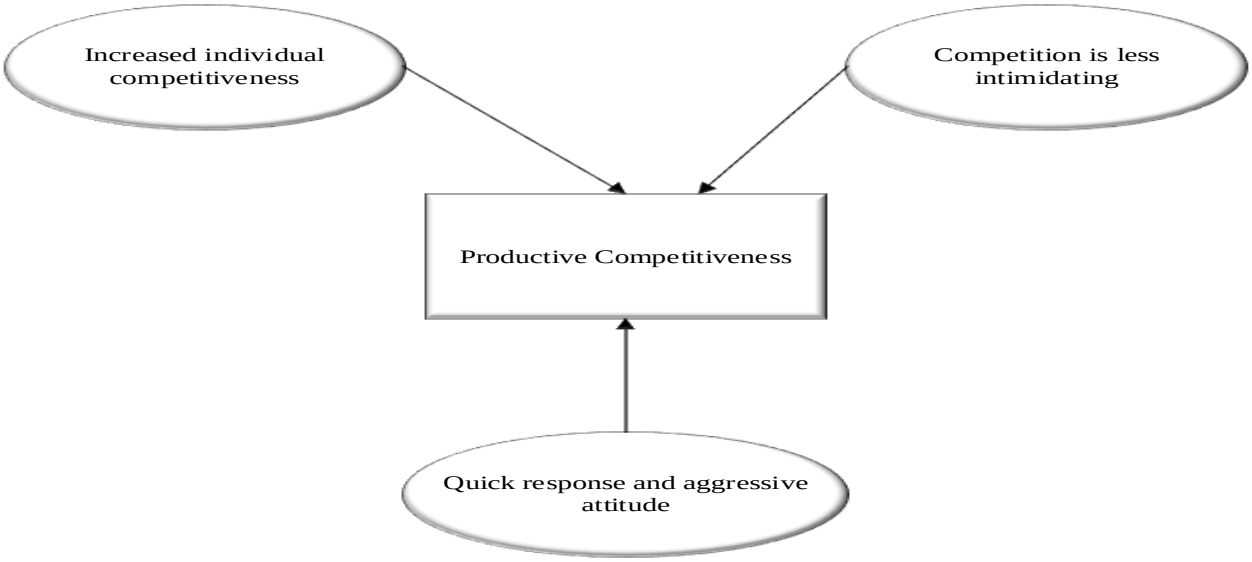

Figure 2: Relationship Between Creativity and Productive Competitiveness

This section explores the relationship between creativity and productivity competitiveness. Creativity increases an individual's inclination and capacity for fruitful competition, tied to ambition and advancement. Creative people demonstrate a greater willingness to engage in vigorous contests, resulting in higher productivity and innovation. In addition, creativity sharpens the self-understanding of capabilities and strengths, conferring a competitive edge.

The analysis revealed that creativity and competitiveness have a significant interplay connected by key subthemes. This empirical finding mirrors Lumpkin's conception of competitive aggressiveness as the intensity of a firm's efforts to outperform its industry rivals. Furthermore, mapping between the subthemes and facets of competitiveness reinforced this alignment. For instance, increased individual competitiveness reflects Lumpkin's emphasis on fostering a competitive spirit. A quick response and aggressive attitude are connected to facilitate rapid responses. This reveals strong theoretical consistency.

In essence, both the inductively derived concept of Productive Competitiveness and Lumpkin's model highlights that creativity markedly affects startups' capacity for fruitful competition that is tied to ambitious advancement. By understanding these subthemes, startups can build a culture that achieves competitiveness and long-term success and sustains a competitive edge.

Table 5.6*:* Alignment of Creativity Subthemes and Lumpkin and Dess's (1996) Entrepreneurial Orientation Model for Startup Competitive Aggressiveness

Subtheme	Alignment with Lumpkin and Dess's Model Competitive Aggressiveness Dimension
Increased individual competitiveness	Fostering a competitive spirit and drive for excellence
Competition is less intimidating.	Encouraging confidence and overcoming fear of competition
Quick response and aggressive attitude	Facilitating rapid responses and demonstrating assertiveness

Using the identified subthemes, Table 5.6 illustrates the relationship between creativity and competitive aggressiveness in startups. Increasing individual competitiveness, reducing competitive intimidation, and responding quickly with an aggressive attitude contribute to increasing competitive aggressiveness in startups. Creative individuals excel in a competitive environment because they promote competitiveness, overcome fear, respond quickly to market changes, and demonstrate assertiveness. To succeed in the marketplace, startups must be creative and achieve competitive aggressiveness. Therefore, creativity is critical for startups to increase their competitiveness. Creative individuals are more likely to be competitive, overcome their fear of competition, and respond quickly to market dynamics. When startups understand and embrace these subthemes, they can build a culture that fosters competitiveness, instils confidence, and enables a rapid response to maintain competitive advantage. Startups' competitiveness and long-term success are largely determined by their creativity.

5.4.5 Decision Independence

From the analysis, the findings show creativity bolsters decision independence. In other words, it empowers people to exercise autonomous thinking and devise original ideas, culminating in heightened self-direction. In turn, independence fosters creativity by conferring latitude for exploring new possibilities. Creativity and autonomy have bidirectional effects, with each fuelling the other. Ultimately, it enables people to become more self-reliant and freely expressive.

1) Reduced Reliance on Others

Participants' words revealed that creativity contributes to the ability of entrepreneurs to be less dependent on others to create new ideas or carry out their business plans. Creativity helps entrepreneurs become self-reliant and resourceful in their business ventures.

Related to this, one interviewee said:

> Successful entrepreneurs have the desire to be autonomous. They can act independently of others, make their own decisions, love problem-solving and successfully complete their tasks on their own. (E0003)

In addition, the founder of the blockchain company remarked:

> Creativity can help entrepreneurs find new ways to do things, think outside the box, and develop innovative solutions. This could lead to increased self-reliance and independence, which are key traits of successful entrepreneurs. (E0008)

Thus, emphasising the value of creativity promotes decision independence and self-reliance, which enables entrepreneurs to reduce their reliance on others. Creativity shapes an entrepreneurial mindset and fortifies independence. Moreover, it cultivates a sense of autonomy, which is the cornerstone of successful entrepreneurship. These insights highlight the significance of fostering a creative atmosphere and empowering entrepreneurs to be innovative and resourceful while championing individual responsibility and self-sufficiency within the entrepreneurial landscape.

2) Create Own Ideas

The findings revealed that creativity helps entrepreneurs develop their own ideas and pursue their goals. In line with this, one participant commented:

> Creativity is a key component of entrepreneurship. I think it helps you come up with new ideas and pursue your own goals. (E0005)

A founder of the Medtech and AI companies said:

> Having autonomy and freedom from constraints are two of the most important factors for people to achieve their goals. For entrepreneurs, creativity is closely tied to autonomy and freedom, which helps individuals develop new ideas. (E0011)

Furthermore, creativity enables independent thinking to be interlinked with the innovation dimensions. Generating novel ideas often requires individual creativity and self-direction, with reduced reliance on external views. Hence, autonomy facilitated through creativity is closely tied to startup innovativeness.

3) Feel Less in Control

The analysis revealed that individuals' creativity enhances their sense of autonomy and diminishes their feelings of being controlled by external factors or people. In other words, the more that an individual can generate ideas and express themselves freely, the greater their level of autonomy. This is also true for entrepreneurs, who are better able to generate ideas and bring them to life when they are not restricted by others. This also improves productivity and quality of work.

In this regard, one participant stated:

> The more I express myself freely, the better I can do my job. It is also liberating to know that I am not restricted to what I can say and how often I can say it. It is great to be myself and not worry about how others might perceive me. I appreciate that I am able to be myself and do not worry about how others will perceive me. (E0015)

The founder of an enterprise software company said:

> When I am free to be myself, express myself, and not worry about how others might perceive me, I am able to be the best version of myself and the best version of my job. Being able to act without concern for how others will react is a wonderful feeling. Being allowed to express my true personality without fear of how others will react is a valuable gift. (E0017)

Thus, these insights reveal a dedication to fostering a culture that recognises the strength of collective intelligence, nurtures collaborative relationships, and embraces the benefits of sharing control and decision-making within the organisation. Figure 5.5 depicts the central theme of decision independence and its subthemes, as drawn on the NVivo 12 Plus software.

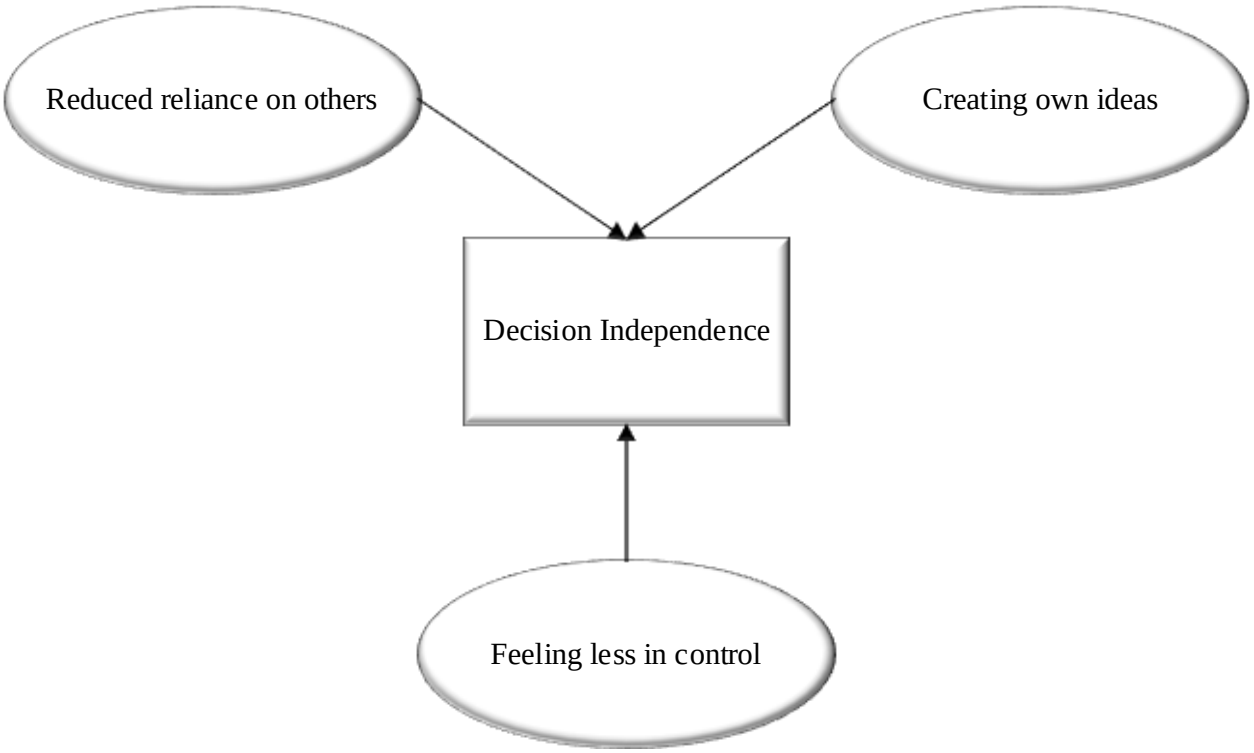

Figure 5.5: Relationship Between Creativity and Decision Independence

This empirical finding aligns with Lumpkin's conception of autonomy as an independent action undertaken by entrepreneurs or teams to create a business concept or vision. Furthermore, the mapping between the subthemes and facets of autonomy reinforces this connectivity. For instance, reduced reliance on others mirrors Lumpkin's emphasis on self-reliance and independence. Creating ideas reflects the focus on individual creativity and ownership. This reveals strong theoretical consistency. The analysis showed that creativity and autonomy were linked by three subthemes. As shown in Table 5.7, creativity influences autonomy in several ways.

Table 5.7*:* Alignment of Creativity Subthemes and Lumpkin and Dess's (1996) Entrepreneurial Orientation Model for Startup Autonomy

Subtheme	Alignment with Lumpkin and Dess's Model Autonomy Dimension
Reduced reliance on others	Fostering self-reliance, independence and personal empowerment
Create own ideas	Nurturing individual creativity, original thinking and ownership
Feel less in control.	Embracing uncertainty, trust in others and shared decision-making.

In Table 5.7, creativity is mapped to the dimensions of autonomy in addition to their subthemes. The subthemes of less dependence on others, developing one's own ideas, and feeling less in control contributed to achieving greater levels of autonomy. Creative organisations empower employees to be independent, encourage original thinking, and cultivate an environment that values autonomy and trust by emphasising the value of creativity. Creativity enables a culture of shared responsibility and decision-making, which serves as a catalyst for autonomy. Creativity plays a critical role in fostering autonomy. Organisations can foster autonomy, stimulate original thinking, and support shared decision-making to enable individuals to pursue their goals and have a sense of autonomy and determination. Autonomy and creativity are mutually reinforcing in that autonomy fosters and nurtures creativity. Organisations that seek to foster an environment of creativity and autonomy provide valuable guidance to help individuals thrive in their entrepreneurial pursuits, innovate, and meaningfully contribute.

5.5 Managing Entrepreneurial Orientation and Creativity in Uncertain Times

The second part of the analysis focuses on the second question, which explores the ways startups in Australia, NZ, and Singapore manage EO and creativity during uncertain times. In short, the findings reveal that countries' startups recognise the importance of EO and creativity in uncertain times and have developed strategies to manage them. They emphasise the need for employees to be creative and innovative and have created an environment that

encourages these behaviours. To achieve this, the findings of the analysis reveal that entrepreneurs adopt various strategies that are represented in four major subthemes: ready structure, ready culture, ready management and leadership and ready staff must be prepared. The following is a discussion that provides an in-depth understanding of these subthemes in accordance with the analysis of the interviews.

In Table 5.8, the selected themes and subthemes are concisely summarised to provide an overview of these techniques.

Table 5.8: Thematic Analysis of Management of Creativity and Entrepreneurial Orientation in Uncertain Times

Theme	Subtheme
Ready structure	Entrepreneurial mindsets
	Resilience
	Responsiveness
	Agility
	Pivoting
	Decentralised management
	Restructuring according to circumstances
	Digitisation of processes
Ready culture	Continuous learning organisations
	Strong engagement
	Supporting innovation
	Collaboration
	Nonlinear thinking
	Accepting complexity
Ready management and leadership	Transformational leadership skills
	Creative leadership
	Changing management styles
	Having new skills and tools
	Exploring novelty
	Building networks of entrepreneurship
	Persuasive vision
	Digital competence
Ready staff	Access to information and knowledge

	Strong human resource management practices
	Use of cross-training techniques
	Training and improvement of current skills
	Delegation of authority to employees
	Composing a diverse workgroup

5.5.1 Ready Structure

According to the analysis, the first main theme that emerged was ready structure. This means that companies must place a great deal of emphasis on their internal structures to deal with uncertain times. These structures should allow companies to react quickly and efficiently to change as well as track progress. Companies must be able to rapidly adapt to changes in the environment and have structures that can handle uncertainty. To manage this, the findings uncover the following strategies (subthemes) that startups apply to achieve this.

1) Entrepreneurial Mindset

According to most participants, uncertainty requires organisations to adopt an entrepreneurial mindset, which is typical of startups. However, managers have higher expectations and must respond more quickly to rapidly changing contexts. This finding implies that managers must adopt practices that promote entrepreneurship and creativity. This may include establishing an innovative management system that is highly responsive to a dynamic context in which individuals have the autonomy to make decisions and a structure that allows experimentation. In this regard, one participant stated:

> Creativity and entrepreneurship are essential to deal with uncertainty, as they allow organisations to be more agile and responsive to changing environments. (E0006)

The director of the AI company suggested the following:

> Managers need to foster an entrepreneurial mindset in their employees by providing them with the opportunity and support to experiment, take risks and innovate. (E00012)

In this type of environment, managers must provide employees with clear objectives and metrics to track their progress.

This was found in another participant's comments when he said:

> In uncertain times, a clear vision and performance indicators can help managers adopt an entrepreneurial mindset while taking control. (E0011)

The participants in this subtheme recognised the importance of developing entrepreneurial mindsets within their organisations. Through entrepreneurial mindsets, they aim to cultivate entrepreneurship, stimulate innovation, and capitalise on new opportunities. They were committed to nurturing an entrepreneurial culture within their organisations, enabling them to thrive in dynamic and uncertain business environments.

2) Resilience

To manage uncertain circumstances, it is important to build and ensure team resilience. A nimble team can better adapt to a changing market and become more flexible. Several social factors, including effective relationships and teamwork culture, may contribute to team resilience. Effective communication is critical to building resilience and team coordination. Although many tools can be used to build a resilient team, it is essential to remember that resilience is a process that requires time to develop. It is also vital to have a plan for when things go wrong so that the team can quickly bounce back. By taking these steps, teams can better manage uncertain situations and ensure that their operations run smoothly. In terms of this, one interviewee said:

> To ensure resilience in teams, leaders must be proactive in communicating with their team members. Leaders can also use planning tools to anticipate and address potential challenges. By doing so, leaders can help their team members stay focused and avoid disruptions caused by uncertainty. (E0003)

The director of the financial services company added:

> Team members must be able to work together and coordinate their activities to stay afloat. By having a clear plan in place, teams can minimise the chances of disruptions and keep their operations running smoothly. Make sure you have a well-thought-out plan so that your team knows what they are supposed to be doing at all times. (E0008)

In summary, participants' insights emphasise the importance of fostering an organisational culture that empowers individuals to embrace challenges, learn from mistakes, and emerge stronger and more adaptable. Thus, resilience is the key to managing uncertainty. By building and ensuring resilience in teams, leaders can help team members remain focused and avoid disruptions caused by uncertain conditions. By communicating with team members, leaders can help avoid disruptions and ensure smooth operation.

3) Responsiveness

According to the analysis, the ability to make fast and effective decisions or, in other words, 'responsiveness', is necessary to survive and succeed in today's fast-changing and extremely competitive environment. Thus, startups with embedded teams should respond quickly and appropriately to changes in their external environment. The findings assert that startups need to plan so that they can respond promptly to changes. In this regard, one participant noted:

> You have to be on your toes and constantly change the environment. If you get too comfortable, you will be left behind. (E0003)

The founder of the fintech company added:

> A rapid decision-making process is critical for startups because of the ever-changing and highly competitive environment in which they operate. Startups with embedded teams should be able to respond quickly and effectively to changes in their external environment. (E0002)

Thus, it can be inferred that the ability to respond quickly and effectively to changes in the external environment is a key attribute of startups. Therefore, companies should invest in strategies and processes that enable them to make quick decisions. Furthermore, the same strategies and processes should be regularly evaluated to ensure their effectiveness. In other words, responsiveness should not only be a priority for startups when making decisions but should also be monitored continuously so that any improvements can be made.

4) Agility

In accordance with this analysis, it is recommended that companies adopt an agile structure to better manage their uncertainty. This would allow for faster decision-making and better coordination among teams, which would help the company stay ahead of the competition. Additionally, agility encourages employees to be more innovative and flexible in their approaches to work. In short, an agile structure helps companies to adequately adapt to changes in the market while maintaining high levels of efficiency and productivity. In this sense, one participant commented:

> Agile structures help companies adapt to changes in their environment much more quickly. (E0001)

A founder of a PropTech company echoed this point and stated:

> An agile structure is fundamental for managing an uncertain environment. Companies should also focus on empowering employees and giving them the freedom to be innovative. This will help the company stay ahead of the competition. (E0007)

Their insights collectively reflect a commitment to fostering an agile organisational culture that enables organisations to flourish in unpredictable and complex environments, adapt to evolving customer needs, and achieve sustainable success. Thus, there was consensus among participants that an agile structure was beneficial in managing uncertainty. Considering this, companies should consider adopting such a structure to improve overall performance.

5) Pivoting

In addition to the aforementioned structural changes required to manage the inherited characteristics of an uncertain environment, the analysis reveals that startups should apply a pivoting structure. A pivoting structure allows startups to adapt their business models quickly and repeatedly in response to market changes.

A key observation of the analysis is that startups should apply a pivoting structure when faced with unexpected market changes. This includes changes in customer needs, competition, and

regulatory environment. By being agile and constantly adapting to their business models, startups can maintain a competitive edge and remain viable in an ever-changing environment.

For example, one interviewee said:

> One of the key pivots is to pivot the product side. When we started, we focused on building a product and targeting the enterprise market. However, as the market changed and we saw that customers wanted something more consumer-friendly, we quickly adapted by changing our focus to develop products for general consumers. This was a difficult pivot, but it paid off in terms of customer acquisition and growth. (E0010)

The founder of the commercial company added the following:

> A key success strategy for startups is to be agile and constantly adapt to their business model. When the market changes, it is important to pivot to stay competitive quickly. This is especially true in uncertain times, where [there is] constant customer needs and a competition shift. (E0004)

Their insights demonstrate a commitment to cultivating a culture of strategic agility, embracing change, and enabling organisations to navigate complexity and thrive in uncertain times. This pivoting allows startups to quickly and easily respond to the ever-changing demands of their customers. By quickly adapting their business models, startups can ensure that they remain viable in a rapidly changing market. This is particularly important in a rapidly changing environment in which unexpected changes can occur at any moment. By being agile, startups can keep up with these changes and maintain their competitive edge.

6) Decentralised Structure

In accordance with the analysis of participants' answers, the findings reveal that companies operating in uncertain environments must focus on capabilities-based mode management that emphasises emerging and spontaneous work coordination rather than command and control. In addition to allowing speed, decentralised approaches can lead to proactive and flexible actions that can deliver meaningful results. It was found that allowing delegation at the team level enables frontline workers to take the initiative and make decisions, which is beneficial in uncertain environments. Related to this, one participant remarked:

> I think the biggest challenge for companies operating in uncertain environments is to find ways to let people take the lead and not micromanage them. This can be done through delegation of tasks and responsibilities, as well as by giving employees feedback on their work. (E0006)

The founder of the blockchain company remarked:

> In a rapidly changing world, it is more important than ever to trust and [have] confidence in people closest to an action. This means empowering them to make decisions and take the initiative, which can be done through the delegation of tasks and responsibilities, as well as giving employees feedback on their work. (E0003)

As a result of their insights, their organisations navigate uncertainty through empowerment, collaboration, and distributed decision-making. Based on these findings, we infer that a decentralised structure enables faster response times during uncertainty and promotes proactive and flexible actions. In addition, it was found that allowing delegation at the team level enables frontline workers to take the initiative and make decisions, which is beneficial. Overall, these findings suggest that a decentralised structure is essential for dealing with uncertain times.

7) Restructuring According to Circumstances

The analysis indicates that adopting a new structure during uncertainty is essential for success in the market, but this structure must be changed according to the changing circumstances. This study found that the most successful companies during uncertainty are those that can quickly adapt their structures to changing conditions. This ability to change quickly is essential because the market is constantly changing, and new competitors are constantly emerging. Furthermore, the study found that a company's structure must be tailored to its specific industry and market conditions. No one-size-fits-all approach works in today's volatile business environment. One participant commented:

> Companies that can adapt their structure to changing conditions and stay ahead of the competition will succeed in today's competitive marketplace. (E0003)

The founder of an AI and a digital human company echoed this when he declared:

> The best way to succeed during uncertainty is to be flexible and adaptive. You have to constantly change with the times, and you cannot be afraid of change. (E0009)

Companies that could quickly adapt their organizational structures to new circumstances were the most effective in this study. Owing to the constant evolution of the market and the proliferation of new competitors, a quick ability to adapt is essential. In addition, the study showed that business organisations need to adjust their organisational structures to meet the demands of the marketplace and sectors.

Additionally, the analysis indicated an association between structural flexibility and innovation. The ability to pivot and restructure connects closely with the startup innovativeness theme of "cognitive flexibility." Hence, structural agility enables startups to fluidly shift strategies to support continued creativity and innovation amid uncertainty.

8) Digitisation of Processes

In addition to the structural changes stated earlier, the analysis revealed that startups should digitise their internal and external processes to effectively manage uncertainty. This means that they should develop a system in which all processes are automated and tracked so that everyone in the company can always know what is happening and when. In addition, it is important to standardise these processes across organisations to improve communication and coordination. In line with this, one of the interviewees stated:

> There is a lot of discussion about standardising and automating processes, but we never do it. We are too busy trying to keep up with the latest things. The lack of standardisation across the organisation makes it difficult to manage information, track progress, and make decisions. (E0015)

However, the founder of the fintech company said:

> I think that what we need to do is to have all of our processes digitised. Thus, we know exactly what happens when everybody is on the same page. This would help us a lot. (E0014)

In conclusion, by focusing on the digitisation of processes, participants aimed to drive innovation and agility, improve responsiveness to customer needs, and gain a competitive edge in the digital landscape. In addition, their insights emphasise the importance of developing a digitally ready culture that embraces technological advances, promotes digital fluency, and allows organisations to thrive during uncertain times. Figure 5.6 illustrates the associations between the main theme, ready structure, and its subthemes.

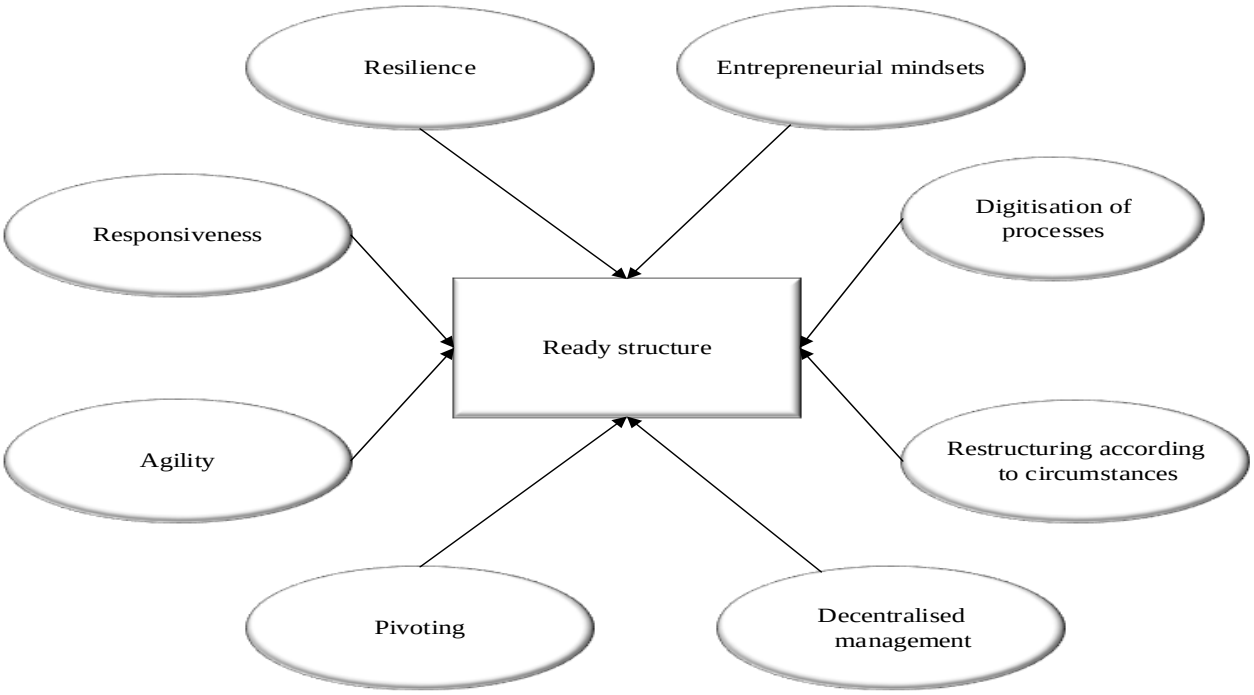

Figure 3: Ready Structure

The discussion of a ready structure during uncertain times closely aligns with Lumpkin's EO model and creative dimensions. The 'autonomy' subtheme of Lumpkin and Dess's (1996) model matches the 'decentralised structure' subtheme of uncertainty, which emphasises autonomy and encourages entrepreneurial thinking and creativity. Thus, EO's 'innovativeness' and 'risk-taking' match uncertainty's 'agility' and 'pivoting', respectively, which promotes an innovative environment and facilitates business model changes. In addition, EO's proactiveness complements uncertainty's responsiveness, which promotes agile decision-making. Uncertainty's 'resilience' and 'restructuring' align with the EO's 'competitive aggressiveness', which enhances adaptability to challenges and maintains competitive advantages. Table 5.9 illustrates this concisely.

Table 5.9: Relationship Between Entrepreneurial Orientation, Creativity and Ready Structure

Subtheme of Ready Structure	Managing Creativity and Entrepreneurial Orientation Through Structure
Entrepreneurial mindset	Fosters an entrepreneurial culture that encourages creativity
Resilience	Enables adaptive and resilient responses to uncertainty challenges
Responsiveness	Promotes agile decision-making and responsiveness to changes
Agility	Cultivates an innovative and flexible organisational environment
Pivoting	Facilitates iterative business model changes according to market shifts
Decentralised structure	Empowers individuals and teams to make autonomous decisions
Restructuring according to circumstances	Encourages adaptive restructuring according to market conditions
Digitisation of processes	Enhances operational efficiency and standardisation through technology

Thus, Lumpkin and Dess's (1996) EO model and the ready structure share key concepts that advocate an organisational strategy that is proactive, innovative, and resilient. These interconnected models highlight the importance of EO in developing a resilient and ready structure by including creativity during uncertain times.

5.5.2 Ready Culture

Similar to the structure, the analysis shows that startups should create a ready culture to manage an uncertain environment successfully. In other words, developing the necessary skills and attitudes to cope with all the changes in an uncertain world relies heavily on organisational culture. Startups must create a culture that supports and encourages continuous learning, engagement, creativity, and innovation. They also need to develop a collaborative environment in which employees are encouraged to think outside the box and take risks.

Finally, they must accept complexity as a normal part of their business. These subthemes are discussed in the following subsections:

1) Continuous Learning Organisations

The findings showed that when fast-changing environments become more uncertain, investing in establishing a learning culture is regarded as one of the best ways to navigate them. To survive and thrive, startups must be able to adapt to these dynamic conditions through continuous learning. According to the analysis, a learning culture can ultimately contribute to employees' learning faster, more effectively and more efficiently.

Moreover, the findings outline the importance of diversifying sources of learning, including colleagues, customers, and even competitors, and explain that gaining perspectives from co-workers, mentors, or industry experts can be beneficial in solving the complexities of uncertain environments.

In this sense, one participant said:

> It is not just about having the right tools and software but also about having a culture of learning. Organisations should invest in developing a learning culture to better navigate fast-changing environments. A learning culture can help employees learn faster and more effectively, contributing to their success in this increasingly complex environment. (E0011)

The founder of the financial service provider company added

> In an uncertain world, the ability to quickly learn is more important than ever. Those organisations that can create a culture of learning will be best placed to thrive in this environment. (E0008)

From these findings, it is evident that learning culture is a crucial factor in navigating uncertain environments. A learning culture can help employees learn more quickly and effectively, thus contributing to their success in this increasingly uncertain environment. Participants also highlighted the importance of having a diverse range of sources of learning because this enables employees to solve problems from different angles and perspectives. Furthermore, establishing a learning culture can help employees develop a sense of belonging

and connectedness, which is essential in a fast-changing environment. Overall, the findings underscore the importance of a learning culture in fast-changing environments and suggest that organisations should invest in establishing one if they want to thrive in these challenging conditions.

2) Engagement Culture

According to the analysis, participants focused their attention on ways to create an engaging culture. Engagement is measured by the degree to which employees are committed to the organisation and their willingness to exceed the call of duty. The findings indicate that, during uncertainty, an increase in employee engagement is beneficial for the development of fundamental capacities, including diverse perspectives, sensemaking, and practical flexibility, as well as being open to change, humility, and responsiveness. It is critical to invest time and effort in creating organisational cultures that engage people for these capabilities to be available at the organisational level. In line with this, one participant said:

> I think it is important to create a culture that engages employees because it allows them to be creative and to come up with new ideas. It also makes them more responsive to changes, which can be helpful in keeping the business afloat during difficult times. (E0001)

The founder of the financial service provider company said:

> I believe it is important to create an environment in which employees feel appreciated for their contributions because they will continue to give their best work if they feel like they are being valued. (E0008)

In summary, during uncertain times, entrepreneurs can enhance their company's resilience and adaptability by cultivating a culture in which employee engagement is highly valued and consistently prioritised to improve their company's resilience and adaptability.

3) Supporting Innovation

The analysis reveals that entrepreneurs in the three countries see a culture that supports innovation as crucial for them to overcome uncertainty. Culture should encourage risk-taking, tolerate failure, and reward innovation. Therefore, it is essential for companies to

foster a supportive work culture and provide adequate resources and support for the success of their entrepreneurs. In this sense, participants made the following comments.

One participant commented about risk-taking:

> Innovators are often willing to take risks because they believe that if they fail, it will ultimately be worth it. Therefore, team members should try new things and be creative in their work. (E0005)

A founder of a blockchain company asserted that the culture must be tolerant of failure:

> It is important that team members know that they will not be judged harshly if they make mistakes. In fact, failure can often be a necessary step in achieving success. (E0003)

Having an emphasis on innovation, participants were driven to continuously improve and develop breakthrough solutions, stay ahead of the competition through innovative products and services and cultivate adaptability and resilience to change. Together, they demonstrated a commitment to developing a culture that values and embraces innovation, resulting in organisations that can thrive during uncertainty by continuously adapting and finding better methods and solutions.

4) Collaboration

Another finding of the analysis is the culture that supports collaboration. Researchers have found that cultures that support collaboration are more likely to be successful. This culture places great value on working together and communicating with others. Collaboration can lead to better outcomes for organisations because it allows people to work together to create something new, innovative, or better. This type of creativity is often challenging to achieve on one's own; therefore, having a supportive culture that encourages collaboration is essential for success.

A supportive culture is vital for the success of any organisation. When collaboration is encouraged and valued, it leads to better outcomes for all involved.

In line with this, one participant said:

> A supportive culture is important for the success of any organisation. When collaboration is encouraged and valued, it leads to better outcomes for all involved. (E0004)

This was also asserted by the manager of the biotech startup, who stated:

> A supportive culture allows people to work together in a productive way, which ultimately leads to success for all involved. Organisations must create a climate in which collaboration is respected and encouraged to reach their goals successfully. (E0010)

According to the participants, the goal of collaboration is to enhance creativity and innovation through collective intelligence, improve decision-making by using diverse expertise, and drive organisational performance through effective teamwork. These findings suggest that cultures that support collaboration are more successful during times of uncertainty. This is because they allow people to work together productively and achieve their goals as a team. Organisations need to create a supportive culture to achieve success. By doing so, they are able to attract and retain the best employees and increase their chances of success.

5) Nonlinear Thinking

The analysis revealed that entrepreneurs should adopt a culture that supports nonlinear thinking during uncertainty. This means that they should not be afraid to try new things and conduct experiments using various strategies to discover what works best for their businesses. In addition, they should be open to change and willing to pivot when necessary to stay ahead of the competition.

In this regard, one participant said:

> It is important for entrepreneurs to have a culture that supports nonlinear thinking. This means not being afraid to try new things and experimenting with different strategies to find what works best for their businesses. (E0011)

Additionally, the founder of the Proptech company commented:

> Entrepreneurs should be able to think outside the box and come up with creative solutions to problems. They should also be flexible and willing to change their plans when necessary. (E0007)

In summary, entrepreneurs focus on nonlinear thinking to uncover innovative solutions to complex problems, identify new opportunities, and drive organisational agility and resilience. Therefore, a culture that supports nonlinear thinking is vital for entrepreneurs during uncertainty. This enables them to try new things and conduct experiments using various strategies, which can lead to success. In addition, being flexible and willing to change plans can help entrepreneurs stay ahead of the competition.

6) Accepting Complexity

Most participants agreed that a culture of accepting complexity is a rule of thumb in uncertain environments. This implies that people are more likely to act flexibly and adaptively in complex situations. To handle the complexity of an environment, individuals must be able to adapt quickly and change their approach when necessary. Some participants suggested that it is vital for leaders to foster a culture of acceptance during times of uncertainty. Leaders can accomplish this by setting an example and demonstrating their flexibility. By doing this, employees learn that it is okay to be adaptable, and they can trust the leader to help them navigate uncertain environments.

In this regard, one interviewee said:

> A culture of acceptance is important in uncertain environments. Leaders must set an example by being flexible and promoting a culture of acceptance. (E0009)

The director of a financial service company said:

> I think that it is important for leaders in uncertain environments to foster a culture of acceptance. This allows employees to be flexible and adaptive when faced with uncertain situations. (E0008)

Further examination revealed links between leadership capabilities and cultural aspects. For instance, the “transformational leadership” skills of conveying an inspirational vision and

spurring innovation intertwine with facets of the "supporting innovation" culture. This finding suggests a strong intersection between leadership and culture in steering startups during turbulent times.

As a result of their insights, participants' organisations were able to thrive during uncertainty and make informed decisions. Figure 5.7 illustrates the associations between the main theme, ready culture, and its subthemes.

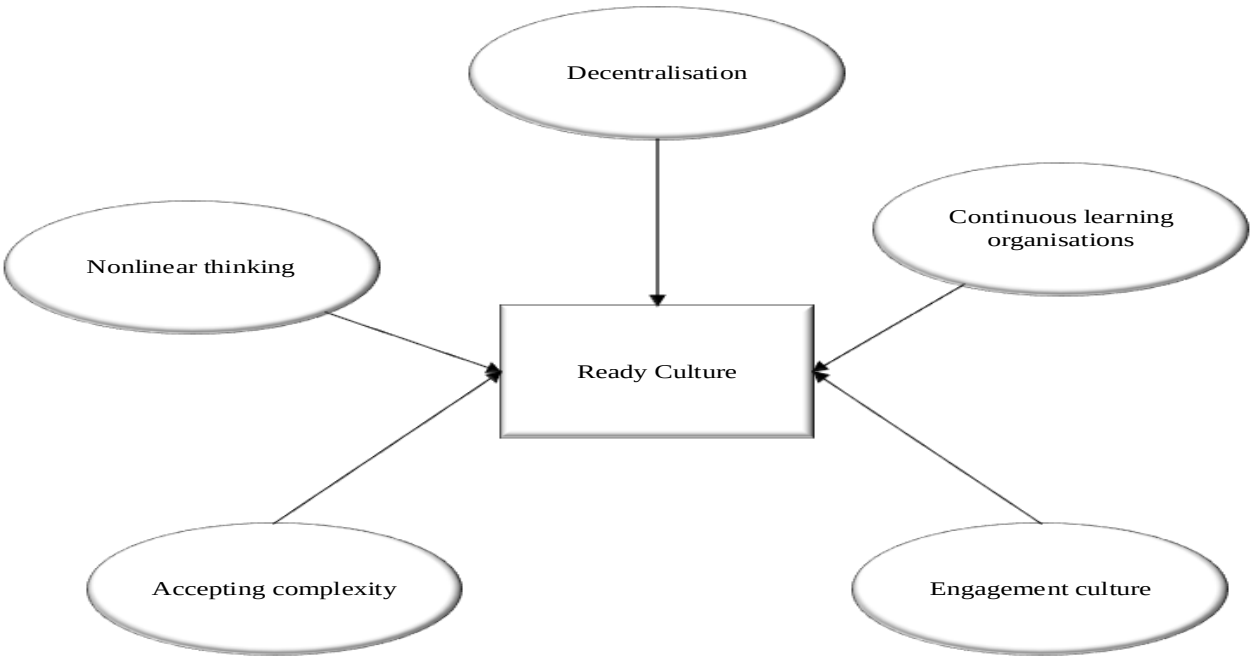

Figure 5.7: Ready Culture

In this section, I discussed the ways that a ready culture navigates today's uncertain environments. This highlights the ways organisations can foster innovation and resilience through Lumpkin and Dess's (1996) EO model. For example, ready culture's subtheme of 'decentralisation' resonates with Lumpkin and Dess's (1996) 'autonomy' principle, given that the two concepts promote autonomous decision-making. Similarly, in Lumpkin and Dess's (1996) model, innovativeness aligns with nonlinear thinking in a ready culture, which encourages creativity and out-of-the-box thinking. Taking risks is similar to Lumpkin and Dess's (1996) 'accepting complexity' principle, which encourages organisations to embrace uncertainty. However, the 'engagement culture subtheme ties into Lumpkin and Dess's (1996) 'proactiveness, which fosters active engagement and anticipation of future change. In

addition, ‘competitive aggressiveness’ from Lumpkin and Dess’s EO model corresponds with ‘continuous learning organisations’ during uncertainty, which fosters a culture of learning and adaptability. Table 5.10 better illustrates these correlations better.

Table 5.10: Relationship Between Entrepreneurial Orientation, Creativity and Ready Culture

Subtheme of Ready Culture	Managing Creativity and Entrepreneurial Orientation Through Culture
Decentralisation	Promotes autonomy and independent decision-making
Nonlinear thinking	Enhances innovative capabilities by encouraging creative and non-traditional problem-solving
Accepting complexity	Facilitates risk-taking and bold decision-making in complex scenarios
Engagement culture	Boosts proactiveness and readiness for future changes
Continuous learning organisations	Encourages competitive aggressiveness through continuous learning and adaptability

In essence, both Lumpkin and Dess’s (1996) EO model and the concept of a 'ready culture' emphasise the need for organisations to implement strategies that are not just innovative and proactive but also resilient. Businesses can create a culture that is suited to tackling the uncertainty problems of the current world by using these strategies.

5.5.3 Ready Management and Leadership

In addition to structure and culture, the analysis shows that entrepreneurs in the three countries should have ready management practices and leadership characteristics to handle creativity and innovation in highly uncertain environments. The study found that entrepreneurs in the three countries should have transformational leadership skills and creative leadership and shift away from traditional management methods. Additionally, they should be equipped with new skills and tools to support design, foresight, and systems thinking. They should also explore novelty and build networks of entrepreneurship. Finally, they should have a persuasive vision to motivate others to join a venture. The following subsections discuss the related subthemes.

1) Transformational Leadership Skills

In terms of transformational leadership skills, this study found that entrepreneurs in the three countries should have transformational leadership skills to handle creativity and innovation in a highly uncertain environment. These skills include identifying and addressing opportunities, fostering a sense of urgency, developing trust and credibility among employees, creating an inspiring vision for the company, and motivating employees to work hard. In this vein, one participant remarked:

> The most important thing for a leader is to have a clear vision and be able to communicate convincingly. It would help if you also had the ability to inspire and motivate people. It is not easy, but it is essential for your business to succeed in today's competitive environment. (E0010)

Similarly, the founder of the software provider company noted that:

> Leaders need the ability to identify opportunities and make decisions quickly, as well as a strong work ethic. They also need to be able to foster trust and credibility among employees, create an inspiring vision for the company, and motivate people to work hard. (E0005)

Overall, these findings suggest that entrepreneurs in these three countries should have transformational leadership skills to handle creativity and innovation in a highly uncertain environment. This includes identifying and addressing opportunities, fostering a sense of urgency, developing trust and credibility among employees, creating an inspiring vision for the company, and motivating employees to work hard. Leaders who can do this will be able to lead their businesses to success. It is essential that leaders have a clear vision and can communicate convincingly to inspire and motivate people. Additionally, leaders need the ability to quickly identify opportunities and make decisions accordingly to foster trust and credibility with employees, create an inspiring vision for the company, and motivate people to work hard. This will help them lead their businesses to success.

2) Creative Leadership

In addition to transformational leadership skills, the findings of this analysis indicate that entrepreneurs should have creative leadership to handle uncertainty. To illustrate this, they should be able to think outside the box and think of new ideas in response to changing conditions. In addition, management judgement is now viewed as a decision-making competency that is equally important to traditional skills such as planning and strategy. Proper visionary leadership and creative entrepreneurial behaviour can help to establish alternative directions, and intuitive decision-making is recognised as a helpful response to changes in the contemporary corporate environment. In this vein, one participant stated:

> Creative leadership is essential in the current business world. You need to be able to think outside the box and come up with new ideas that will help you navigate through these increasingly volatile times. (E0004)

The founder of the gaming company said:

> The ability to make quick decisions is critical in the industry. We cannot always plan for every possible outcome; therefore, we have to be able to think on our feet and adapt as needed. (E0001)

From these statements, it is evident that creative leadership is a key entrepreneurial skill required to effectively manage businesses under uncertainty. This is because businesses face a constantly changing environment that requires leaders to devise innovative ideas quickly to stay ahead of their competition. In addition, visionary leadership and creative entrepreneurial behaviour can help establish alternative directions, and intuitive decision-making is a helpful response to changes in the contemporary corporate environment.

3) Changing Management Styles

According to the data analysis, there was consensus among participants on shifting away from traditional management methods for dealing with nonlinear and often unpredictable external situations. Furthermore, creative leadership is usually deemed more acceptable than traditional management practices. The study findings indicate that organisations should

rethink their traditional management practices to better deal with nonlinear and unpredictable external situations. In this context, one participant said:

> Yes, I think there is a need to rethink the traditional way of management because, in these types of situations, creative leadership is usually more acceptable than traditional management practices. (E0004)

In addition, the founder of a Proptech company said:

> Creative leadership can help in such situations. It is important to be flexible and not to get bogged down by tradition. (E0007)

In line with these findings, it appears that organisations should shift away from traditional management practices to better deal with nonlinear and unpredictable external situations. This is because creative leadership is usually more acceptable than traditional management practices in such situations. In addition, being flexible and not slowed down by tradition can be highly effective in dealing with these situations. This suggests that the current management style of organisations should be revisited to better adapt to external environments.

4) Having New Skills and Tools

In addition to applying new managerial styles, the findings showed that managers and leaders must be equipped with new skills and tools to support design, foresight, and systems thinking. These skills and tools enable them to manage an inherently uncertain environment and identify potential problems that may arise. The study found that leaders must be educated about the principles of design, foresight, and systems thinking to apply them effectively in their organisations. To do so, they need access to training and resources that can help them to develop these skills. In line with this, one participant said:

> Uncertain conditions require managers and leaders to have a new arsenal of tools and techniques for foresight. (E0002)

This point was elaborated upon by the founder of a software provider company, who said:

> I think that leaders need to be educated about design, foresight, and systems thinking if they want their organisations to be able to manage uncertainty effectively. Although considerable information is available, it can be difficult for people to find and access it. In addition, training programs that provide instruction on these concepts are needed so that executives can learn how to use these tools in their day-to-day work. (E0005)

In accordance with participants' perceptions, focusing on new skills and tools assists in improving decision-making and strategic planning, improving operational efficiency and effectiveness, and driving innovation and competitiveness. Participants demonstrated a commitment to embracing lifelong learning, adopting new technologies, and acquiring the necessary skills and tools to thrive during uncertainty, ensuring that their organisations remained agile and forward-thinking.

5) Exploring Novelty

The analysis revealed that managers must constantly explore new ideas. In other words, they must be open to novel ideas, approaches, and solutions. In addition, managers should be willing to adopt various approaches to improve the efficiency and effectiveness of their organisations. Finally, managers must be able to identify opportunities and seize them when they arise. In summary, this suggests that managers need to be creative, open-minded, and proactive to lead their organisations effectively. In terms of this, one interviewee said:

> I think that creativity and innovation are two of the most important qualities of managers. It is important to be open to new ideas and to be able to see opportunities when they arise. (E0006)

The founder of a software provider company echoed this when he stated:

> Managers need to constantly explore new ideas and be willing to try different approaches to improve the efficiency and effectiveness of their organisations. (E0005)

6) Building Networks of Entrepreneurship

The findings indicate that it is not sufficient to react to change during uncertainty; rather, it is important to create ecosystems and networks of entrepreneurship to move forward and not

just respond to new markets and domains. Overall, this study found that changes during uncertainty are pervasive and complex. Organisations must adapt to survive and thrive. They need to create entrepreneurship ecosystems to better respond to new markets and domains while maintaining a focus on their core values and missions. One participant remarked:

> Organisations need to be prepared for change and not just react to it. They need to develop an ecosystem of entrepreneurship so that they can move forward, not just respond to new markets and domains. (E0008)

The founder of a 3D technology company resonated with this and said:

> Entrepreneurship is about adapting to change. This is not about resisting this. Therefore, if an organisation wants to be successful during uncertainty, it needs to create an ecosystem of entrepreneurship in which people can come together and share their ideas and experiences. In this way, the organisation can stay focused on its mission while adapting to new markets and domains. (E0020)

These findings suggest that networks are key in responding to the complexities of uncertainty. Networks allow organisations to share resources and ideas, which can help them adapt faster to changes in the market.

7) Persuasive Vision

Several participants recommended that managers strengthen their principles and vision to assist employees in dealing with their own unexpected changes or reactions. Employees are better positioned to respond rapidly to changes and to retain a clear focus. Consequently, employees are more likely to commit time and energy to a company.

Managers should ensure that their vision is compelling to their employees by communicating it consistently, emphasising its importance, and championing it within the organisation. When people are passionate about something, they are more likely to be energised and motivated. Vision creates excitement within an individual, which encourages them to accomplish great things. People are attracted to change when they see it as a challenge or opportunity that allows for growth and development. When employees see the importance of

a company's vision and the opportunities it presents, they are more likely to invest time and energy in pursuing success.

In this vein, one participant said:

> I think one of the most important things is for managers to ensure that their values and vision are compelling to their employees. By doing so, they can better manage volatility and maintain clear focus. Additionally, this will help to energise and motivate employees as they work towards the organisation's goals. (E0010)

The director of the blockchain company added the following:

> Employees need to see how their individual efforts contribute to the organisation's vision. When they understand the big picture and how their role fits into it, they are more likely to invest in the organisation. In turn, this leads to greater performance and stronger commitment from everyone involved. (E0003)

Overall, participants highlighted the importance of leaders having a persuasive vision to inspire and guide their organisations during uncertain times. Through a persuasive vision, leaders hope to motivate and engage employees, inspire confidence and resilience during turbulent times, and drive organisational alignment and focus.

8) Digital Competence

Several participants suggested that uncertainty requires managers to have a special competence called digital competency. This competency is a new skill set that is required to operate and manage digital businesses. The first step in developing digital competency is to understand the current state of an organisation's digital environment. This involves gathering data on the current state of an organisation's digital environment, such as its website, digital platforms, and social media accounts. The second step is to analyse the data and identify the current state of the digital environment.

In this regard, one participant said:

> Uncertainty requires managers to have a deep understanding of the digital environment and its impact on an organisation. They must be able to identify the opportunities and threats

> that digital technologies present to their organisations. They also need to be able to develop strategies for how their organisations can capitalise on these opportunities and mitigate these threats. (E0018)

The founder of an AI company said:

> Organisations need to be agile and adaptable to survive and thrive during uncertainty. They must be able to respond quickly to changes in the environment by implementing strategies that leverage digital technologies. Digital competency is the ability of a manager to manage their organisation's digital environment effectively. (E0012)

Thus, for an organisation to be successful during uncertainty, managers need a deep understanding of the digital environment and how it affects their business. They need to be able to identify opportunities and threats in the digital world as well as develop strategies for exploiting these opportunities and mitigating these threats. To develop this digital competency, managers need access to data and analytics as well as an understanding of how digital technologies work. This allows them to quickly adapt their strategies in response to changes in the environment. Figure 5.8 illustrates the associations between the main theme, ready management, and leadership and its subthemes.

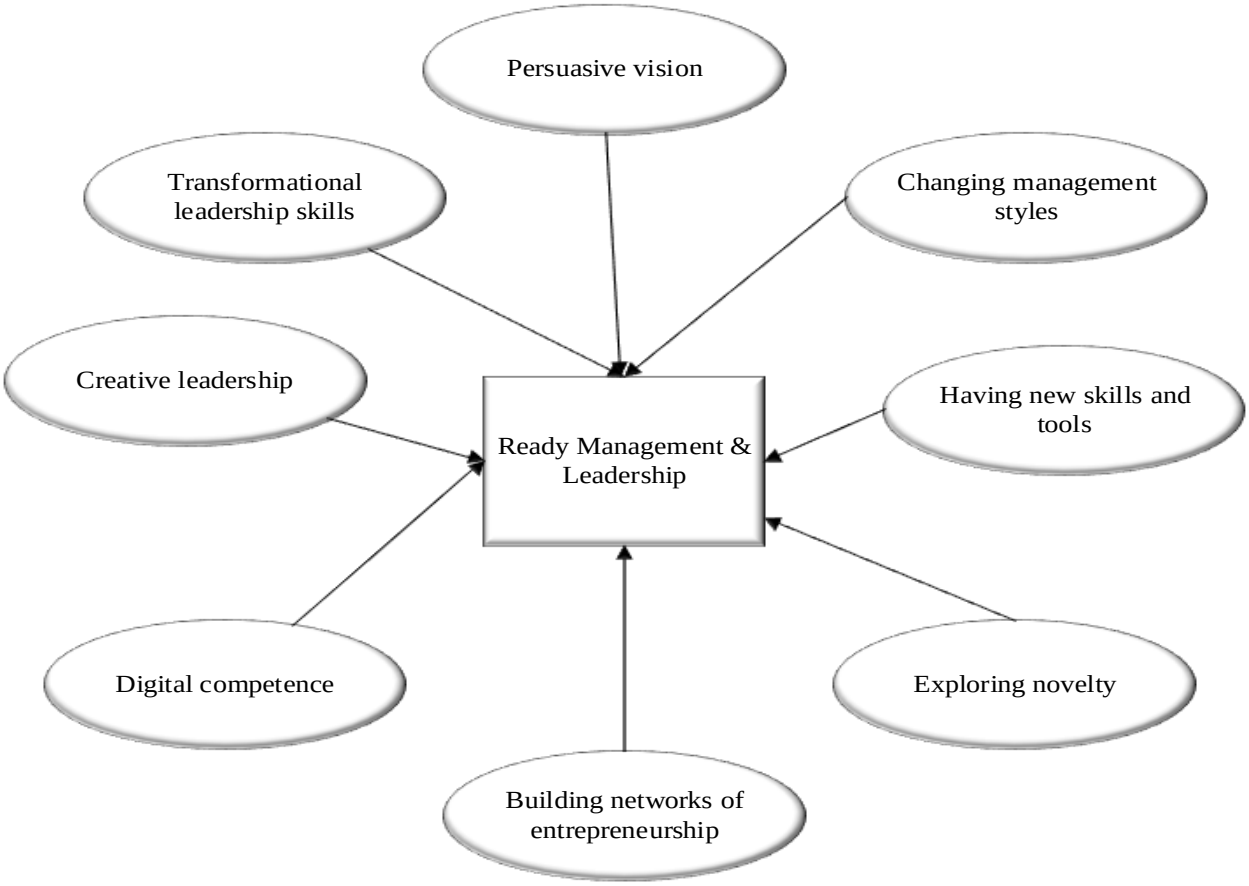

Figure 5.8: Ready Management and Leadership

The purpose of this section is to analyse the ways in which EO and leadership skills interact to promote innovation and resilience in uncertain environments. For example, Lumpkin and Dess's (1996) 'proactiveness' principle correlates well with the 'transformational leadership skills' subtheme of ready leadership. According to Lumpkin and Dess's model, creative leadership aligns with innovativeness, which fosters an environment that encourages innovative thinking and novel ideas.

As an uncertainty leadership skill, 'changing management styles' reflects Lumpkin and Dess's (1996) 'risk-taking' principle, which advocates a shift away from traditional approaches and embraces risks and uncertainties. Lumpkin and Dess's (1996) 'innovativeness' and 'learning new skills and tools' are closely connected, suggesting the importance of adopting novel approaches and processes.

In addition, the leadership skill 'building networks of entrepreneurship' resonates with Lumpkin and Dess's (1996) competitive aggressiveness, which emphasises the importance of building robust networks to outperform competitors and adapt quickly to market changes. Finally, the 'persuasive vision' theme corresponds to Lumpkin and Dess's (1996) proactiveness principle, which underscores the importance of a forward-looking vision that anticipates and triggers change. Table 5.11 illustrates these associations.

Table 5.11*:* Relationship Between Entrepreneurial Orientation, Creativity and Ready Management and Leadership

Subtheme of Ready Management and Leadership	Managing Creativity and Entrepreneurial Orientation Through Ready Management and Leadership
Transformational leadership skills	Encourages proactiveness, fosters a sense of urgency and creates an inspiring vision
Creative leadership	Enhances innovative capabilities by fostering out-of-the-box thinking and innovative idea generation
Changing management styles	Promotes risk-taking by accepting the uncertainty associated with novel approaches
Having new skills and tools	Bolsters innovativeness by encouraging a departure from established practices and advocating novelty
Exploring novelty	Boosts innovativeness through the continuous exploration of novel ideas and strategies
Building networks of entrepreneurship	Foster competitive aggressiveness by enabling firms to outperform competitors and quickly adapt to market changes.
Persuasive vision	Enhances proactiveness by creating a culture that anticipates and initiates change rather than merely reacting to it

Eventually, Lumpkin and Dess's (1996) EO model and ready leadership have significant parallels, emphasising the importance of creative, proactive, and resilient organisational methods. Organisations may establish a strong framework that is capable of managing uncertainty in the current world by implementing these strategies.

5.5.4 Ready Staff

According to the findings of this study, the fourth aspect is related to employees. The analysis revealed several subthemes suggested by entrepreneurs to handle uncertain environments. Participants stated that staff must have access to information and knowledge, be able to develop and use cross-training techniques, receive training and improve current skills, have the ability to delegate authority to employees, and comprise diverse workgroups. From the study findings, it can be inferred that strong human resource management (HRM) practices are essential for mitigating uncertainty pressure. For employees to be able to manage these pressures effectively, they need access to information and knowledge to make informed decisions. In addition, effective HRM practices should include training and improving current skills so that employees can respond effectively to changes. Finally, delegation of authority to employees is also essential because it allows them to have more autonomy in their work and reduces the amount of stress that they experience.

The study findings suggest that cross-training techniques can be beneficial in mitigating uncertainty pressures. This is because they enable employees to quickly learn new skills and adapt to changes in uncertain environments. In addition, training and improving current skills can help employees to remain agile in the face of change. Finally, it is crucial to have diverse workgroups when facing uncertainty. This is because diversity allows employees to share different perspectives and experiences, which leads to better decision-making. Additionally, having a diverse workgroup reduces the risk of team members feeling isolated and stressed.

1) Access to Information and Knowledge

Based on the participant data analysis, entrepreneurs suggested that startups should provide access to external and internal information and knowledge to reduce ambiguity and uncertainty. External information includes industry news, market research, and competitor analysis. Internal information and knowledge would come from the team and include expertise, processes, and protocols. Providing access to external and internal information can help startups reduce ambiguity and uncertainty regarding their business models, strategies, and operations. This can help them to make better decisions and improve their chances of success. In this sense, one participant remarked:

> One of the things that we do as a startup is ensure that everyone on our team knows everything. We want to arm ourselves with as much information as possible. (E0001)

The founder of a fintech startup confirmed this and added the following:

> The best way to reduce uncertainty is to access a variety of information and knowledge sources. This could have originated from both external and internal sources. External information includes industry news, market research, and competitor analysis. Internal information comes from the team, including expertise, processes and protocols. Having access to this information can help startups make better decisions and improve their chances of success. (E0008)

The participants highlighted the importance of easy access to relevant information and knowledge resources for employees. By focusing on access to information and knowledge, they facilitate information and knowledge exchange, enable informed decision-making, and empower employees to thrive in a rapidly changing environment.

2) Strong Human Resource Management Practices

Another subtheme that emerged from the analysis was the requirement for robust HRM practices to cope with uncertainty. Human resource (HR) managers must be able to swiftly and effectively identify, assess, and respond to changes in the business environment. This can include changes in customers, suppliers, or competitors, as well as shifts in organisational priorities.

To cope with uncertainty, HR managers must have a robust understanding of their organisation's business strategies and the ways in which they are affected by external factors. They also need the ability to rapidly analyse data and make informed decisions about HR policies and practices. In line with this, one participant said:

> HR managers must be able to rapidly assess data and make informed decisions about HR policies and practices. (E0002)

The founder of an AI and digital human company added:

> HRM must be proactive and understand the business and what is happening in the market before making decisions. (E0009)

This suggests that managers need strong analytical and decision-making skills to effectively manage HR in uncertain environments. They also need to be proactive in their approach, anticipating changes in the business environment and taking steps to ensure that their organisation is prepared.

3) Using Cross-Training Techniques

Another important strategy to manage creativity and EO during uncertainty is to apply cross-training techniques to staff in other functional areas, such as marketing, finance, and HR. This will help staff better understand the complex and interrelated nature of innovation and EO. Furthermore, this will allow them to share best practices and improve their understanding of critical functions. In this way, organisations can be nimbler in adapting to changes in the environment. In this sense, one interviewee stated:

> It is important to have people from a variety of backgrounds when it comes to innovation and EO. By understanding the different perspectives and how they intersect, we can better make informed decisions. (E0016)

The founder of a software provider company echoed this when he said:

> We are trying to conduct more cross-training with different functions in the company so that people can understand what is happening in other parts of the company. In other words, if someone has an idea, they can talk to somebody in marketing or finance and get a better understanding of how it might work. (E0005)

Thus, by cross-training staff in various functional areas, organisations can better manage innovation and EO during uncertainty. In addition, this helps to develop a more nuanced understanding of these critical functions and improves overall performance.

4) Training and Improvement of Current Skills

The findings of the analysis illustrate the importance of training employees to improve their current skills and holding regular workshops to increase their motivation and intrinsic value.

For an organisation to successfully implement a cross-training program, it is vital for employees to be adequately trained to use new skills. It is also essential that the workshop content be relevant to employees' needs and interests because this will motivate them to participate.

In addition, frequent training can help employees maintain their current skills, making them more valuable to the organisation. Overall, the findings of the analysis illustrate the importance of training employees to improve their current skills and holding regular workshops to increase their motivation and intrinsic value. In this vein, one participant stated:

> Workshops are beneficial. They helped me maintain my current skills and improve my knowledge. I would definitely recommend this to other employees. (E0008)

The founder of the biotechnology company commented:

> During times of uncertainty, it is imperative to constantly learn and keep up with the latest changes. As an employee in a fast-paced environment like this, I appreciate the regular workshops that are offered so that I can keep my skills current. (E0010)

Participants emphasised the need for training and development for employees to enhance their skills. Collectively, they demonstrated a commitment to investing in the development of their employees, recognising that continuous learning and skill improvement are critical to success.

5) Delegation of Authority to Employees

The analysis of the data from the interviews suggests that giving employees responsibility motivates them and rewards them in an intrinsic manner. Delegating responsibilities can motivate employees and enable agility within an organisation. Giving employees more responsibility also leads to better communication within the organisation and a sense of teamwork and cooperation. Employees who feel that they are part of the team and have a sense of purpose are more likely to be productive. Moreover, employees are more likely to continue working hard when they feel appreciated and rewarded for their contributions. In

summary, giving employees increased responsibility effectively motivates them and improves productivity during uncertainty. In terms of this, one participant said:

> I think it is important for people to be given more responsibility because it allows them to feel like they are part of something bigger and helps them feel appreciated. It also allows them to take ownership of their work and to develop a sense of expertise. (E0011)

Similarly, the founder of the gaming company stated:

> Yes, I think that giving employees more responsibility can motivate them. When people feel that they are contributing to and have a sense of ownership over their work, they are more likely to be productive. Additionally, when employees feel appreciated for their efforts, they can motivate them to do their best. (E0001)

Ultimately, these insights demonstrate a commitment to empowering employees through delegation of authority, recognising that distributed decision-making and autonomy are crucial for organisational adaptability.

6) Composing Diverse Workgroups

The findings of the analysis highlight that to build a resilient workforce, it is necessary to hire a workforce with diverse backgrounds and experiences. In addition, diversity in a workgroup leads to a more open-minded approach to change and a more resilient attitude towards it. Finally, when a diverse workforce is engaged in problem-solving, innovative solutions are more likely to be devised.

In this vein, one participant remarked:

> It is easier to come up with an innovative solution when people have different backgrounds and experience working on the problem. (E0003)

The founder of a software provider company echoed this when he said:

> During uncertainty, the inclusion of different perspectives is key to resilience. If everyone thinks the same, there is no creativity or innovation. (E0005)

In cultivating a work environment that celebrates diversity and values inclusivity, participants aimed to harness the power of diverse talents and perspectives and promote cultural intelligence and adaptability. The insights they provided contributed to organisational resilience, agility, and success during uncertain times. Figure 5.9 illustrates the associations between the main theme, ready staff, and its subthemes.

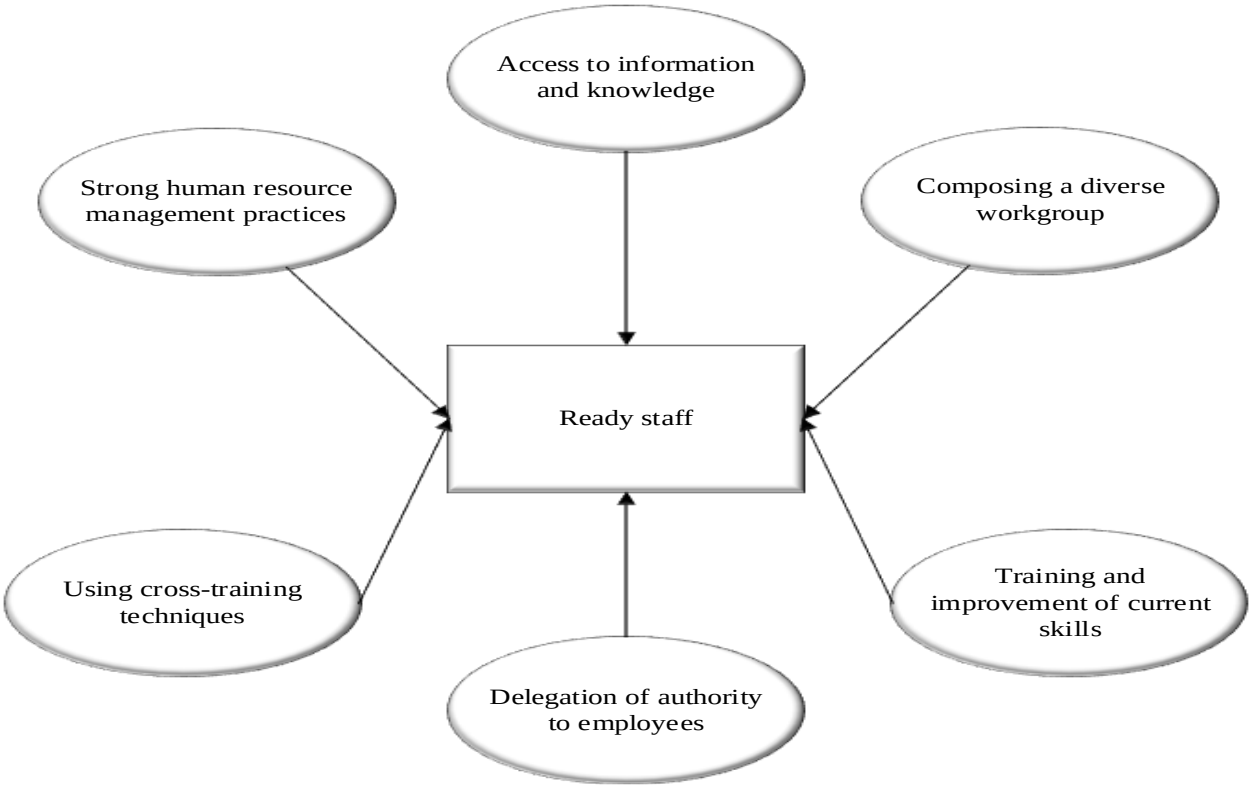

Figure 5.9: Ready Staff

Ready staff plays a critical role in navigating today's uncertain environment, and Lumpkin and Dess's (1996) EO model is discussed in this section.

'Access to information and knowledge' is the ready staff theme that aligns with Lumpkin and Dess's (1996) principle of 'competitive aggressiveness'. These two concepts emphasise the importance of gathering internal and external information for informed decisions and competitiveness. Similarly, Lumpkin and Dess's (1996) 'proactiveness' and 'strong HRM practices' in the ready-staff model emphasise HR managers' proactive approach to identifying and responding to changes in the business environment. Cross-training techniques in ready-staff reflect Lumpkin and Dess's (1996) 'innovativeness' principle,

given that the two concepts emphasise using new learning techniques and exploring different functional areas to stimulate innovative thinking and adaptability. In addition, in Lumpkin and Dess's model, 'training and improvement of current skills' is closely related to 'autonomy' because ongoing training enables employees to be resourceful and work independently. It also resonates with Lumpkin and Dess's (1996) 'autonomy' because it empowers employees to take responsibility for their work and fosters a sense of autonomy. Finally, 'composing a diverse workgroup', a part of Lumpkin and Dess's (1996) EO model, emphasises the importance of diverse perspectives in achieving a competitive edge. These correlations are summarised in Table 5.12.

Table 5.12*:* Correlation of Ready Staff Subthemes with Lumpkin and Dess's (1996) Entrepreneurial Orientation Model

Subtheme of Ready Staff	Managing Creativity and Entrepreneurial Orientation Through Ready Staff
Access to information and knowledge	Enhances competitive aggressiveness by enabling informed decision-making
Strong human resource management practices	Fosters proactiveness by facilitating swift responses to changes
Using cross-training techniques	Bolsters innovativeness by promoting knowledge-sharing and adaptability
Training and improvement of current skills	Promotes autonomy by equipping employees with the necessary skills
Delegation of authority to employees	Encourages autonomy by granting employees more responsibility
Composing a diverse workgroup	Fosters competitive aggressiveness by harnessing diverse perspectives

Subsequently, Lumpkin and Dess's (1996) EO model and the ready-staff model emphasise the value of competitive, proactive, innovative, and independent staff. By implementing these concepts, organisations may build a resilient workforce that thrives during uncertainty.

5.6 Demonstration of Entrepreneurial Orientation and Creativity in Early-Stage Entrepreneurs

The third section explores how EO and creativity manifest and are fostered in the early stages of an entrepreneur's journey. To better understand this relationship, interviewees were asked various direct and indirect questions about the exhibition and facilitation of EO and creativity in the early stages. After scrutinising and synthesising participants' answers, the final results revealed three main themes. The findings suggest that EO and creativity are exhibited and facilitated in the early stages of entrepreneurship through personal, interpersonal, and entrepreneurial managerial competencies, each of which has several subthemes. The following sections present the findings in detail: Table 5.13 summarises the themes and subthemes of EO and creativity in entrepreneurs' early stages.

Table 5.13: Thematic Analysis of Demonstration of Entrepreneurial Orientation and Creativity in Early Stages of Entrepreneurs

Theme	Subtheme
Personal competence	Inspire others by sharing their story
	Entrepreneurs need to be creative themselves
	Proactive about learning new things
	Focus on goal and keep a positive outlook
	Recognise and capitalise on market trends
	Be organised and able to multitask
Interpersonal competence	Relationship-building skills with key stakeholders
	Capable of forming alliances
	Encourage employees to take risks
	Express appreciation for innovative ideas
	Secure needed resources
Entrepreneurial managerial competence	Brainstorm ideas with team members
	Exploit unconventional solutions and challenging assumptions
	Be open to feedback
	Be committed to continuous learning
	Have a clear vision and goal
	More customer-focused and innovative
	Build a strong foundation for future success
	Ability to develop and execute business plans

5.6.1 Personal Competence

The first category, which emerged from the data analysis on how entrepreneurs demonstrate and facilitate EO and creativity in their companies, relates to personal competence. Entrepreneurs share their own stories and experiences and use inspirational stories to motivate others. Early-stage entrepreneurs should be able to identify and capitalise on market trends. This is a critical skill for facilitating EO and creativity because it allows them to make informed decisions about their companies' strategies. In addition, they must work well as teams to achieve common goals. This demonstrates that they can lead and manage others effectively. In addition, early-stage entrepreneurs should be proactive in seeking

opportunities to learn new things. This helps them to remain up-to-date with changes within their industry and stay ahead of the competition. Finally, they should exhibit personal competence by being creative and by using their experiences to inspire others. This demonstrates that they have a vested interest in the company and its success. These skills are essential in facilitating EO and creativity in the workplace.

1) Inspire Others to Share Their Stories

According to the findings, some entrepreneurs suggested using personal stories or experiences to inspire others during the early stages of a business. This can help to increase morale and encourage others to believe in the potential of a business. In addition, sharing personal experiences can help entrepreneurs build trust and credibility with their team members. Finally, this type of communication shows that entrepreneurs invest in their businesses and are committed to helping them succeed. In this vein, one participant declared:

> I always share my story with new team members because it helps them see that I am not just some suit in an office but that I have been through the same things they are going through. This helps build trust and credibility. (E0009)

A founder of a commercial and industrial facilities company echoed this when he said:

> I like to use personal stories to connect with people at a deeper level and to show them that I understand their struggles. It builds trust and credibility, which are essential to any team. (E0004)

The participants emphasised the importance of entrepreneurs sharing their personal stories and experiences to inspire and motivate others. The insights they shared collectively reflect the intention to use personal stories to inspire and motivate others, fostering entrepreneurship and innovation culture.

2) Entrepreneurs Need to Be Creative

The findings suggest that being an entrepreneur is not just having business skills or a creative mindset; it is a combination of these two skills to be successful. Therefore, if individuals are interested in becoming entrepreneurs, it is crucial that they first focus on building a solid

business foundation and then develop a creative mindset to see opportunities and create value for the company. In this regard, one interviewee said:

> You must be very creative when starting a business. You have to be able to see things that other people do not see and come up with solutions that make your company successful. (E0007)

The founder of the financial service company added:

> Entrepreneurship is a process, not an event. It involves constant learning, growth, adaptation, and evolution. You have to be willing to take risks, always be curious and open-minded, and always question what you believe in. (E0008)

The insights expressed by their collective views demonstrate a commitment to fostering creativity and recognising that it is critical to entrepreneurship success and the generation of innovative ideas.

3) Proactive About Learning New Things

This analysis highlights that entrepreneurs should be proactive in seeking new opportunities to learn new things. In other words, entrepreneurs should always be looking to learn new things because this helps them stay ahead of the curve and keep their businesses innovative.

Finally, the analysis highlighted that entrepreneurs should be proactive in seeking mentorship and training. Overall, entrepreneurs must be proactive in running their businesses successfully. By staying up to date on industry trends and learning new things, entrepreneurs can create a sustainable business that can thrive in today's competitive environment. In addition, seeking mentorship and training opportunities helps entrepreneurs to develop the skills and knowledge that are necessary for their continued success. In this sense, one participant said:

> One of the things I think is really important for any entrepreneur is to constantly learn and try to improve their skills. Entrepreneurs have many opportunities to learn new things, whether by attending events or mentoring other people in the industry. It is important to keep up with the latest trends and stay ahead of the competition. (E0010)

Furthermore, the founder of the AI startup stated:

> I think entrepreneurs must be proactive in learning. By keeping up with the latest industry trends, staying informed about new technology, and seeking opportunities to learn from others, they can help their businesses stay ahead of the curve. (E0019)

In conclusion, entrepreneurs should be proactive in seeking new opportunities to learn. This helps them stay innovative and competitive in their current business environment. Furthermore, seeking mentorship and training opportunities helps entrepreneurs develop the skills and knowledge necessary for their success.

4) Focus on Goal and Maintain a Positive Outlook

The analysis highlights that entrepreneurs should maintain a positive outlook and remain focused on the goal at hand in the early stages of their businesses when mistakes are most likely to be made. This means that entrepreneurs should stay focused and not be bogged down in detail to maintain a positive outlook.

In addition, entrepreneurs need to have a work-life balance to maintain their sanity and continue working towards their goals. This means that entrepreneurs need to determine ways to manage their time so that they can continue working towards their business goals without feeling overwhelmed or stressed. In line with this, one participant commented:

> There are a lot of things that can go wrong when starting a business, so it is important to stay positive and focused. I try to balance my work and personal life by setting clear boundaries with my time and taking breaks when needed. (E0002)

The director of a financial services company added:

> Entrepreneurs need to be able to spend long hours and stay focused. It can be hard, but it is worth doing so in the end. (E0008)

Thus, maintaining a positive outlook and staying focused on the goal is vital to progress and achieve success. In addition, having a good work–life balance is essential to avoid being stressed and overwhelmed. Overall, these comments highlight the importance of staying positive and focused when starting a business.

5) Recognise and Capitalise on Market Trends

The analysis highlights that entrepreneurs should be able to identify and capitalise on market trends. Entrepreneurship is not about starting a business for its sake but about identifying and seizing opportunities in the market. Entrepreneurs should be able to capitalise on new trends and developments to stay ahead of the competition. This means that in the early stages of a business, entrepreneurs should constantly monitor industry development to determine where their businesses can add value and grow. In this sense, one participant stated:

> The best entrepreneurs are always learning and evolving because they know that the market is constantly changing. (E0007)

The founder of a Medtech startup added:

> Entrepreneurship is not about having an idea; it is about transforming that idea into reality. To do that, you need to be constantly aware of what is happening in your industry and marketplace as a whole. (E0011)

This indicates that although it is essential for entrepreneurs to have original and innovative ideas, it is also important for them to remain up to date with current trends so that they can better understand what customers want and how best to serve them. This allows entrepreneurs to build a successful business using customer demands rather than their own original ideas.

6) Organised and Able To Multitask

According to the analysis, several participants asserted that entrepreneurs in the early stages of their businesses were able to organise and multitask. This means that they were able to work on different tasks simultaneously and organise their work into different projects.

For example, one entrepreneur stated:

> I think many people underestimate how organised and multitasking somebody can be when they are starting their own business. I mean, you have to be if you want to keep up with the competition. (E0013)

Being able to multitask allows entrepreneurs to quickly switch between tasks, which is important for them to stay focused on their business. It also helps them avoid getting overwhelmed by their work and manage their time more efficiently.

The founder of the gaming company declared the following:

> You need to be very organised when you are starting your own business because there's so much to do, and it's easy to get overwhelmed. (E0001)

In summary, these insights provide a clear example of the importance of effectively organising and managing multiple responsibilities. This enables entrepreneurs to meet deadlines, maintain productivity, and navigate multiple responsibilities in a fast-paced, dynamic entrepreneurial environment while simultaneously managing multiple responsibilities. Figure 5.10 shows the demonstration of creativity and EO through the main theme of personal competence and its subthemes.

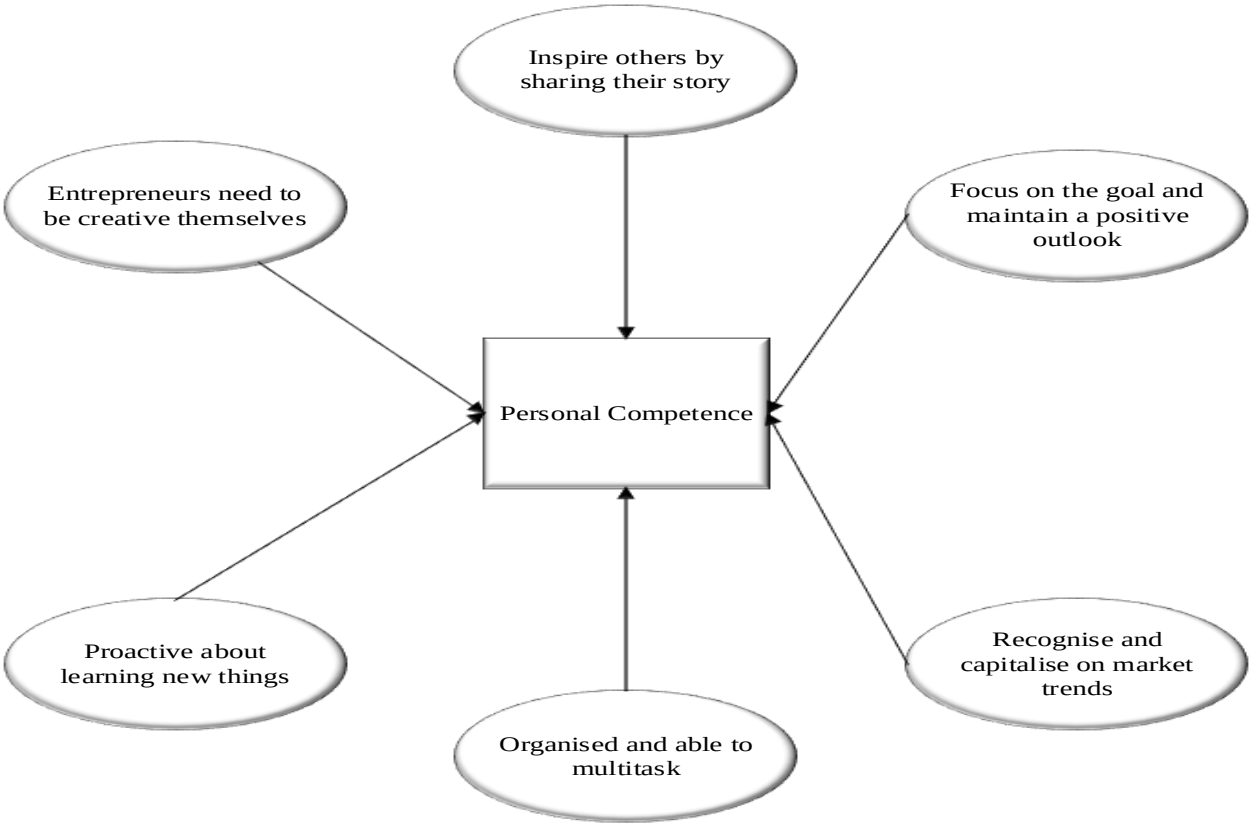

Figure 5.10: Personal Competence Subthemes

In this section, the discussion delves into the concept of personal competence and its function in fostering EO and innovation inside organisations, in line with Lumpkin and Dess's (1996) EO model.

'Inspire others by sharing their narrative' in personal competence parallels Lumpkin and Dess's (1996) 'proactiveness' because the two concepts emphasise the necessity of inspiring others to act and hence create a proactive and engaged workplace.

The emphasis on entrepreneurs' need to be creative themselves' fits with Lumpkin and Dess's (1996) 'innovativeness' philosophy because the two concepts place a premium on creativity and innovation as drivers of business growth and success. 'Proactive about learning new things' in personal competency corresponds to 'risk-taking' in Lumpkin's model because the two concepts emphasise the need to venture outside of one's comfort zone and pursue new learning opportunities on a regular basis. 'Focus on the goal and maintain a good attitude' recalls 'autonomy' in Lumpkin's approach, which emphasises the ability to self-manage and remain goal-oriented even in difficult situations.

'Recognises and capitalises on market trends' is similar to Lumpkin and Dess's (1996) 'competitive aggressiveness' because the two concepts emphasise the importance of being aware of market trends and capitalising on them to preserve a competitive edge. Finally, 'organised and multitasking' connects with Lumpkin and Dess's proactiveness', implying that entrepreneurs' capacity to plan, organise and multitask allows them to be proactive in managing their duties. These relationships are summarised in Table 5.14.

Table 5.14: Alignment of Personal Competence Subthemes with Lumpkin and Dess's (1996) Entrepreneurial Orientation Model

Personal Competence Subtheme	Entrepreneur's Engagement with Early Stages Through Personal Competence
Inspire others by sharing their story.	Fosters proactiveness by encouraging motivation and engagement
Entrepreneurs need to be creative themselves.	Enhances innovativeness by emphasising the value of creativity
Proactive about learning new things	Promotes risk-taking by urging the pursuit of new learning opportunities
Focus on the goal and maintain a positive outlook.	Boosts autonomy by underscoring the ability to self-manage and stay goal-oriented
Recognise and capitalise on market trends.	Encourages competitive aggressiveness by recognising the importance of market trends
Organised and able to multitask	Reinforces proactiveness through effective planning and multitasking

Overall, as outlined in the previous themes, personal competence and Lumpkin and Dess's (1996) EO model emphasise the development of proactiveness, innovativeness, autonomy, and competitive aggressiveness. Entrepreneurs can effectively encourage EO and creativity in their businesses by developing these traits.

5.6.2 Interpersonal Competence

The second category that emerged from the data analysis relates to entrepreneurs' interpersonal competence in handling the early stages of their businesses. This category includes skills such as building strong relationships with key stakeholders, forging alliances with other businesses or groups, encouraging employees to take risks, and expressing appreciation for innovative ideas. These interpersonal skills are important in the early stages of a business because they help entrepreneurs develop trust and credibility with potential customers, employees, collaborators, and investors.

1) Relationship-building skills with Key Stakeholders

From the participants' responses, the analysis revealed that in the early stages of their businesses, entrepreneurs should have the competence to build relationships with company

stakeholders. These key stakeholders are the people or groups who have a say in how the business is run and who may be able to help it grow. Good relationships with these people can help businesses start on the right foot. Furthermore, they can be vital allies in obtaining support from other companies or government agencies. In this vein, one participant remarked:

> The most important thing is to make sure you have a good relationship with your stakeholders because they can help you grow the business. (E0004)

The founder of the enterprise software provider added the following:

> It is important to be able to build a good relationship with key stakeholders, especially if you want them to help you grow your business. They can be a big support system, and it is important to make sure they have their backing early on. (E0015)

These insights reflect a dedication to fostering strong and mutually beneficial relationships with key stakeholders, recognising that successful entrepreneurial undertakings are rooted in effective collaborations and partnerships between key stakeholders.

2) Capable of Forming Alliances

The analysis of the participants' words shows that entrepreneurs should be able to form alliances with other businesses and groups of people in the early stages of their businesses. This is because alliances can help entrepreneurs expand their business and create new partnerships. In addition, alliances can help entrepreneurs build more robust support networks. Ultimately, alliances can lead to increased business growth and success. One interviewee noted:

> You must be able to form alliances and partnerships because if you are not somebody's partner, then they will outcompete you. And that is just the way it is. (E0003)

The founder of an enterprise software provider added the following:

> I think you have to be willing to form alliances with other people in the early stages of your business because it is challenging to get started if you do not have any allies. You need

> someone who has a product or service that can complement what you are doing and help you scale up. (E0015)

Thus, entrepreneurs should be able to form alliances with other businesses and groups to expand their businesses and achieve success. This is because alliances can provide entrepreneurs with a support network that helps them grow their companies. Alliances can also lead to increased business growth. Thus, it is crucial for entrepreneurs to form alliances early in their careers.

3) Encouraging Employees to Take Risks

Another interpersonal competence that the analysis uncovered was the skills of entrepreneurs to encourage their employees to take risks. The benefits of encouraging risk-taking are clear: employees who feel comfortable taking risks are more likely to be innovative and creative and more likely to succeed in their careers. In addition, when employees are encouraged to take risks, it can lead to more efficient and successful organisations because they can think of new ideas that others may not have thought of.

Overall, entrepreneurs' interpersonal competence is demonstrated by their ability to encourage employees to take risks and stretch. This leads to a more innovative workforce that is more likely to succeed. Encouraging risk-taking is an essential skill for any entrepreneur and should be emphasised to employees. It is through risk-taking that businesses can discover new and innovative ways to serve their customers. It is vital that employees feel comfortable taking risks to achieve their goals. In this regard, one participant said:

> The ability to encourage risk-taking is an essential skill for entrepreneurs. It is through risk-taking that businesses can discover new and innovative ways to serve their customers, and it is vital for employees to feel comfortable taking risks to achieve their goals. (E0010)

The director of the software provider company resonated with this and said:

> I think it is vital to encourage people to take risks. I mean, you cannot be afraid of trying new things, and you cannot be afraid of failing. You know, failure is a great teacher if you learn from it. (E0005)

The insights derived from their collective analyses reflect the companies' commitment to cultivating a risk-friendly culture that encourages employees to think outside the box, challenges the status quo, and plays a significant role in organisations' entrepreneurial success.

4) Expressing Appreciation for Innovative Ideas

In addition to encouraging employees to take risks, most participants suggested expressing appreciation for creative ideas and celebrating good ones. This can help to foster innovation and encourage employees to develop new ideas. Some suggested ways to accomplish this include holding a contest or awarding prizes for the best ideas. Others have suggested organising team-building activities to generate new ideas, such as brainstorming sessions. Whatever approach is taken, it is valuable to ensure that appreciation is genuine and not tokenistic.

Overall, the participants agreed that expressing appreciation for innovative ideas is an important way to promote creativity and innovation in the workplace. By recognising and celebrating good ones, employees are more likely to take risks and develop new ideas. In line with this, one participant said:

> Encouraging employees to take risks is key to fostering creativity. However, another big part of fostering creativity is rewarding good ideas, which will encourage others to share their ideas. (E0009)

The founder of a gaming company emphasised this point when he said:

> When good ideas are recognised and appreciated, it makes people want to come up with more of them. This also shows that the company is supportive of creativity and innovation. (E0001)

5) Secure Needed Resources

The interviews revealed that successful entrepreneurs have strong interpersonal skills that enable them to build and maintain healthy relationships with others, including bankers, investors, customers, and suppliers. These relationships help entrepreneurs identify potential

opportunities and secure the necessary resources early. In addition, strong interpersonal skills allow entrepreneurs to network with like-minded individuals who can provide valuable advice and support. Overall, these skills are essential for business success. In this vein, one interviewee stated:

> The most important thing is to be able to build relationships with people because in the early stages of a business when you do not have any resources, you need to be able to form connections with others who might have what you need. (E0016)

The founder of an AI startup said:

> I think that the ability to build and maintain relationships is critical for entrepreneurs. You need to be able to network and connect with other people who can help you. (E0019)

In summary, entrepreneurs secure resources to access financial, human, and other key resources, mitigate risks, and position their ventures for sustainable growth. In an uncertain environment, their insights demonstrate an entrepreneurship's ability to overcome resource constraints and effectively use resources.

Figure 5.11 shows the demonstration of creativity and EO through the main theme of interpersonal competence and its subthemes.

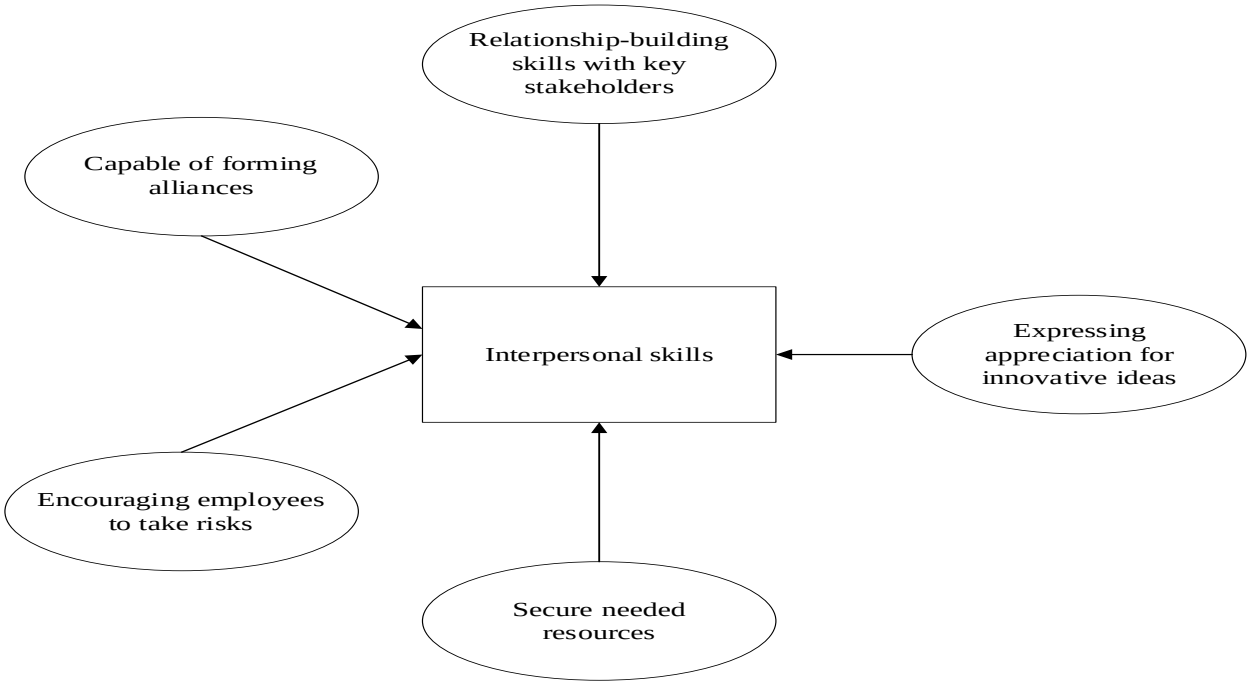

Figure 5.11: Interpersonal Competence Subthemes

In this section, I explored the notion of interpersonal competence in entrepreneurs and its relationship with EO and innovation inside business organisations in accordance with Lumpkin and Dess's (1996) EO model.

'Relationship-building with key stakeholders' is a skill that echoes Lumpkin and Dess's (1996) 'proactiveness' dimension. These two concepts emphasise the need for entrepreneurs to initiate and nurture relationships with important stakeholders to build an engaged network. The ability to establish coalitions is linked to Lumpkin and Dess's 'competitive aggressiveness'. Entrepreneurs who have this competency recognise the competitive advantage of alliances and actively pursue these partnerships, echoing Lumpkin and Dess's aggressive competition approach.

'Encouraging employees to take chances' as an interpersonal competence component corresponds to 'risk-taking' in Lumpkin and Dess's (1996) EO model. These two concepts emphasise the need to cultivate a risk-taking culture that is essential for entrepreneurial innovation and success. Moreover, 'expressing gratitude for new ideas' corresponds to Lumpkin and Dess's 'innovativeness' premise. Recognising and rewarding creative ideas

fosters an inventive culture, which is consistent with Lumpkin and Dess's model of innovativeness.

Finally, the ability to secure essential resources corresponds to 'autonomy' in Lumpkin and Dess's (1996) EO model. This emphasises an entrepreneur's ability to gather resources and run operations independently, which is an important part of entrepreneurial autonomy. Table 5.15 summarises these correspondences.

Table 5.15*: Alignment of Interpersonal Competence Subthemes with Lumpkin and Dess's (1996) Entrepreneurial Orientation Model*

Interpersonal Competence Subtheme	Entrepreneurs' Engagement with Early Stages Through Interpersonal Competence
Relationship-building skills with key stakeholders	Encourages proactiveness through initiating and nurturing stakeholder relationships
Capable of forming alliances	Promotes competitive aggressiveness by forming strategic alliances
Encouraging employees to take risks	Fosters a risk-taking culture by urging employees to embrace new opportunities
Expressing appreciation for innovative ideas	Stimulates innovativeness by acknowledging and rewarding creativity
Secure needed resources	Reinforces autonomy by enabling entrepreneurs to independently secure resources

Ultimately, the two interpersonal skills defined in the subthemes and Lumpkin and Dess's (1996) EO model emphasise the development of proactivity, innovativeness, autonomy, and competitive aggressiveness. By honing these skills, entrepreneurs can effectively lead their organisations within uncertain times.

5.6.3 Entrepreneurial Managerial Competence

During the data analysis, the third category relates to the managerial competency required by entrepreneurs in the early stages of their ventures. The findings suggest that creatives, customer-focused entrepreneurs, leaders, and effective communicators are key ingredients for success in early-stage ventures. These traits help entrepreneurs build a strong foundation for their future success. To become more creative, innovative, customer-focused and

leadership-skilled, entrepreneurs must commit to continuous learning. In addition, they need to have a clear vision and goal for their company. This helps them stay focused and motivated during the early stages of their venture. Finally, having strong business acumen and strategy is essential for successful entrepreneurship at any stage. By incorporating these qualities into their management style, entrepreneurs can build a successful foundation for their ventures. As they continue to grow and develop their businesses, they are able to create more value for their customers and employees.

1) Brainstorming Ideas with Team Members

According to the data analysis, during the early stage of the venture, brainstorming ideas with team members is the first step to consider. This means that everyone in the team should be involved in the process of developing ideas. Once all team members have contributed to their ideas, the collective team can narrow the list. This can be achieved by voting on ideas or choosing the idea that they think is the best. In terms of this, one participant said:

> The best way to start a venture is by brainstorming with your team. This will help you develop a variety of ideas that can be narrowed down. It is important to involve everyone in the team in this process so that everyone has a voice. (E0002)

One of the benefits of brainstorming with a team is that it helps obtain a wide range of opinions. This can help develop innovative ideas because people may have different perspectives. In addition, this can lead to the development and refinement of ideas. The founder of a fintech company said:

> Brainstorming is a great way to obtain a variety of opinions on an idea and to see if anyone has any new and innovative ideas. This can help develop ideas and make them more feasible. (E0013)

Another benefit of brainstorming is that it can help build team spirit. This is because it helps to create a sense of collaboration and cooperation. In addition, it can lead to the development of trust among team members, which is essential when working together in a venture. In this regard, the founder of an AI company said:

> Brainstorming is a great way to create team spirit and collaboration. It can also lead to the development of trust among team members, which is important when working together in a venture. This process can help us come up with better ideas that will improve our business. (E0012)

Entrepreneurs should encourage brainstorming among their team members to unleash creative potential and generate innovative solutions and approaches. These insights demonstrate the participants' dedication to collaborative brainstorming to fuel entrepreneurial creativity.

2) Exploiting Unconventional Solutions and Challenging Assumptions

The data analysis revealed that entrepreneurs should exploit unconventional solutions and challenging assumptions in the early stages. For example, if an entrepreneur believes that a market is not feasible, other potential markets should be explored. In addition, when starting a business, it is important to be flexible and open-minded about the way that things work to think of innovative solutions. By challenging assumptions and working on unconventional solutions, entrepreneurs can create opportunities that others cannot consider. In line with this, one participant commented:

> The willingness to take risks and try new things is one of the key skills that successful entrepreneurs exhibit. It is important to be open-minded and not be afraid to pivot your business when you see an opportunity that others may not be aware of. (E0010)

The founder of an AI startup echoed this when he said:

> Being an entrepreneur is all about being creative, flexible and open-minded. If you can come up with new solutions to old problems, you have a good chance of succeeding in this field. (E0009)

In summary, entrepreneurs seek to differentiate their ventures from competitors by implementing unconventional solutions. They demonstrate an entrepreneurial spirit and willingness to explore uncharted territory, which allows them to seize new opportunities and drive innovation within their organisations.

3) Open to Feedback

The data analysis indicates that during the early stages of a business, entrepreneurs should be open to feedback and take it seriously to improve their creative skills. In other words, entrepreneurs should be able to listen attentively, take constructive criticism, and improve their problem-solving ability.

In this regard, one participant said:

> I think it is important to be open to feedback and to take it seriously. If you do not, you will never improve as a creative person. You must be willing to change what you are doing and listen to other people's suggestions. Otherwise, you will not learn anything, and your work will stagnate. (E0005)

The founder of a commercial startup echoed this when he stated:

> I was very impressed by entrepreneurs who were able to listen attentively and take feedback seriously. In some cases, they were able to improve their creativity skills as a result. This shows that they were willing to learn and grow their businesses. (E0004)

The participants highlighted the importance of seeking input from others and being receptive to feedback. Their insights demonstrated a commitment to continuous learning, personal development, and the use of feedback to accelerate entrepreneurship.

4) Committed to Continuous Learning

The findings of the analysis suggest that entrepreneurs in the early stages of their ventures should have a tendency for continuous learning and should be committed to it without feeling complacent. This means that they are open to new ideas and willing to experiment. A continuous learning tendency is also a good indicator of entrepreneurs' ability to adapt and grow. However, those who feel complacent in their status are more likely to have a strong belief in their ideas and be less open to new ideas. This can lead to stagnation in the venture and ultimately lead to its demise. In this vein, one participant mentioned:

> Entrepreneurship is all about learning. You should never be complacent with your knowledge and always be looking to learn more. (E0010)

The director of a fintech startup added:

> Entrepreneurship is not a destination but a journey. You are never learning, and you must be willing to change with time. (E0002)

In summary, the participants stressed the importance of entrepreneurs prioritising ongoing learning and personal development. In an uncertain world, continuous learning and personal growth are key drivers of entrepreneurial success and navigating complexities.

5) Clear Vision and Goal

Another entrepreneurial managerial competence is that entrepreneurs must have a clear vision and goal for their companies, even during the early stages of their journey. To be a successful entrepreneur, it is essential to have a clear vision of the company's aims. Without a goal or target, it can be difficult to remain motivated and focused during the early stages of a business journey. In line with this, one participant commented:

> The most important quality for a successful entrepreneur is having a clear vision and goal for the company. Without this, it can be very difficult to stay motivated and focused during the early stages of their journey. (E0003)

A founder of the PropTech startup replicated this explicitly when he stated:

> An entrepreneur must have a vision and goal for their company, no matter how small it is. They should also have the drive to achieve this goal. (E0007)

According to participants, entrepreneurs need a clearly defined vision of what their venture is supposed to be, and their goals must be well-defined. By focusing on having a clear vision and goal, entrepreneurs aim to motivate and engage their employees, guide strategic decision-making, and measure progress and success against their desired outcomes.

6) More Customer-Focused and Innovative

These findings indicate that entrepreneurs should be more customer-focused and innovative. This means that entrepreneurs should consider their customers, determine what they want or need, and then provide it to them in the best possible way. Thus, they should constantly

explore new ways to improve their products and services. Finally, they should not be afraid of change, even if it means taking risks. In this sense, one participant stated:

> Successful entrepreneurs can see change as an opportunity rather than a threat. They are always looking for ways to improve their products or services, and they are not afraid of taking risks. (E0006)

The director of the PropTech startup added:

> You cannot be complacent in this business. You always have to look for new opportunities, products, and ways to service your customers. (E0007)

During uncertainty, these insights demonstrate a dedication to putting customers at the heart of business strategies, driving innovation and providing exceptional value to customers that exceed their expectations in terms of the services provided.

7) Building a Strong Foundation for Future Success

According to the analysis, managerial competence is the ability to build a strong foundation for future success. This refers to the ability to create a strong vision of the future, build networks through personal and professional relationships, and use technology. The ability to build a strong foundation for future success is crucial because it helps managers stay ahead of the curve and ensures that their businesses are able to grow and compete in a constantly changing environment. Managers who are successful in building a strong foundation for future success have a clear vision of where they want their businesses to go and the knowledge to network effectively and strategically use technology. These skills allow them to create efficiency in their businesses and oversee their projects. In this vein, one participant said:

> The ability to build a strong foundation for future success involves creating a vision for the future and then putting the systems and structures needed to achieve that vision in place. It is also about networking effectively and using technology strategically to create efficiency in your business. (E0003)

The founder of the software startup echoed this by saying:

> Vision, relationships and technology. It is all about having a vision of where one wants to go, networking with the right people, and using technology in the most effective way possible. These are essential skills for managers seeking to build a strong foundation for future success. (E0006)

The participants emphasised the importance of laying a solid foundation for their ventures to ensure long-term success. Collectively, these insights reflect a dedication to establishing the infrastructure, capabilities, and organisational resilience required to navigate uncertainty and position ventures for long-term growth and success.

8) Ability to Develop and Execute Business Plans

In the early stages, entrepreneurs must have the ability to develop and execute business plans. This includes the development of an understanding of the target market, product or service offerings, pricing strategies, and distribution channels. They must be able to identify key financial metrics and performance indicators to help measure their progress. Finally, they must be able to make quick decisions when faced with new opportunities and challenges. Related to this, one participant stated:

> Entrepreneurs need to be able to quickly pivot and adapt their business models to stay ahead of the competition. This demonstrates their ability to quickly assess a situation, determine what needs to be changed, and then go into action. (E0014)

The director of a blockchain startup elaborated on this and stated the following:

> Entrepreneurs must have a clear vision of their business and be able to articulate it in a way that motivates and inspires others. They also need to be able to put together a team of people who share that vision and can help turn it into a reality. This demonstrates the importance of being able to not only develop a clear plan but also rally others around you to support it. (E0016)

Entrepreneurial managerial competence is critical for entrepreneurs in the early stages of starting a business. They must be able to develop a clear plan, assess the situation, and act quickly to achieve success. In addition, they must be able to inspire others and have a clear vision of their business. If these skills are not possessed, entrepreneurs may find it difficult

to achieve success. Figure 5.12 shows the demonstration of creativity and EO through the main theme of entrepreneurial managerial competence and its subthemes.

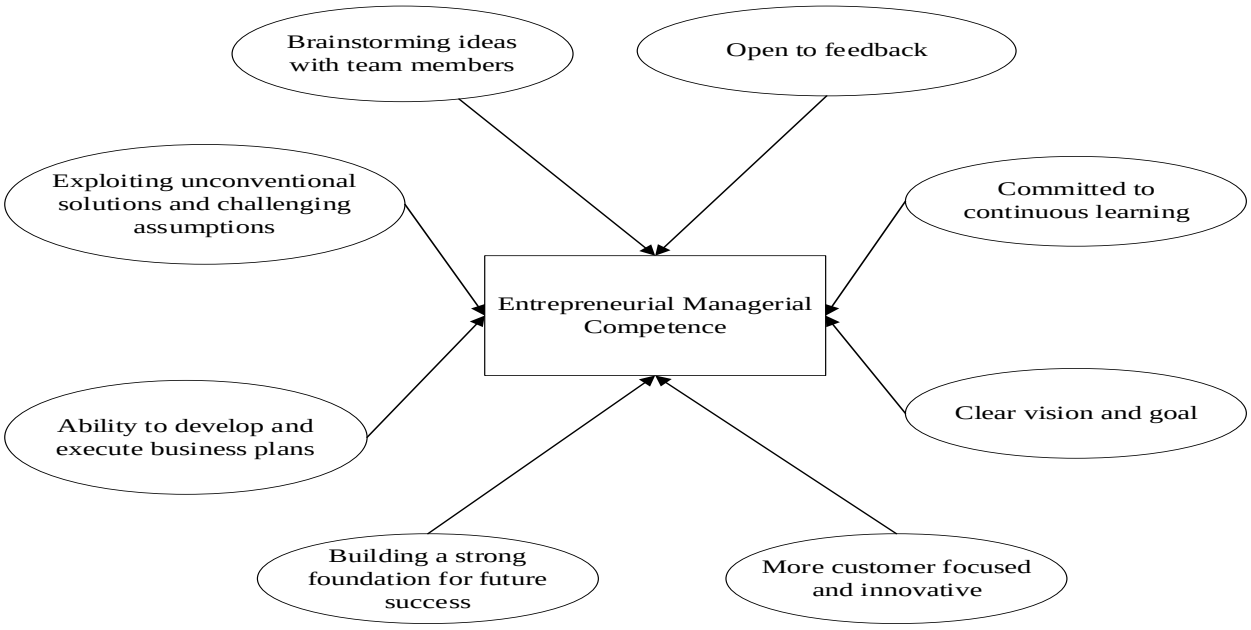

Figure 5.12: Entrepreneurial Managerial Competence Factors

This section closely examined entrepreneurial managerial competence and the ways that it relates to EO and creativity in business organisations. The EO model described by Lumpkin and Dess (1996) aligns with this one. Lumpkin and Dess's 'proactiveness' and 'brainstorming ideas with team members' emphasise dynamic interaction and generating novel ideas to promote proactive, engaged work environments. Moreover, 'exploiting unconventional solutions and challenging assumptions' is a quality of entrepreneurial managerial competence that is consistent with Lumpkin and Dess's (1996) 'innovativeness' principle. The concepts agree that pushing conventional thinking boundaries and appreciating innovation are crucial to the success of any business. Lumpkin and Dess's (1996) EO model aligns 'open to feedback' with 'risk-taking' in entrepreneurial managerial competence. These two concepts emphasise the importance of being open to new perspectives and taking risks. Furthermore, the terms 'committed to continuous learning' and 'autonomy' are similar in Lumpkin and Dess's (1996) EO model, highlighting the importance of self-driven learning.

The concept of ‘clear vision and goal’ parallels Lumpkin and Dess’s (1996) idea of ‘competitive aggressiveness’. These concepts emphasise the necessity of clarity and the aggressive pursuit of set goals in a competitive environment. The concept of being ‘more customer-focused and innovative’ corresponds to Lumpkin and Dess’s ‘innovativeness’, emphasising the importance of customer-centric innovation for success in business. In addition, building a strong foundation for future success and the ability to develop and execute business plans align with Lumpkin and Dess’s (1996) ‘proactiveness’. Such skills are necessary for entrepreneurs to be proactive. The aforementioned correspondences are summarised in Table 5.16.

Table 5.16*:* Alignment of Personal Competence Subthemes with Lumpkin and Dess’s (1996) Entrepreneurial Orientation Model

Entrepreneurial Managerial Competence Subtheme	Managing Entrepreneurs’ Early Stages Through Entrepreneurial Managerial Competence
Brainstorming ideas with team members	Stimulates proactiveness by fostering idea generation and engagement
Exploiting unconventional solutions and challenging assumptions	Enhances innovativeness by encouraging creative thinking
Open to feedback	Promotes risk-taking by emphasising openness to various perspectives
Committed to continuous learning	Boosts autonomy by highlighting self-driven learning and adaptability
Clear vision and goal	Enhances competitive aggressiveness by emphasising clear and aggressive pursuit of goals
More customer-focused and innovative	Reinforces innovativeness through customer-centric innovation
Building a strong foundation for future success	Encourages proactiveness through foresight and planning
Ability to develop and execute business plans	Further reinforces proactiveness through effective execution

In conclusion, the subthemes of entrepreneurial managerial competence and Lumpkin and Dess’s (1996) EO model emphasise the need to encourage proactiveness, innovativeness,

autonomy, and competitive aggression. Managers can effectively instil EO and creativity in their organisations by cultivating these traits.

5.7 Themes and Subthemes Agreement Distribution

This study explores the various factors and dimensions that contribute to the success and growth of tech startups. I divide the analysis into three primary sections, each focusing on a different aspect of entrepreneurship: creativity, uncertainty readiness, and entrepreneurial competencies. These sections consist of multiple themes and subthemes, which provide a fuller understanding of the essential elements that lead to the development and progress of tech startups.

To better understand the significance of these themes and subthemes, I calculated the percentage agreement for each subtheme and presented the results in three separate tables. This data analysis allowed the researcher to identify the most critical factors affecting startups' success. It provides valuable insights into the practices that foster innovation, adaptability, and competencies in a dynamic business environment.

5.7.1 Rationale for Including Quantitative Elements

Although reflexive thematic analysis was the primary method used in this study, basic quantitative elements were included to enhance qualitative results. The combination of quantitative and qualitative methods is becoming increasingly prevalent, as noted by Clarke and Braun (2017), provided that they are performed critically and for complementary goals. I calculated the percentage of participants whose replies contributed to and validated each theme and subtheme, drawing on best practices for "quantizing" themes (Fofana et al., 2020).

The following theme endorsements and frequency throughout the interviews can help reveal deeper patterns in qualitative data, as Terry et al. (2017) demonstrate. According to a systematic study conducted by Fakis et al. (2014), measuring the frequency and presence of themes is a common method for extracting subtleties from participants' concept emphasis. This kind of quantification makes it possible to express the existence of themes as well as varying degrees of prominence.

McCusker and Gunaydin (2015) warned that statistics should support rather than replace qualitative analysis. To avoid driving interpretation, I quantified themes only after completing the qualitative coding process, utilising numbers in a descriptive manner to provide depth. Collingridge (2013) argued that statistics can be used wisely to quantify qualitative findings. Longer prose descriptions may lose some of the intensity conveyed by percentage agreement.

In accordance with the blending approach guidelines (Yardley and Bishop, 2015), I carefully considered whether the percentages would reinforce or mask the nuanced analysis required for this complicated subject. Qualitative essence is still paramount, even when quantification offers further insights. This deliberate use of data was in line with the 2009 criteria set out by Sandelowski et al. 2009 for successfully integrating techniques to maximise the beneficial aspects of each.

5.7.2 Themes and Subthemes: Relationship Between Creativity and Dimensions of Entrepreneurial Orientation in Tech Startups

This section presents an overview of the themes and subthemes linked to the enhancement of innovation in tech startups in accordance with the participant's agreement. Table 5.17 highlights the major themes, innovativeness, proactiveness, taking risks, competitive aggressiveness, and autonomy, as well as their corresponding subthemes, number of participants, and percentage of agreement for each subtheme. The goal of this analysis is to provide a detailed understanding of the aspects that contribute to the success and growth of tech startups by highlighting the importance of creativity, innovation, and risk-taking in their operations.

Table 5.17: Entrepreneurial Orientation Subthemes Agreement Distribution in Tech Startups

Theme	Subtheme	No. of participants	Percentage
Innovativeness (65%)	Encouragement of new ideas	13	65
	Inspiring people and employees	12	60
	Cognitive flexibility	12	60
	Diversity of ideas from diverse teams	14	70
		10	50
	Trust	11	55
	Learn and grow		
Proactiveness (75%)	Alertness to opportunity	15	75
	Problem Sensitivity	13	65
	Continual growth and diversification	16	80
		12	60
	One goal and multiple opportunities	15	75
		13	65
	Opportunity through communication with clients	14	70
	Open-minded and adventurous		
	Desire to be pioneers		
Taking risks (60%)	Lessening fear of failure	12	60
	Inspiring new ideas	11	55
	Increasing willingness to experiment	13	65
		12	60
	Efficient risk assessment		
Competitive aggressiveness (62%)	Increased individual competitiveness	13	65
		11	55
	Competition is less intimidating	12	60
	Quick response and aggressive attitude		
Autonomy (68%)	Reduced reliance on others	14	70
	Create own ideas	12	60
	Feel less in control	13	65

Table 5.17 shows that there are five main themes: innovativeness, proactiveness, taking risks, competitive aggressiveness, and autonomy. These themes contained various subthemes, and each subtheme was rated by the participants to have different degrees of agreement. For

example, innovativeness comprises a range of subthemes. Among them, the one that had the highest level of agreement at 70% was the ‘diversity of ideas from a diverse team’. This outcome explicitly shows that participants strongly believed in the value of diversity in generating innovative ideas. However, ‘inspiring people and employees’ and ‘flexibility of thoughts’, which are the other subthemes, had an agreement percentage of 60%.

In terms of proactiveness, the subthemes of ‘continual growth and diversification’ received the highest agreement score of 80%. This shows that participants had a keen interest in continuous expansion and growth. However, the subtheme of ‘one goal and multiple opportunities’ only achieved an agreement level of 60%. This result indicates that the idea did not resonate well with most participants.

For taking risks, the subtheme of ‘increased willingness to experiment’ scored the highest at 65%. This result demonstrates that participants were open to trying new things. However, the subtheme of ‘inspiring new ideas’ only managed to reach an agreement level of 55%, suggesting that some of the participants were not as open to novel ideas.

In competitive aggressiveness, the subtheme of ‘increased individual competitiveness’ stood out, with an agreement score of 65%. This outcome suggests that participants were generally interested in competing against one another. However, the subtheme of ‘competition is less intimidating’ only managed to score an agreement level of 55%. This result indicated that most participants felt that the competition was intimidating.

Finally, in the autonomy theme, the subtheme of ‘reduced reliance on others’ achieved the highest agreement level of 70%. This result suggests that the participants prefer to rely less on others. However, the subtheme of ‘create their own ideas’ had the lowest agreement score of 60%, indicating that participants did not view generating ideas independently as much as reduced reliance on others. Moreover, the subtheme ‘feel less in control’ achieved an agreement level of 65%, indicating that few participants preferred relinquishing control altogether.

5.7.3 Themes and Subthemes: Managing Entrepreneurial Orientation and Creativity During Uncertain Times

To understand the key factors that contribute to an organisation's readiness to navigate the challenges of uncertainty, I identified four main themes and subthemes based on participant responses. These themes provide insights into areas in which organisations need to focus their efforts on building an uncertainty-ready environment. Table 5.18 presents the main themes, subthemes, and percentage of participants who agreed on the importance of each subtheme. This information helps explain the areas of consensus and the relative significance of various factors in organisations' readiness to navigate the challenges of uncertainty.

Table 5.18: Participant Agreement on Ways Entrepreneurs Engage in Uncertain Times

Theme	Subtheme	No. of Participants	Percentage
Ready structure (60%)	Entrepreneurial mindset	12	60
	Resilience	11	55
	Responsiveness	12	60
	Agility	10	50
	Pivoting	11	55
	Decentralised management	13	65
	Restructuring according to circumstances	12	60
	Digitisation of processes	14	70
Ready culture (65%)	Continuous learning organisation	13	65
	Strong engagement	12	60
	Supporting innovation	14	70
	Collaboration	13	65
	Nonlinear thinking	12	60
	Accepting complexity	11	55
Ready management and leadership (70%)	Transformational leadership skills	14	70
	Creative leadership	12	60

Theme	Subtheme	No. of Participants	Percentage
	Changing management styles	13	65
	Having new skills and tools	14	70
	Exploring novelty	13	65
	Building networks of entrepreneurship	14	70
	Persuasive vision	12	60
	Digital competence	14	70
Ready staff (62%)	Access to information and knowledge	12	60
	Strong human resource management practices	13	65
	Using cross-training techniques	11	55
	Training and improvement of current skills	12	60
	Delegation of authority to employees	11	55
	Composing a diverse workgroup	13	65

Table 5.18 presents an overview of the key themes and subthemes related to uncertainty readiness, which are crucial for entrepreneurs to navigate through the challenges of uncertainty. These themes are crucial in helping organisations tackle the uncertainties of the world. The analysis identified four main themes aligned with readiness for uncertainty: ready structure, ready culture, ready leadership and management and ready staff. The first theme is ready structure, which underscores the importance of having a structure that is flexible enough to adapt to a changing environment. The data revealed that the highest level of agreement was for the digitisation of processes: 70% of respondents supported this statement. However, only half of the participants agreed on the importance of flexibility. Thus, organisations should prioritise flexibility to improve their readiness for uncertainty.

The second theme is ready culture, in which supporting innovation is ranked as the most crucial aspect, given that it had a 70% agreement rate. However, accepting complexity recorded the lowest agreement rate; only 55% of the respondents agreed with its importance.

Thus, organisations need to channel their resources to foster a culture of innovation that enables them to adapt to the volatile environment.

The third theme is ready management and leadership, which emphasises the importance of having leaders who possess the necessary skills to adapt to a changing environment. The data presented shows that several subthemes received a 70% agreement rate, including transformational leadership, digital competence, building entrepreneurship networks, and having new skills and tools. However, creative leadership had only a 60% agreement rate, signalling the need for organisations to focus on developing leaders who think creatively to resolve the challenges posed by uncertainty.

The last theme is ready staff, which highlights the need for a diverse workforce with the necessary skills to adapt to changing environments. The data revealed that strong HRM practices and diverse workgroups had the highest agreement rate (65%). However, using cross-training techniques and delegating authority to employees had the lowest agreement rate (55%). Organisations must prioritise training techniques to improve staff preparedness and adaptability.

In conclusion, the analysis highlighted the essential themes and subthemes required to achieve uncertainty readiness. Organisations must focus on cultivating an uncertainty-ready culture, structure, management, leadership, and staff to navigate the challenges of an uncertain environment.

5.7.4 Themes and Subthemes Examination: Demonstrating Entrepreneurial Orientation and Creativity in Early-Stage Entrepreneurs

This section explores the key competencies contributing to the success of entrepreneurs and their businesses. I categorised these competencies into three main themes: personal, interpersonal, and entrepreneurial managerial competencies. Each theme was further divided into subthemes that represented specific aspects that contributed to overall success. Table 5.19 illustrates the number of participants who agreed with each subtheme and the corresponding percentage of agreement.

Table 5.19: Participant Agreement on Competency Themes in Early-Stage Entrepreneurs

Theme	Subtheme	No. of Participants	Percentage
Personal competence	Inspire others by sharing their story	14	70
	Entrepreneurs need to be creative themselves	13	65
	Proactive about learning new things	14	70
	Focus on the goal and maintain a positive outlook	13	65
	Recognise and capitalise on market trends	14	70
	Be organised and able to multitask	13	65
Interpersonal competence	Relationship-building skills with key stakeholders	12	60
	Capable of forming alliances	13	65
	Encourage employees to take risks	12	60
	Express appreciation for innovative ideas	11	55
	Secure needed resources	13	65
Entrepreneurial managerial competence	Brainstorm ideas with team members	13	65
	Exploit unconventional solutions and challenging assumptions	14	70
	Open to feedback	13	65
	Committed to continuous learning	12	60
	Clear vision and goal	13	65
	More customer-focused and innovative	12	60
	Build a strong foundation for future success	13	65
	Ability to develop and execute business plans	14	70

Table 5.19 presents the level of agreement among the 20 participants for each theme and subtheme. After careful examination of the captured data, it was determined that the personal competence theme had the highest percentage of agreement (70%). Within this primary theme, the vast majority of participants agreed on three core principles: ‘inspiring others by sharing their story’, ‘proactive about learning new things’ and ‘recognising and capitalising on market trends’. The interpersonal competence theme received the second-highest score, with an overall agreement of 62%. Among the subthemes, the highest level of consensus was reached for ‘being capable of forming alliances’ and ‘securing needed resources’: 65% of participants agreed on these key elements. Finally, the entrepreneurial managerial competence theme was supported by a 65% level of agreement among the participants. Within this category, there are two subthemes: ‘exploiting unconventional solutions and challenging assumptions’ and ‘the ability to develop and execute business plans’, which boasted a 70% consensus level, signifying their crucial importance. In accordance with these results, it became clear that the majority of participants recognised the importance of particular skills in terms of various competencies. This data can be used to enhance and further develop these competencies, which can prove invaluable for success in various fields.

5.8 Chapter Summary

This chapter analyzes interviews conducted with 20 entrepreneurs from Singapore, Australia, and NZ. First, I provided participants’ demographic information. Then, I explored the relationship between creativity and EO in the three countries in the first part of this chapter. I found that creativity relates to all dimensions, resulting in an increase in innovativeness, proactiveness, risk-taking, competitive aggressiveness and autonomy. The second part of the analysis focused on managing creativity and EO during uncertainty. The findings show that startups manage their companies by developing a ready structure, culture, management, leadership team, and staff. The final section encompasses the ways entrepreneurs demonstrate and facilitate creativity and EO in the early stages of their ventures. In accordance with the findings, they employed personal, interpersonal, and entrepreneurial managerial skills to facilitate the management of this stage.

Chapter 6: Discussion

6.1 Introduction

This chapter discusses the findings structured around the research questions from Chapter 5 in detail, linking the results back to the existing theory focusing on three key elements that emerged from the interview responses. From the entrepreneurs' perspective, this study explores the ways in which creativity and EO relate to the early stages of tech start-ups in Australia, NZ, and Singapore. It also explores the reasons why creativity and EO are critical in the early stages of digital startups in these countries.

The three main themes addressed in this chapter are as follows:

1. The ways that creativity relates to the dimensions of entrepreneurial orientation
2. The ways that entrepreneurs engage in creativity and entrepreneurial orientation during uncertain times
3. The ways entrepreneurs demonstrate creativity and entrepreneurial orientation in the early stages of startups.

Finally, this chapter provides a theoretical framework to elucidate the connection between creativity and EO of tech startups by providing insights gained from studies conducted with tech entrepreneurs in Australia, NZ, and Singapore.

6.2 Research Findings

The findings of this study are highly consistent with the three key features of the interview responses. Each facet confirms Lumpkin and Dess's (1996) EO model while providing unique insights into the interaction of creativity and EO in technology startups, specifically during uncertainty.

- **Relationship between creativity and EO dimensions**: Following the five-dimensional model of Lumpkin and Dess (1996), the findings show that creativity significantly improves all EO dimensions in tech startups. Creativity supports not only innovativeness, which is a key component of Lumpkin and Dess's (1996) model,

but also risk-taking, proactiveness, competitive aggressiveness, and autonomy. These findings support Lumpkin and Dess's (1996) assertion that creativity is essential to the entrepreneurial process and provide new insights into the ways in which creativity can act as a catalyst for a full range of EO dimensions.

- **Entrepreneurs' engagement in creativity and EO in uncertain environments**: This factor is pivotal because startups must be nimble and adaptable in their responses to constantly evolving business conditions. Firms should foster a culture that encourages creativity and innovation, and their leaders and managers should possess the ability to modify strategies swiftly in accordance with the rapidly changing landscape. Moreover, employees should be equipped with a sound understanding of uncertainty concepts and practices to help startups confidently navigate challenging times. Furthermore, the findings highlight the importance of using a creative lens to preserve a competitive edge and navigate obstacles, thus providing a new perspective on the relevance of Lumpkin and Dess's (1996) EO model in uncertain environments. The interviewed entrepreneurs encountered a wide range of uncertain scenarios in their respective businesses. Numerous unpredictable circumstances have been frequently mentioned, including rapidly shifting market conditions, the entry of new competitors, fluctuating demand from customers, technological disruptions, regulatory alterations, and economic downturns. For instance, one entrepreneur shared how their business faced immense uncertainty during the COVID-19 pandemic, primarily due to drastic shifts in customer behaviour. Another entrepreneur highlighted the challenges encountered when a new competitor with groundbreaking technology entered the industry, resulting in a significant overhaul of the competitive landscape. The profound turbulence and unpredictability experienced by these entrepreneurs were emphasised, especially in the context of managing tech startups.

- **Facilitation of EO and creativity during early-stage entrepreneurship**: The findings indicate that entrepreneurial managerial competence significantly contributes to fostering creativity among early-stage entrepreneurs. This suggests that strong personal, interpersonal, entrepreneurial, and managerial skills can enhance creativity within an organisation, potentially leading to monumental success for these

businesses. The findings support Lumpkin and Dess's (1996) claim that EO dimensions promote entrepreneurship, which adds to the knowledge of the links between Lumpkin and Dess's (1996) EO model dimensions.

Entrepreneurial managerial competence encompasses a diverse array of leadership, managerial, and problem-solving skills that equip entrepreneurs with the capacity to effectively oversee their businesses, particularly in unpredictable situations (Al Mamun & Fazal, 2018). The findings from the study shed light on the immense significance of the various competencies that entrepreneurs must possess to thrive in this field. These competencies comprise aptitude for creative thinking, ability to make rapid decisions, skill to motivate teams, utilisation of unconventional approaches, openness to receiving feedback, focus on fulfilling customer needs, and implementation of business strategies. By possessing these competencies, entrepreneurs can cultivate innovation, adapt to changes, inspire their teams, meet customer demands, and lay a solid groundwork to achieve success. Ultimately, entrepreneurial managerial competence provides entrepreneurs with the capability to navigate complex challenges with ingenuity and capitalisation on emerging opportunities.

Comparing the findings with Lumpkin and Dess's (1996) EO model highlights their validity while offering new insights into the dynamics of creativity and EO in tech startups. The discussion section delves into the implications of each finding and the ways that they are consistent with or improve upon Lumpkin and Dess's model.

6.3 Relationship Between Creativity and Entrepreneurial Orientation Dimensions

This section delves into the first objective of this study by exploring the ways in which creativity relates to each EO dimension. The insights gained from this exploration offer a multifaceted understanding of how creativity shapes these dimensions. The purpose of this section is to explore how creativity relates to each EO dimension in order to understand the first objective of this study. The insights gained from exploring these dimensions in

technology startups can offer a multifaceted understanding of how creativity can shape them to these dimensions to be successful. Empirical evidence supports the idea that creativity plays a critical role in the development of innovativeness, proactiveness, risk-taking inclination, competitive aggressiveness, and autonomy in organisations (Al Mamun & Fazal, 2018).

The findings of this study confirm that creativity plays a significant role in augmenting EO dimensions in tech startups. As a result of creativity, Altinay et al. (2021) asserted that individuals can develop innovative and unique ideas, leading to a competitive advantage. Furthermore, creative individuals show a stronger inclination towards entrepreneurship, exhibiting high levels of innovation, risk-taking, proactiveness, and competitive aggressiveness. This finding is similar to Gong et al. (2009), who asserted that creativity enhances self-efficacy, which is vital for overcoming obstacles. Moreover, creative individuals are more likely to start businesses because they are motivated to do so.

The following points show how creativity relates to each dimension of the Lumpkin model.

Creativity and innovativeness: The theme "Support Innovation" is closely aligned with the innovativeness dimension, as evidenced by the subthemes of "Encouragement of New Ideas" and "Diversity of Ideas from a Diverse Team." These subthemes demonstrate how fostering creativity can cultivate an environment that promotes innovation. This notion is supported by Lumpkin and Dess's (1996) concept, which posits that a firm's tendency to support novel ideas and creative processes is the foundation of innovativeness. Lumpkin and Dess (1996) defined innovativeness as a firm’s propensity to foster and support new ideas, originality and creative processes. This has driven the development of new products, services and technological processes.

According to these findings, a company’s willingness to embrace new ideas, as expressed in its culture and ideals towards innovation (Tuominen et al., 2022), is critical for nurturing innovation among teams. Businesses create a nurturing environment that magnifies creativity and innovation by promoting new ideas and supporting employees’ drive to explore new possibilities. This is especially relevant to innovation because creativity frequently develops from challenging conventional thinking (Shefiu, 2019).

Furthermore, these findings help to explain the critical role of cognitive flexibility in encouraging innovation. The research findings provide insights into the pivotal role of cognitive flexibility in driving innovativeness within various spheres. Cognitive flexibility refers to the capacity to effortlessly transition between different concepts or perspectives while transcending conventional boundaries through unconventional thinking (Dheer & Lenartowicz, 2019). The entrepreneurs interviewed emphasised the significance of perceiving problems and solutions from multiple angles, enabling them to generate a multitude of innovative ideas and approaches.

With cognitive flexibility at their disposal, entrepreneurs can liberate themselves from traditional mindsets and standard practices that may otherwise hinder innovation. An instance of this can be observed in an entrepreneur's decision to disregard usual retail channels and embrace an extraordinary distribution model, consequently imparting added value to their customers. Such flexible thinking empowers start-ups to constantly reimagine their business models and practices, ultimately keeping them one step ahead of their competitors. The data gathered emphasise the correlation between cognitive flexibility, open-mindedness, and a start-up's ability to unlock its innovative potential. These findings are consistent with those of prior studies, such as Chen et al. (2022), who argued that flexible and divergent thinking improves creativity.

The findings show that diverse teams provide a plethora of ideas and viewpoints, thus catalysing innovation and informed decision-making. This is consistent with prior studies on the numerous benefits of diverse teams, including more significant decision-making, innovation, creativity, and problem-solving (Kohl & Prikladnicki, 2022). Diversity fosters increased cooperation and improved communication because team members learn to recognise and appreciate each other’s differences. The findings of this study support those of Lumpkin and Dess (2001), who contended that team diversity can stimulate innovation.

Moreover, the findings suggest that trust among team members and between employers and their employees catalyzes creativity and increases startup innovation. Startup work atmosphere, open communication, and openness contribute to this trust (Goncalves, 2021); however, clear goals and roles must be created within a team to eliminate confusion and

mistrust (Jünger et al., 2007). These findings confirm Lumpkin et al.'s (2009) claim in terms of the relevance of trust in driving organisational innovation.

Finally, the findings support Lumpkin and Dess's (1996) claim that continuous learning and skill improvement generate innovation. Their concept emphasises the importance of continual learning for fostering organisational innovation. Organisations can improve their performance and successfully exploit new market opportunities by improving their absorptive capacity and entrepreneurial mindset. The findings of this study show that creativity inspires people to constantly improve their abilities and progress, thus fuelling organisational innovation. For example, Munoz-Pascual and Galende (2020) stated that knowledge, creativity, R&D and sustainable product innovation performance are interwoven.

Ultimately, the findings of this study provide empirical support for Lumpkin and Dess's (1996) characterisation of innovativeness as a key component of EO. Furthermore, they have implications for technology startups seeking to foster innovation within their teams, potentially increasing the success rate of their innovation efforts (Lumpkin & Dess, 1996).

Creativity and proactiveness: In accordance with the theme of "Proactive Thinking," subthemes such as "Alertness to Opportunity" and "Desire to be Pioneers" exemplify how creativity fosters a proactive attitude within the realm of technology startups. This aligns with Lumpkin and Dess's characterisation of proactiveness as an anticipatory, forward-looking capacity that is essential for achieving entrepreneurial success. Lumpkin and Dess (1996) described proactiveness as an organisation's enthusiasm and readiness to foresee and respond to future demands. Their concept emphasises the importance of anticipating future difficulties or changes rather than simply reacting to them. In line with this viewpoint, this study adds to the body of knowledge by emphasising the critical role of creativity in increasing an organisation's proactive disposition. In this setting, creativity serves as a catalyst, allowing organisations to predict, adapt, and successfully respond to future difficulties.

The findings of this study support the claims of Dai et al. (2014), demonstrating that creativity aids not only in identifying new opportunities but also in connecting existing ideas. This makes it easier to implement innovative procedures and systems within organisations.

Organisations can use creativity to link ideas, resulting in unique solutions and breakthroughs.

Furthermore, creativity promotes an environment that encourages open dialogue between employees, bridges gaps and builds unity. This is consistent with Smaliukienė and Survilas's (2018) contention that communication assisted by creativity is critical for driving proactiveness in an organisation.

The findings assert that applying creativity in anticipation of future scenarios considerably improves an organisation's readiness for upcoming issues. According to Church et al. (2015), this proactivity can take many forms, including brainstorming new ideas, applying existing knowledge in novel ways to solve problems, and using visual or digital tools to communicate ideas within an organisation. These innovative tactics foster a proactive culture that is prepared to foresee and respond to future requirements.

Building on the insights of Lumpkin and Dess (2001), this study contends that organisations that adopt a proactive and creative approach are more likely to recognise and seize new opportunities. These findings are consistent with those of Hu et al. (2018), indicating a substantial relationship between creativity and a proactive personality. This combination creates increased sensitivity to market possibilities and a readiness to capitalise on them, resulting in a substantial competitive edge in today's turbulent business world.

Furthermore, the findings indicate that creativity and good communication work synergistically to increase creativity and innovation, which is consistent with the findings of Smaliukienė and Survilas (2018). This combination aids in the removal of barriers in inflexible organisational structures, resulting in a more cohesive and collaborative work environment. This dynamic interaction between creativity and communication improves proactiveness, which is a crucial component of Lumpkin and Dess's (1996) EO model.

The findings of this study suggest that creativity can increase entrepreneurs' propensity to adopt a proactive approach toward a company. This strategy is distinguished by a forward-thinking attitude, a predisposition to predict future trends, and readiness to pioneer new activities. Entrepreneurs can effectively prove their operations by cultivating a culture of

proactiveness inside their organisations. These findings align with those of Dada and Fogg (2016) and expand on Dess and Lumpkin's (2005) theoretical conceptualisation.

In conclusion, the findings offer empirical support to Lumpkin and Dess's (1996) EO model's proactiveness dimension, demonstrating the critical importance of creativity in establishing a proactive organisational culture. Organisations can significantly improve their proactiveness by embracing creativity and preparing themselves for the effective navigation of future business environments.

Creativity and risk-taking: The theme "Pushing Boundaries" with subthemes such as 'Lessening the Fear of Failure' and 'Efficient Risk Assessment' demonstrates how creativity equips entrepreneurs to embrace and manage risks. This aligns with the risk-taking dimension of Lumpkin and Dess's model, which emphasises the willingness to commit resources to opportunities with uncertain outcomes. The two forces of creativity and risk-taking often collide in the complicated world of entrepreneurial ventures and drive each other toward new heights. The ability to accept appropriate levels of risk, especially when exploring new ambiguous paths, is a cornerstone of Lumpkin and Dess's (1996) EO model. The findings deepen the understanding of this dynamic and highlight the importance of these aspects in entrepreneurship.

In this analysis, creative individuals were found to be more likely to take risks and reduce their fear of failure. This can be achieved by inspiring new ideas and increasing the willingness to conduct experiments. This is consistent with Kelley and Kelley (2012), who stated that many people repress their creative impulses because of fear of judgement, the unknown, taking the initial step, and losing control. However, creativity can be practised and rediscovered by conquering these fears.

In addition, calculating the lowest risk should be a priority when making decisions that are most likely to succeed. By doing so, individuals not only feel more confident about their ventures but also have less hesitation when taking risks that might lead to success. Ultimately, by reducing the fear of failure and encouraging risk-taking, individuals are able to achieve their goals more easily.

Prior studies have reached the same conclusion. For example, according to Mmbengwa et al. (2013), it is crucial to remember that not all risks are equal. Some might be riskier than others; however, ultimately, it is for individuals to decide what they are willing to take on. By understanding the types of risks and how to calculate them, individuals are better equipped to make informed decisions regarding their ventures. Furthermore, some studies have shown that creative people tend to take more risks. This may be because they are more likely to see new possibilities and opportunities in life, which can lead them to take risks that they would otherwise not consider (Salvi & Bowden, 2020).

In addition, the findings indicate that creative skills allow for a more informed and comprehensive assessment of potential risks, allowing individuals to focus their efforts on profitable initiatives. This is again consistent with the approach of Lumpkin and Dess (1996), who emphasised the synergistic relationship between creativity and good risk management. These findings echo those of Bowers and Khorakian (2014), who emphasised that creativity can improve risk assessment by allowing for a broader view, generating new ideas, and promoting critical thinking.

In summary, the findings provide strong support for the creativity and risk-taking features of Lumpkin and Dess's (1996) model of EO. The findings indicate that the interplay between creativity and risk-taking helps explain how these critical factors lead to innovation and business success. Emphasising mutual reinforcement, as seen in Lumpkin and Dess's approach, can assist entrepreneurs in strategically managing risks while encouraging creativity.

Creativity and competitive aggressiveness: In the theme "Productive Competitiveness", creativity is seen enhancing competitive aggressiveness through subthemes like 'Increased Individual Competitiveness' and 'Quick Response and Aggressive Attitude'. This reflects Lumpkin and Dess's perspective on competitive aggressiveness as the intensity of their efforts to outperform their rivals. Competitive aggressiveness is defined in Lumpkin and Dess's (2015) model as a firm's aggressive stance that aims to outperform its rivals. The findings of this study highlight the critical role that creativity plays in fostering competitive aggressiveness and help explain its importance in the entrepreneurial domain.

According to these findings, creative individuals are more aggressive in terms of competition. This competitive attitude stems from the EO of Lumpkin and Dess's (1996) model, which confirms that entrepreneurs who engage in aggressive business generally achieve remarkable success. Their fear of competition decreases when creativity increases their willingness to take risks, which is consistent with the model's risk-taking orientation (Lumpkin & Dess, 1996). These findings reveal the interesting aspects of how creative entrepreneurs are more assertive and comfortable with competition. The creativity of entrepreneurs reduces their competitors' intimidation. Interestingly, flexible thinking enables creative entrepreneurs to respond quickly to competitive threats through innovative counterstrategies (Ratten, 2020). For example, one entrepreneur discussed devising a novel partnership model to counter a competitor's pricing war.

In addition, the findings show that creativity promotes self-awareness and allows people to recognise their talents and weaknesses better. According to Townley (1995), creativity may be viewed as a way to discover and express one's unique points of view, ideas, and talent, allowing individuals to better understand themselves and their capabilities. This innate understanding can affect proactiveness and competitiveness in an entrepreneurial setting.

Aggressiveness in competition, such as risk-taking, is inextricably linked to the analysis of the types of risk (Mmbengwa et al., 2013). Creative people are more willing than others to take risks (Salvi & Bowden, 2020) because they see new possibilities and opportunities that others may overlook. This eagerness to explore uncharted territory can often lead to an aggressive competitive attitude, thus confirming the synergies postulated by Lumpkin and Dess between creativity, risk-taking, and competitive aggressiveness.

Interestingly, the findings suggest that creative tech startups can respond more quickly to changes in market competition. They have a significant competitive advantage because of their speed combined with an aggressive stance. This finding is consistent with the argument in the literature that an aggressive approach, even at the expense of confidence, is critical for entrepreneurial success (Oei & Pratono, 2021). This echoes what the literature has advocated: entrepreneurs must adopt an aggressive and confrontational strategy to truly outperform the

competition (Vantilborgh et al., 2015), which is a trait that is critical to Lumpkin and Dess's (1996) EO model.

In summary, the findings provide strong evidence that Lumpkin and Dess's (1996) model links creativity, competitive aggressiveness, and risk-taking. The combination of these elements, as revealed by the study's findings, provides important insights into how they interact to achieve entrepreneurial success.

Creativity and autonomy: The theme "Decision Independence", with subthemes such as 'Reduced Reliance on Others' and 'Creating Own Ideas', shows how creativity promotes autonomy in decision-making. This finding supports Lumpkin and Dess's (1996) view of autonomy as an independent action by entrepreneurs to bring forth their business visions. Autonomy is an important component in the context of tech startups and refers to the ability of an organisation and its members to make independent decisions and take appropriate action. This characteristic is often critical for the successful realisation of organisational goals and aspirations (Lumpkin & Dess, 1996; Lumpkin et al., 2009). According to these findings, creativity plays a crucial role in creating autonomy in these organisations.

The findings of this study reveal three significant ways in which creativity enhances the autonomy of startups, which is consistent with Lumpkin and Dess's (2001) conceptualisation of autonomy as a feature of EO. First, companies can develop their own original ideas. This ability to think outside the box allows companies to be independent in their strategic orientation because they do not rely on imitating others' plans (Amabile et al., 2004).

Second, creativity reduces startups' dependence on others. The ability to innovate and develop new ideas or goods reduces dependence on existing market offerings and leads to a greater sense of autonomy (Dess et al., 2007). This view is consistent with Fisher's (2010) suggestion that creativity and autonomy often collaborate.

Third, creativity promotes innovation in startups, which increases their autonomy. Companies that have high levels of creativity are more likely to be creative, which increases their autonomy (Lumpkin & Dess, 2001). Given that technology companies are often at the

forefront of innovation, the link between creativity, innovation, and autonomy has become increasingly important.

Moreover, the findings reveal an intriguing link between the creativity, control, and sense of autonomy experienced by entrepreneurs. When delving into groundbreaking ventures, entrepreneurs often perceive themselves as less influenced by external factors, thus amplifying their sense of autonomy. This observation strongly aligns with Albert and Couture (2013), who suggested that entrepreneurs resist control because of the fear of being subjected to the will of others.

Interestingly, the findings revealed that high levels of control are frequently seen as stifling creativity, thus emphasising the close connection between creativity and autonomy. These findings echo the broader body of literature that has argued that the perception of control has a significant impact on creativity and autonomy (Speklé et al., 2017). However, according to Speklé et al. (2017), this relationship is complex, and depending on its implementation, control can serve as a constraint or valuable guide. These findings underscore the critical importance of how control is perceived and managed in entrepreneurial activities. Therefore, the intricate relationship between creativity, control, and autonomy necessitates a balanced approach to foster innovation in entrepreneurship.

Finally, creativity has a great impact on EO and promotes innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy in tech startups. However, in addition to these benefits, creativity can create an unstable atmosphere and a high risk of tendencies. Therefore, startup management must balance these factors to ensure long-term success (Lumpkin & Dess, 2001).

In accordance with these findings, it can be argued that creativity promotes the five aspects proposed by Lumpkin and Dess (1996): innovativeness, proactiveness, risk-taking, competitive aggressiveness and autonomy. This underscores the critical importance of creativity in shaping the EO of tech startups.

Furthermore, although fostering creativity is necessary, it is also important for startup managers to manage the potential problems they can create. This balance between fostering

creativity and minimising its potential downsides is a critical component of startups' long-term growth.

Creativity develops a strong level of EO that fosters innovation, proactiveness, risk-taking, competitive aggressiveness and autonomy in startups. However, problems that creativity can cause, such as fostering unstable situations and excessive risk-taking, require wise management.

Finally, the relationship between creativity and entrepreneurship is both multidimensional and nuanced. To create long-term growth and a competitive advantage, entrepreneurs must harness the potential of creativity while avoiding its disadvantages.

In accordance with the aforementioned findings, a theoretical representation of the ways in which creativity relates to the five dimensions of EO in Lumpkin and Dess's (1996) model of tech startups is illustrated in Figure 6.1. This figure demonstrates the relationship between creativity and Lumpkin and Dess's five dimensions of EO in technological businesses. The one-way arrows connecting creativity to each EO component, specifically innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy, show that creativity fosters or increases these dimensions. The term "promote" in Figure 6.1 indicates that creativity positively contributes to enhancing each EO dimension, as reflected in the entrepreneurs' efforts and practices. The findings revealed that entrepreneurs actively promoted creativity within their startups, in alignment with Lumpkin and Dess's (1996) model of EO. For instance, entrepreneurs promote innovativeness by creating an open culture that encourages experimentation and supports learning from failure. They promoted proactiveness by maintaining the flexibility to capitalise on emerging opportunities. Entrepreneurs also promote risk-taking by building trust, reducing fear of judgment, and allowing team members to be accountable for creative ideas. Furthermore, entrepreneurs promote competitive aggressiveness by understanding their relative strengths and weaknesses and empowering rapid responses. Finally, entrepreneurs promoted autonomy by enabling independent problem-solving and self-sufficiency. In conclusion, I found that the aforementioned creative traits and practices promoted all the EO dimensions. As such, the term "promote" captures how entrepreneurs consciously encourage creativity across various

dimensions, directly supporting Lumpkin's model“. Furthermore, creativity promotes competitive aggressiveness by enhancing entrepreneurs’ understanding of their strengths versus rivals and enabling rapid responses to competition. Finally, creativity promotes autonomy in developing novel solutions by fostering independent thinking and self-sufficiency. The diagram summarises the findings of this chapter’s enquiry, which reveals that creativity has a positive relationship with each EO dimension in tech startups. It visually displays the chapter’s primary discovery of the relationship between creativity and EO dimensions.

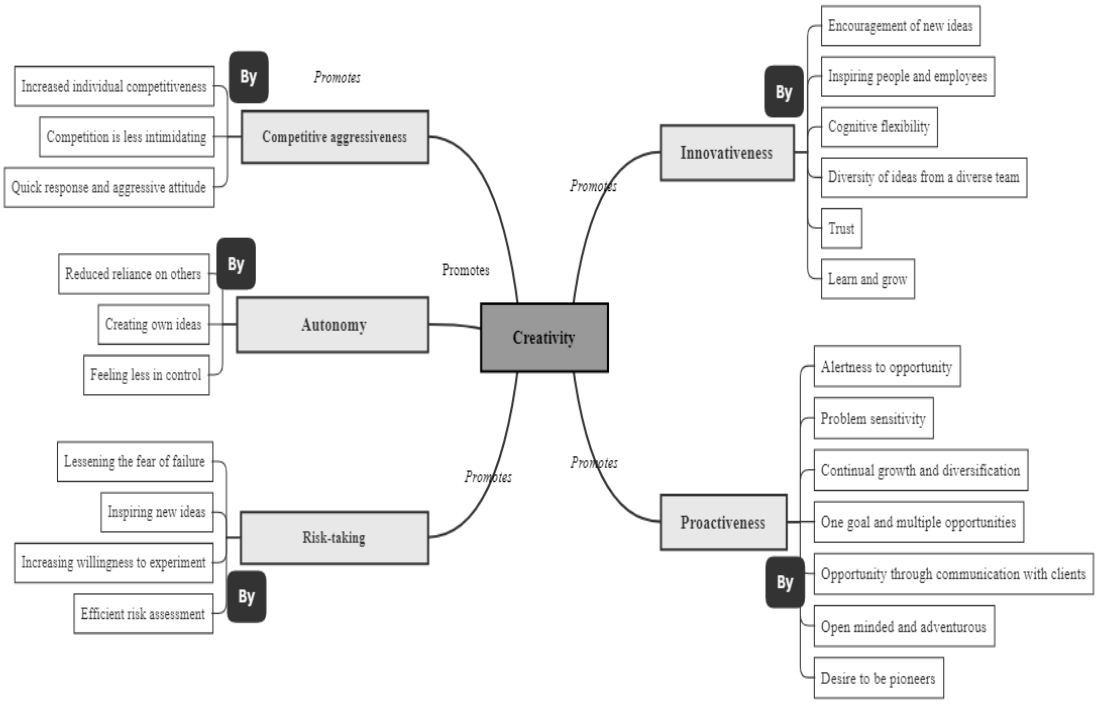

Figure 6.1: Creativity Relationship Using Lumpkin and Dess’s (1996) Entrepreneurial Orientation Five Dimensions Model

6.4 Creativity and Entrepreneurial Orientation in an Uncertain Environment

In the first part of this chapter, I examined the effects of creativity on various dimensions of EO, as presented by Lumpkin and Dess (1996). In this section, I explore these phenomena in

a specific business setting. This section focuses on the uncertain environment that is a reality for modern organisations, especially startups in Australia, Singapore, and NZ. In such challenging environments, the importance of creativity and EO has become even more apparent.

In essence, creativity is a necessary component of EO (Ferreras-Méndez et al., 2021). This is particularly important in uncertain situations. According to Amabile et al. (2004), companies need to quickly develop creative solutions and ideas in such situations. Creativity is enhanced when companies understand their environments and take advantage of emerging opportunities. This was echoed by Miron-Spektor et al. (2011), who stated that organisations function in ever-more complex and uncertain environments that require their people to think creatively to succeed in these situations.

However, in an uncertain environment characterised by unpredictability, companies must be even more creative to stay ahead (Jari & Lauraéus, 2019). According to Lumpkin and Dess (2001), startups require autonomy, competitive aggressiveness, innovativeness, proactiveness, and risk-taking to overcome the difficulties of an uncertain environment.

According to the findings, startups in Australia, NZ, and Singapore are increasingly emphasising EO and innovation in their strategies to cope with uncertain circumstances. These challenging circumstances have been characterised as a new business reality (Kakko et al., 2016).

The modern business environment is characterised by extraordinary uncertainty, making it challenging for organisations to operate effectively. Rapid changes in technology, market conditions, and customer behaviour make it even more difficult to remain competitive (Jari & Lauraéus, 2019).

In response to these issues, startups in many countries are rethinking their approaches to EO. To deal better with an uncertain environment, they consider changes in their structures, cultures, management, leadership, and staffing. These improvements, consistent with Lumpkin and Dess's (1996) EO model, can increase autonomy, elicit more aggressive competitive behaviour, support innovation, encourage proactive practices, and control risk-

taking, helping startups to survive and thrive in an uncertain environment. This finding is logically structured around the research question, linking the results to the existing theory.

6.4.1 Structure

The structure of this section refers to the internal organisation, including hierarchy, decision-making processes, and general operating framework. As described by Lumpkin and Dess (1996), this structure can have a significant impact on a startup's entrepreneurial mindset. Specifically, the structure in place can have a significant impact on the autonomy dimension, which refers to an organisation's ability to act and make decisions independently. According to these findings, it is critical for startups to have an organisational structure that is adaptive and sensitive to fast-paced situations (Kollmann et al., 2021). According to these findings, startup companies in Australia, Singapore, and NZ have uncertainty-ready structures. They have solid processes in place and structures that are meant to react quickly to environmental changes to respond to business changes.

Furthermore, the findings indicate that if firms flourish in an uncertain environment, they must cultivate an entrepreneurial mindset. This type of attitude promotes resilience and the ability to rapidly adapt to environmental changes. Moreover, entrepreneurs with an entrepreneurial attitude are more likely to have a flat, decentralised structure that improves the agility and adaptability of startups (Schoemaker et al., 2018).

To achieve success in uncertain environments, it is critical to have structural resilience (Millar et al., 2018). For example, it has been confirmed that a resilient team is well known for its ability to adapt to changing market needs, and its strength stems from social aspects such as relationships and teamwork effectiveness (Sharma & Sharma, 2016).

Likewise, findings stress that startups should use a decentralised management structure to respond efficiently to the dynamic and uncertain environment in which they operate (Pashutan et al., 2022). It has been posited that a decentralised structure allows personnel at lower levels to make decisions, resulting in faster problem-solving and scenario handling (Darvishmotevali, 2019). Prior studies have demonstrated that decentralised management structures have several advantages, including improved adaptability to changing

environments, greater flexibility, and responsiveness to customer needs (Pashutan et al., 2022), and the prevention of bureaucracy and over-centralisation (Darvishmotevali, 2019).

Furthermore, the findings of this study suggest that to remain competitive and successful in such an environment, startups must be adaptable and willing to adapt to changes in the external environment over time. This is consistent with prior findings (Saleh & Watson, 2017). Given this adaptability, startups can deal with shifting circumstances while maintaining long-term success (Kaivo-oja & Lauraéus, 2018).

Furthermore, the findings suggest that to effectively handle an uncertain environment, startups should digitise internal and external operations. Startups may gain a competitive edge by using digital technology for innovation (Sussan & Acs, 2017). According to prior studies, in an uncertain environment, this structure becomes especially important because unpredictability and rapid changes require a structure that allows for swift decision-making and adaptability (Koçyiğit & Akkaya, 2020). Hence, the structure must be aligned with the startup's EO and, more specifically, with its need for autonomy and risk-taking.

In summary, the significance of independent decision-making in uncertain circumstances, a crucial aspect of EO, is in line with the propositions of Lipschitz and Strauss (1997). In this context, situations characterised by uncertainty require a naturalistic approach to decision-making, in which choices are guided by past experiences, intuitive judgements, and the ability to swiftly assess and adapt to evolving circumstances. The research findings reveal that successful startups in Australia, NZ, and Singapore have established structures and procedures that facilitate this style of decision-making. Fundamentally, the findings echo the contributions of Kail (2010) and Lipshitz and Strauss (1997) by demonstrating how their concepts manifest in the EO of thriving startups. These findings further emphasise the need for startups to cultivate an entrepreneurial mindset, possess an adaptable and flexible organisational structure, and harness digital technology to drive innovation, enabling them to prosper in uncertain environments.

Ultimately, within the realm of uncertain environments, the ability to effectively lead becomes intricately intertwined with the organisational structure used within startups. The findings of this study help explain the fact that startups that thrive in uncertain conditions

often possess structures that promote decentralisation, agility, and adaptability. It is noteworthy to observe the ways that these characteristics align with the insights provided by Kail (2010) in terms of skilled leadership in immensely uncertain circumstances.

6.4.2 Culture

According to this study's findings, to maintain a competitive edge, startups should build a culture of continuous learning, engagement, creativity and innovation. In this vein, Lumpkin and Dess (1996) suggested that entrepreneurial cultures exhibit these attributes and drive EO dimensions such as autonomy, competitive aggressiveness, innovativeness, proactiveness, and risk-taking propensity. According to their model, innovativeness is closely related to creativity in this context because it involves developing new ideas and adopting unconventional approaches to problem-solving. In accordance with this culture, employees must be encouraged to take risks, accept complexity, and think creatively in a collaborative environment for an organisation to prosper. There is little doubt that differences in cultures between nations can have a substantial impact on business cultures when organisations progress towards an uncertain environment. It is critical to recognise that national or regional cultural differences can substantially impact organisational culture as organisations evolve in uncertain environments. As a result, when seeking to reform or establish an organisational culture, it is critical to fully comprehend and consider these regional or national cultural traits (Geysi et al., 2019). Therefore, startups must establish specific cultural traits to manage uncertain environments effectively.

According to the findings of this study, the first step was to develop a culture that encourages continuous learning. To survive and prosper as a startup, it is critical to realise that learning is a continual process that requires new methods and learning from failure (Wolff et al., 2015). During times of uncertainty, such as those faced by tech startups, the role of leaders becomes crucial in shaping the organisational culture. As posited by Kail (2010), leaders are responsible for constructing an organisational culture and fostering a collaborative climate within an organisation. This involves creating an environment that nurtures continuous learning, encourages knowledge sharing, and fosters innovation. This culture of perpetual learning and innovation holds significant importance in the realm of tech startups, where

adaptation to uncertain and rapidly evolving conditions is indispensable for survival and prosperity.

The findings advocate that it is equally critical to engage in an organisation's culture to succeed in an uncertain environment. This includes encouraging employees to participate in decision-making processes, which increases their commitment, performance, and sense of ownership (Brezicha et al., 2020). In line with this, Lipshitz and Strauss (1997) argued that decision-making in situations characterised by uncertainty becomes more effective when a collaborative and collective approach is adopted. This premise suggests that group effort in decision-making can enhance proficiency in uncertain circumstances.

Furthermore, findings suggest that in a fast-changing environment, a collaborative culture that encourages risk-taking is critical (Ungureanu et al., 2018). This is in line with prior studies asserting that businesses must create an environment in which employees feel comfortable sharing ideas and taking risks, which can be accomplished by establishing clear communication channels, fostering feedback, and encouraging employee collaboration (Mehmood et al., 2021).

In addition to the aforementioned, the findings indicate that entrepreneurs should foster an environment that encourages people to take on opportunities and think creatively. As a result, startups should cultivate a company culture centred on creative innovation. They should encourage their employees to think outside the box and develop innovative ideas (Sarkar, 2016).

In addition, the findings indicate that startups must embrace nonlinear thinking, conduct experiments using alternative techniques, and always remain adaptable. According to the literature on uncertainty, there are two types of integrative thinking: design thinking, which focuses on solutions, and systems thinking, which requires a deep understanding of the problem (Rimita et al., 2020). System thinking is complex and requires a deeper understanding of the problem. As a result, successful startups are advised to apply these two types of thinking.

Finally, the findings affirm that startups must be sufficiently adaptable to deal with uncertainty and accept the inherent complexity of starting a new business. This flexibility can be achieved by introducing new goods and standardising procedures to increase efficiency (Darvishmotevali, 2019). These modifications should be promoted as a part of the startup culture to adapt to the company's organisational structure, language, and values (Dhillon & Nguyen, 2021).

In summary, startup culture should be defined by flexibility, innovation and productivity, which results in the development of new ideas and products. However, for culture to remain relevant over time, it must adapt to changes in the environment. It is critical to have a clear vision and strategy for establishing a startup culture so that employees and customers feel valued and appreciated. An organisation must maintain organisational flexibility and productivity standards to succeed in uncertain environments. To be successful, a startup culture must be built to stimulate innovation, productivity, and adaptability, as well as to react to changes in the environment as they occur. This culture fosters creativity, productivity, and adaptability, which are essential to navigating uncertainty. The findings of this study are consistent with the principles of Lumpkin and Dess's (1996) model, which emphasises the importance of EO dimensions in driving startup performance.

6.4.3 Management and Leadership

In addition to structure and culture, the findings of this study recommend that in a highly uncertain environment, entrepreneurs should demonstrate uncertainty in management practices and leadership characteristics, including the ability to transform organisations, rapidly solve creative problems, and develop new skills and tools (Rimita et al., 2020). This highlights the crucial role of entrepreneurship in driving management and leadership practices to adapt to the changing landscape of entrepreneurship. Entrepreneurs must be comfortable exploring novelty and working with other people. Finally, they should be able to articulate a compelling vision of their cause to attract others.

The Lumpkin and Dess (1996) model, which emphasises the relevance of EO qualities such as innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy, can be related to management and leadership (Lumpkin & Dess, 1996; Rauch et al., 2009).

Effective management practices and leadership styles that promote innovation, adaptation, and collaboration are consistent with these characteristics and contribute to startups' overall EO (Ferreira et al., 2020).

In accordance with the findings of the analysis, entrepreneurs should possess transformational leadership skills to handle creativity and innovation in highly uncertain environments (Juhro & Aulia, 2017). These skills include the ability to identify and act on potential opportunities, cultivate a sense of urgency, build trust and credibility, establish an inspiring vision for the company, and motivate employees to work hard. In this regard, Rimita et al. (2020) asserted that leadership in an uncertain environment is challenging because of the complexity of decision-making. These findings are consistent with Juhro and Aulia's (2017) statement that in uncertain environments, transformational leadership provides a clear vision and transforms obstacles into milestones that can be reached. In addition, Madi Odeh et al. (2023) claimed that a transformational leadership style is beneficial even in an uncertain environment because it is agile and adaptable and will not be stifled by routines and processes. This is consistent with Kail's (2010) argument that leadership is critical in propelling an organisation forward in uncertain times. Leaders should not only model transformational leadership skills but also encourage them in their teams, generating an environment of adaptation and innovation.

It is also necessary for a leader to be creative, respond quickly to changes in the environment, and mobilise their team members around a common goal. Additionally, leaders must accurately assess situations to make sound decisions based on the information they have obtained. In line with this, Dirani et al. (2020) emphasised the importance of creative and adaptable leadership. They emphasised the need to respond quickly to rapidly changing events, integrate team members around a common goal, and make effective decisions using reliable situation assessments.

These findings suggest that startups should revisit their traditional management practices and adopt a flexible, adaptive, and responsive management style to better manage their changing environments. This finding echoes Minciu et al.'s (2020) recommendation of changing managers' leadership and management styles to cope with the turbulent environment in

which they work. This is in line with Jari and Lauraéus (2019), who proposed that managers should develop foresight tools, such as alignment, challenges, and decision-making tools, and incorporate them into corporate management and leadership practices. Furthermore, managers should remain open to new approaches, ideas, and solutions that align with the research recommendations (Ferreira et al., 2020). Lipshitz and Strauss (1997) expanded on this by advocating a change towards flexible and adaptable management practices. These include fostering an environment of experimentation, learning from failure, and taking an iterative approach to decision-making and problem-solving, especially in times of uncertainty.

Additionally, the findings suggest that startup managers should concentrate their efforts on creating entrepreneurship networks and ecosystems to ensure success. This recommendation is supported by previous studies (Mulyana & Sutapa, 2016; Tu & Yang, 2013). For example, Tu and Yang (2013) found that networks of entrepreneurs change according to their phase of entrepreneurship. The authors analysed how many discussion partners these entrepreneurs had and how much time they spent on networking. Mulyana and Sutapa (2016) noted that the development of technological innovation can be synergised through collaborative networks. This suggests that startup managers should create a supportive environment for their employees by providing resources and opportunities to network with other entrepreneurs. Additionally, creating an ecosystem may help attract new investors and partners, which can accelerate startup growth.

Moreover, the findings state that managers and leaders play a vital role in articulating a convincing vision that motivates team members to make more efforts to achieve success. According to several studies on turbulent times, vision is even more crucial for countering uncertainties. Making business decisions that counter turbulence while considering the organisation’s vision can help leaders better weather unpredictable environmental changes, such as economic downturns or new market competition.

Finally, the findings suggest that managers must possess special skills, known as digital competency, to cope with the challenges faced in an uncertain environment. To develop digital competencies in an organisation, individuals must first understand the digital

environment in which they operate. Prior studies have demonstrated that information skills play a significant role in an entrepreneur's selection of digital products and that social media influences the cognitive and behavioural dispositions of digital entrepreneurs (Szalavetz, 2020). Szalavetz (2020) affirmed that entrepreneurs who use these methods rely on their digital competence and potential penetration strategies for digital marketing segmentation, which is a priority in such an uncertain environment.

6.4.4 Staff and Employees

Drawing on Lumpkin and Dess's (1996) EO model, this section highlights the critical role that employees and workers, as well as effective HRM practice, play in fostering startups' EO, especially in uncertain environments. Employees' ability to navigate uncertainty is critical to HR strategies, including promoting diversity (Yang et al., 2022), fostering their sense of belonging, and creating opportunities for growth and development (Wafiroh et al., 2022). In line with Kail (2010), leading to an uncertain environment requires building a capacity for complexity and shifting mindsets. Therefore, I address the strategies that could empower these key stakeholders in uncertain environments by highlighting the relationship between staff, employees and the essential parts of Lumpkin and Dess's (1996) model.

According to this study's findings, to successfully navigate uncertain environments, entrepreneurs have suggested strategies that can empower staff members, including providing access to information and knowledge, promoting cross-training, improving skills through training, sharing authority, delegating authority, and encouraging diverse workgroups. Lipshitz and Strauss (1997) emphasised the necessity of building coping mechanisms to deal with uncertainty, which can be facilitated by these empowering strategies.

In accordance with these findings, staff members must have access to knowledge and information in uncertain environments to make informed decisions. By providing employees with digital tools, such as laptops, tablets, and smartphones, it is possible to make it easier for them to access information more easily. These findings echo what Nowacka and Rzemieniak (2021) emphasised on the importance of digital competency among staff for them to thrive in the uncertain environment in which we live. Similarly, Ogbeibu et al. (2020)

asserted that strong analytical skills, as well as quick assessment abilities, are needed to navigate an uncertain environment.

Moreover, the findings suggest that robust HR practices are crucial for preparing employees to cope with uncertain future environments. For example, HR managers should be aware of the influence of external factors on organisations' business strategies to develop their companies' business strategies (Ulrich, 2016). As a result of fluctuating market conditions, companies must perform comprehensive performance evaluations and develop enticing compensation and benefits packages to retain their employees amid fluctuating market conditions (Ulrich, 2016). The findings of this study strongly align with those of Srivastava (2016), who affirmed the need for a flexible HR system and an agile workforce during times of uncertainty, which are crucial.

The findings of this study support the notion that the use of cross-training techniques, which provide staff with training in several areas such as marketing, finance, and HR, is another key strategy for managing creativity and EO in an uncertain environment. This finding is in line with that of Obenauer (2021), who claimed that employees who have received cross-training can perform various tasks and ensure the continuity of vital functions during a crisis, such as a pandemic, when workforce availability may be affected. The adaptability of cross-training is a valuable advantage for navigating uncertain circumstances.

Furthermore, the findings suggest that regular training can significantly contribute to employee success in overcoming the inherent challenges of uncertain environments by improving their creativity and performance. For example, employee training can help employees become more effective communicators and leaders (Dhillon & Nguyen, 2021). These findings are consistent with those of Dhanpat et al. (2020), who stated that employee training is crucial for preparing employees for uncertainty and change. By doing so, employees can improve their problem-solving abilities, critical thinking skills, and flexibility through training programs that allow them to navigate unforeseen circumstances and adapt to new situations.

In addition, the findings stress that the delegation of authority can serve as a motivating tool for employees, promoting a sense of teamwork and cooperation. Consequently, employees

become empowered, which, in turn, increases their motivation and productivity. This approach was supported by Dhillon and Nguyen (2021), who recommended delegating authority and responsibility to energise intrinsic motivation for work during uncertainty. Zhong (2021) suggested a similar approach, emphasising the importance of aligning organisational management with an uncertain environment and ensuring the appropriate delegation of authority to strengthen an organisation's resilience.

According to the findings of this study, a diverse workforce is vital to an organisation's resilience during uncertain times. There is evidence that diverse workgroups are more likely to be able to generate innovative approaches and more resilient to change. This is consistent with the findings of Aycan and Shelia (2019), who demonstrated that diverse workgroups tend to be more creative, resilient and innovative. Similarly, Jansen et al. (2016) reported that employees with diverse backgrounds were more likely to be engaged in their work and were satisfied with their jobs. In addition, Solheim et al. (2020) found that having employees from diverse industries can enhance an organisation's innovation performance. Specifically, related diversity improves incremental innovation performance, while unrelated diversity enhances radical innovation performance.

In summary, the importance of HR and people in organisations and their successful management cannot be underestimated, especially when managing uncertainty. This is consistent with Lumpkin and Dess's (1996) EO model, in which the aspects of innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy are strongly influenced by the competencies, skills, diversity, and mindset of employees. Startups can enhance these attributes by adopting strategic HR practices such as promoting diversity, providing access to knowledge, fostering a sense of belonging, facilitating training and cross-training, enhancing skills, and ensuring appropriate delegation of responsibility. This not only fosters a more resourceful, proactive, and resilient workforce but also strengthens startups' abilities to seize opportunities, mitigate risks, and thrive in uncertain environments.

Given the complexity of uncertain environments, as mentioned by Kail (2010) and Lipshitz and Strauss (1997), such strategies help to construct an organisational culture that is capable

of comprehending the complexities of uncertainties and developing robust coping mechanisms. The resulting adaptability and agility not only allow startups to respond to change more effectively but also foster an environment that encourages creativity, initiative, and risk-taking, all of which are essential characteristics for entrepreneurial success in today's complex and rapidly changing business landscape. As a result, startups can use HR practices to handle inherent complexities and uncertainties, eventually encouraging EO and fostering long-term growth and survival.

Figure 6.2 depicts a theoretical representation of the ways that tech startups navigate uncertain environments. In the realm of navigating uncertain environments for startups, Figure 6.2 presents a visual depiction of the ways that creativity and EO contribute to effective management. By observing the arrows, it becomes apparent that creativity and EO play a key role in driving positive changes across the four organisational elements. This indicates that creativity and EO facilitate beneficial changes in these elements, which aids startups in managing uncertainty. This, in turn, assists startups in successfully manoeuvring under uncertain conditions. Even when faced with turbulent times, startups can make the necessary adjustments to their structures, cultures, management approaches, and staffing, all of which promote the growth of creativity and EO. Figure 6.2 delves into the application of these EO dimensions in navigating the uncertainties of the business environment. It contextualizes the abstract concepts depicted in Figure 6.1, showing how the EO dimensions contribute to a competitive and adaptive business strategy.

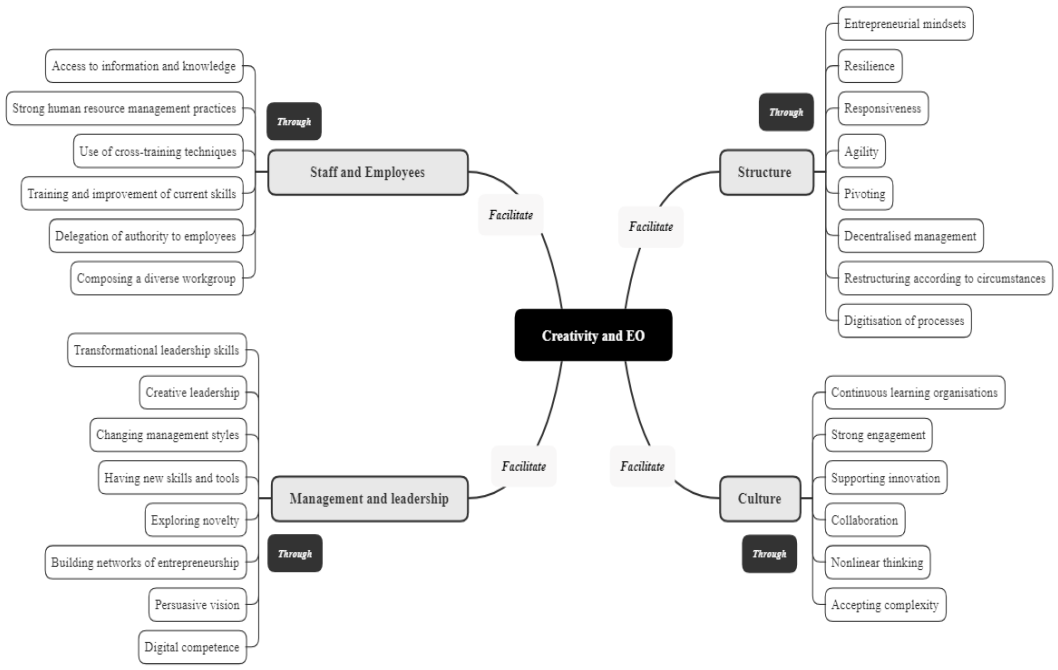

Figure 6.2: Facilitation of Creativity and Entrepreneurial Orientation in Uncertain Environments (Source: Author)

To delve into further detail, it is important to note that creativity and EO instigate structural changes that increase startups' agility and adaptability in the face of uncertain circumstances. For example, startups may choose to adopt flexible and decentralised organisational structures, which empower decision-making at all levels. By embracing flat hierarchies and team-based methods, startups are able to respond swiftly to changes in their environment.

Furthermore, creativity and EO cultivate cultural traits such as continuous learning, risk-taking, and openness to new ideas. These traits facilitate ongoing innovation even during periods of disruption. Startups guided by creativity and EO prioritise cultures that appreciate creativity collaboration, and embrace change. In addition, creativity and EO necessitate adaptive management and leadership that can respond promptly to unforeseen events. Leaders must exhibit transformational skills and encourage experimentation while effectively conveying a compelling vision.

Likewise, the principles of creativity and EO underscore the significance of empowering employees with the necessary skills, knowledge, and autonomy. Startups guided by these principles invest heavily in training, cross-training, and fostering diversity to cultivate an agile and resilient workforce that is capable of thriving in uncertain circumstances. In Figure 6.2, the term "facilitates" indicates that creativity and entrepreneurial orientation enable startups to effectively manage uncertainty across the four organizational elements (structure, culture, management/leadership, and staff/employees). Specifically, creativity and EO improved agility and adaptability in response to uncertain conditions. For example, creativity and EO lead to decentralised structures and team-based approaches.

In addition, creativity and EO foster a culture of learning, risk-taking, and openness to new ideas. Startups can innovate during disruptions because of this cultural orientation. In addition, creativity facilitates adjustments in leadership and management approaches, resulting in more transformative, creative, and visionary leadership. As a result, creativity and EO create a more empowered and resilient workforce through training, delegation of authority, and diversity.

6.5 Demonstration of Entrepreneurial Orientation and Creativity in Early-Stage Entrepreneurs

According to the findings of this study, EO and creativity are necessary for early-stage entrepreneurs in their personal, interpersonal, and managerial competencies because they help create a successful business. To illustrate, creativity helps entrepreneurs think outside the box to devise new ideas, whereas EO helps them turn those ideas into reality. By having these two skills as part of their arsenal, early-stage entrepreneurs can overcome obstacles that stand in their way to success.

In this context, personal competence can be defined as an entrepreneur’s ability to manage themselves or their resources, interpersonal competence as their ability to manage relationships with others, and managerial competence as their ability to lead and manage a team.

6.5.1 Personal Competence

The discussion of EO and creativity in early-stage entrepreneurs in the context of personal, interpersonal, and entrepreneurial competencies is consistent with Lumpkin and Dess's (1996) EO model. The characteristics highlighted in the findings, such as storytelling, entrepreneurial skills, creative thinking, proactive learning, positive attitudes, trend identification, organisation, and multitasking, correspond to the following dimensions of the model: innovativeness, proactivity, risk-taking, competitive aggressiveness, and autonomy (Lumpkin & Dess, 1996). The theory of entrepreneurial behaviour relies heavily on personality traits to explain it and outlines how individuals' character strengths can inspire them to take risks as entrepreneurs (Karabulut, 2016).

According to these findings, an entrepreneur's competence can be a major source of strength and inspiration for a team. The key competencies that entrepreneurs need to succeed in include:

- **Storytelling**: According to the findings, entrepreneurs should use personal or other inspirational stories to motivate their followers. Storytelling is essential to provide context, meaning, and emotional connections to complex ideas and information. This allows entrepreneurs to be more effective at understanding and addressing complex issues. In essence, in today's hyper-connected world, stories have become more important than ever. They can be used to influence, persuade, and provide a sense of direction and purpose to an audience (Dakoumi & Abdelwahed, 2014). This aligns with the recommendations in the literature, which suggest that successful entrepreneurs speak about their experiences of establishing and running businesses to further motivate their participants.

  Indeed, the concept of storytelling as a type of entrepreneurial competency aligns with Lumpkin and Dess's (1996) dimension of innovativeness, in which entrepreneurs generate unique ideas and practices (Lumpkin & Dess, 1996).
- **Business skills and creative mindset**: The second personal competence, according to the findings of this study, is successful. Specifically, an entrepreneur requires more than just business skills or a creative mindset; they also require a combination of

these. Thus, to become an entrepreneur, a solid business foundation must first be developed. Entrepreneurs must then develop a creative mindset to see opportunities and create value for their business. This requires self-reflection and critical thinking. This also involves reading, talking, and networking with other entrepreneurs. Most importantly, it requires a lot of hard work and being an entrepreneur is difficult.

These findings are consistent with existing literature, which shows that developing critical thinking, teamwork, and decision-making skills can support entrepreneurial and innovative intentions (Wilson et al., 2009). In addition, to be a successful entrepreneur, one must have creative problem-solving and communication abilities (Hasan et al., 2017).

Lumpkin and Dess's (1996) EO model is consistent with this finding. Specifically, a creative mindset correlates with the innovativeness dimension of the model, while a sound business foundation corresponds to the proactiveness dimension, indicating the successful application of the model's basic principles in entrepreneurship.

- **Proactive Learning**: The third competence, according to the findings, is that entrepreneurs must be proactive in learning new skills. Therefore, entrepreneurs should learn new things to ensure that their businesses are innovative and ahead of the curve. They also need to be aware of their surrounding environments and be ready to adapt their business models when the time comes. The best way to achieve this is to constantly learn about the industry and the latest developments in the field.

  These findings echo prior studies on entrepreneurship that have recommended that sustainable entrepreneurs need opportunities to recognise them (Dunphy, 2011). Furthermore, prior studies have shown that entrepreneurs deal with business challenges and crises by engaging in learning activities and training programmes (Boon et al., 2013). Therefore, sustainable entrepreneurs must identify opportunities and develop problem-solving skills. They also need to learn and adapt to market and business environmental changes.

  In line with Lumpkin and Dess's (1996) model, proactive learning emphasises the proactiveness of the model, in which entrepreneurs spend time and effort learning new processes, markets, and technologies. Furthermore, the positivism and persistence of entrepreneurs are related to their competitive aggressiveness, which

drives them through a competitive and often volatile market environment. Finally, the ability to identify market trends, multitask, and organise efficiently forms the autonomy characteristic of the EO model because these traits enable independent action to drive a business forward (Lumpkin & Dess, 1996).

- **Positive attitude**: According to the findings, a fourth person's personal competence is a positive attitude. This means that, in the early stages of a business, entrepreneurs should maintain a positive attitude and focus on their goals. A positive attitude means staying focused and not getting caught up in the details. In addition, entrepreneurs need to maintain their sanity and work towards their goals by maintaining a healthy work–life balance. To accomplish their business goals without feeling overwhelmed or stressed, entrepreneurs must effectively manage their time.

  This is in line with prior studies that have noted that entrepreneurs' attitudes are crucial to delivering good performance in the early stages of their businesses (Gedik et al., 2015). However, other scholars have stressed that these attitudes should not be overly optimistic, which could lead to failure (Von Bergen & Bressler, 2011). In the context of work–life balance, prior studies have shown that individuals who have a type of work that allows them to set their hours are more likely to maintain that balance (Herachwati et al., 2019). This is because those who have flexible work arrangements can set their own goals, which helps them maintain sanity and work towards their goals without feeling overwhelmed or stressed.

  The emphasis on a good attitude and a focus on goals is consistent with the model of Lumpkin and Dess (1996), especially in terms of the risk-taking dimension. Entrepreneurs' optimism and focus, which may include taking appropriate risks, are related to the main premise of the model when they move through the early stages of their business. This underscores the critical link between an entrepreneur's mindset and successful implementation of the EO model.

- **Identifying and capitalising on market trends**: According to the findings, the fifth competence is the ability to identify and capitalise on market trends. This means that entrepreneurs must recognise and capitalise on market trends. To be a successful entrepreneur, one must discover and capitalise on market opportunities while remaining competitive. Specifically, one must remain up to date with emerging trends

and advancements. Entrepreneurs should constantly study the industry's progress in the early stages of their businesses to discover where they may provide value and flourish. This is similar to the findings of prior studies, such as those of Rauch et al. (2009), who discovered that entrepreneurs who watch emerging possibilities and trends in their field are more likely to succeed, whereas attending industry events is the most effective approach for entrepreneurs to find developing market opportunities.

The identification and exploitation of market trends are closely related to Lumpkin and Dess's (1996) proactiveness dimension. This component emphasised the need to anticipate and respond to future market demand and needs. Thus, an entrepreneur's commitment to understanding industrial progress and capitalising on opportunities is consistent with the model's notion of proactiveness.

- **Organising and multitasking**: The findings demonstrate that entrepreneurs in the early stages of their businesses can organise and multitask in terms of their activities. They are able to work on multiple jobs and organise their labour into various projects at the same time. According to these findings, entrepreneurs who can multitask and organise their work are more likely to succeed in their enterprises' early stages. They are able to launch their businesses faster by focusing on multiple tasks and initiatives simultaneously. This is especially crucial in the initial stages, when entrepreneurs have limited time and money, and more work is required to ensure success (Redondo et al., 2021). According to Klonek et al. (2021), the ability to prioritise and manage various activities is vital for entrepreneurs at any stage in their firm. However, this is crucial in the early stages of a business, when time and resources are limited.

  This finding represents risk-taking and competitive aggressiveness in Lumpkin and Dess's (1996) EO model. Entrepreneurs take risks by juggling multiple activities and goals while dealing with uncertainty and likely losses. Similarly, competitive aggressiveness is exhibited when they can manage multiple tasks effectively so that they can act boldly and quickly in competitive situations to ensure the survival and expansion of their business.

In conclusion, it can be inferred that entrepreneurs' competence plays a significant role in shaping their teams' mindset and enthusiasm. To increase their chances of success,

entrepreneurs must strive to cultivate a diverse range of competencies that encompass both soft and hard skills. These vital competencies include the ability to tell compelling stories, possessing pragmatic business insights and visionary perspectives, being proactive in learning and adapting, maintaining a positive attitude, effectively identifying and capitalising on market trends, and having the capability to multitask and organise efficiently. It is worth noting that these skills and traits have been extensively researched and analysed in the literature. Hence, they are deemed crucial to the success of any entrepreneur.

6.5.2 Interpersonal Competence

Interpersonal competence is defined as an entrepreneur's ability to manage relationships effectively and efficiently (Khoury et al., 2012). It encompasses the ability to build relationships, understand others' needs and motivations, and effectively handle conflicts. When entrepreneurs possess strong interpersonal competence, they can communicate effectively, build relationships, and comprehend the needs and motivations of others. Consequently, they can resolve conflicts and manage ongoing issues more effectively.

These findings suggest that entrepreneurs should build relationships with company stakeholders. Consequently, these stakeholders can provide crucial support and resources to help propel the business. By creating alliances with other businesses or groups, entrepreneurs can expand their businesses and strengthen their support networks, thus facilitating the growth and success of their businesses.

Nahapiet and Ghoshal (1998) referred to this as the social capital that startups build to acquire scarce and limited resources. This aligns with the proactiveness dimension of Lumpkin and Dess's (1996) EO model, highlighting the initiative entrepreneurs take to create alliances and acquire resources. When complemented by a sense of trust, cooperation, and collective action, social capital can be converted to capital for entrepreneurs.

Several studies have demonstrated that social capital positively affects enterprise performance throughout an enterprise's lifecycle, from fostering a positive entrepreneurial attitude to reducing risk and providing access to resources (Mamun et al., 2016). As a result,

the success of any venture depends on its ability to build and maintain good relationships with stakeholders.

Another identified interpersonal competency is the ability to encourage employees to take risks at the workplace. This trait, fostering a culture of proactive risk-taking, aligns with the competitive aggressiveness element of Lumpkin and Dess's (1996) model. This attribute fosters innovation and creativity, leading to a more successful and efficient organisation because it encourages employees to explore new ideas and directly affects the bottom line. As Ismail and Ali (2013) reported, encouraging a culture of proactive risk-taking can enable differentiation and stimulate intrapreneurship within an organisation by stimulating a sense of risk-taking. In addition, rewarding and recognising employees for their creative ideas can encourage them to develop innovative ideas (Brown, 2020).

In accordance with this study's findings, successful entrepreneurs can build and maintain healthy relationships with customers, investors, bankers, and suppliers because of their strong interpersonal skills. Consequently, entrepreneurs can identify potential business opportunities and secure crucial resources in the early stages of their venture. Schwienbacher and Larralde (2010) suggested that entrepreneurs might have difficulty attracting external capital in the early stages of their businesses because of a lack of collateral, insufficient cash flow, and asymmetry of information. Therefore, entrepreneurs at this stage must build relationships that allow them to access critical resources such as capital, customers, and suppliers.

Finally, interpersonal competence is one of the most important predictors of entrepreneurial success and reflects the EO model proposed by Lumpkin and Dess (1996). Not only does this competence help build and maintain relationships with various stakeholders, which is a trait associated with the proactiveness dimension, but it also encourages employees to innovate and take risks. This corresponds to the competitive aggressiveness and risk-taking aspects of Lumpkin and Dess's (1996) model. Thus, the interpersonal skills of entrepreneurs examined in this study strongly align with the characteristics of Lumpkin and Dess's (1996) model and provide a comprehensive understanding of entrepreneurial success. Undoubtedly, these

interpersonal skills, which encompass many aspects of the EO model, are among the most valuable assets for entrepreneurs and contribute significantly to their business success.

6.5.3 Entrepreneurial Managerial Competence

According to this study's findings, entrepreneurial and managerial competence are essential in early-stage ventures. This includes being creative, customer-focused, and effective communicators because these traits increase the likelihood of success. Entrepreneurs must be committed to continuous learning, have a clear vision and goals for their businesses, and possess strong business acumen and strategies. Such attributes, when integrated into management styles, create a solid foundation for future growth and value creation.

Entrepreneurial managerial competence, as established in this study, embodies the essential aspects of Lumpkin and Dess's (1996) EO model. According to these findings, entrepreneurs should first practice team brainstorming to generate ideas and help them focus on the most critical aspects of their business. Notably, team brainstorming generates an environment that enhances the innovativeness component by encouraging creativity and allowing for a solution-based approach in the organisation. Through brainstorming, team members can understand their strengths and weaknesses and learn from each other. This process promotes creativity, supports the organisation's solution memory, and helps employees develop skills and build interpersonal bonds. For example, by using team brainstorming, potential threats can be identified, and problems and coping strategies can be developed (Gundry et al., 2014).

Related studies have demonstrated that the use of group brainstorming in organisations promotes creativity, supports organisational memory of solutions, and helps employees develop their skills and build interpersonal bonds (Gundry et al., 2014).

Furthermore, the findings advocate that entrepreneurs should challenge their assumptions and use unconventional solutions. By maintaining an open mind, they can create opportunities that others cannot consider. Entrepreneurs demonstrate risk-taking, which is a critical facet of the Lumpkin model, by testing assumptions and using innovative solutions. As advocated by previous studies, detachment from initial plans and openness to new perspectives are crucial (Vallerand & Houlfort, 2019). These findings are consistent with

other scholars' and practitioners' beliefs that individuals in businesses who engage in unconventional thinking are not afraid to embrace challenging situations and have a flexible approach to solving problems (Samašonok et al., 2016).

In addition, the findings showed that accepting and incorporating feedback is key to improving creativity and problem-solving skills. The acceptance and incorporation of feedback parallel the autonomy dimension of Lumpkin and Dess's (1996) model, which allows for growth, learning, and effective problem-solving. Therefore, entrepreneurs must learn to listen attentively, engage in constructive criticism, and improve their problem-solving skills.

According to previous studies, entrepreneurs can serve as moral leaders by providing constructive feedback and being open to receiving information. In addition, sharing organisational information with employees and providing an open communication channel enable entrepreneurs to facilitate employees' voices (Dedahanov et al., 2016).

In addition, the findings show the importance of continuous learning because it indicates the ability to adapt and grow. Those who prioritise continuous learning are willing to experiment and open to new ideas. In addition to indicating an entrepreneur's ability to adapt and grow, a continuous learning tendency is an important indicator. The proclivity for continual learning emphasises adaptability and progress, which aligns with Lumpkin and Dess's (1996) model of proactiveness and competitive aggressiveness because it ensures that entrepreneurs remain ahead of their competitors. This is consistent with studies that have claimed that avoiding complacency and maintaining a learning-oriented organisation can significantly increase productivity and profitability (Humphrey et al., 2022). In addition, a study conducted by Agarwal et al. (2018) found that learning-oriented organisations are 92% more likely to develop new products and processes, 52% more productive, and 17% more profitable.

Moreover, the findings reveal that entrepreneurs need a clear vision and goal for their company, even in the early stages, to remain motivated and focused. They should also focus on customer needs and seek innovative ways of improving their products and services. This focus on customers complements entrepreneurial and product innovation (Seilov, 2015).

According to Yeoh and Popovič (2016), having a clear vision and well-established business case is crucial for success. In essence, maintaining a clear vision and focusing on consumer demand reflects the proactiveness dimension of the Lumpkin and Dess (1996) model, which emphasises forward-thinking tactics and inventive approaches to market needs.

These findings indicate that entrepreneurs should be more customer-focused and innovative. To do this, entrepreneurs must identify their customers' needs and desires and provide them with those needs in the best possible way. It is vital for entrepreneurs to constantly explore new ways to improve their products and services. In related literature, customer focus is called customer orientation, which is an essential aspect of entrepreneurship and innovation (Seilov, 2015). According to Thoumrungroje and Racela (2013), product innovation is not related to EO unless customer orientation is complementary. Specifically, new products and firm performance are positively affected by customer orientation. This strong customer orientation and focus on product innovation also resonates with the innovativeness and competitive aggressiveness dimensions of Lumpkin and Dess's (1996) model.

Furthermore, the findings suggest that developing and executing a business plan, identifying key financial metrics, and being capable of quick decision-making when faced with new opportunities or challenges are key managerial competencies. According to previous studies, it is possible to increase the probability of starting a business through business planning activities (Abrell & Karjalainen, 2017). This might be because business planning forces nascent entrepreneurs to consider numerous factors in terms of business ideas and to structure the venture creation process to reflect on all stages and necessary activities (Albert & Couture, 2013).

As found in this study, business planning, identifying key financial metrics and quick decision-making skills are linked to Lumpkin and Dess's (1996) risk-taking and proactive dimensions. This reflects the ability to develop, execute, and adapt business plans in response to emerging opportunities and challenges.

Finally, the findings suggest that entrepreneurs establish a solid foundation for their future success. This includes building networks and using technology to maintain changing environments. The network success hypothesis states that founders' networking activities are

positively correlated with their startups' success. According to this hypothesis, entrepreneurs use socially embedded ties to obtain resources that are cheaper than they would be if they bought them in the market, such as reputation and customer contact (Stam et al., 2014). In a rapidly changing business environment, entrepreneurs use their networks and technology independently to remain competitive, which aligns with the autonomy and competitive aggressiveness dimensions of Lumpkin and Dess's (1996) model. In line with the aforementioned discussion, the theoretical representation of creativity and EO in early-stage startups is illustrated in Figure 6.3.

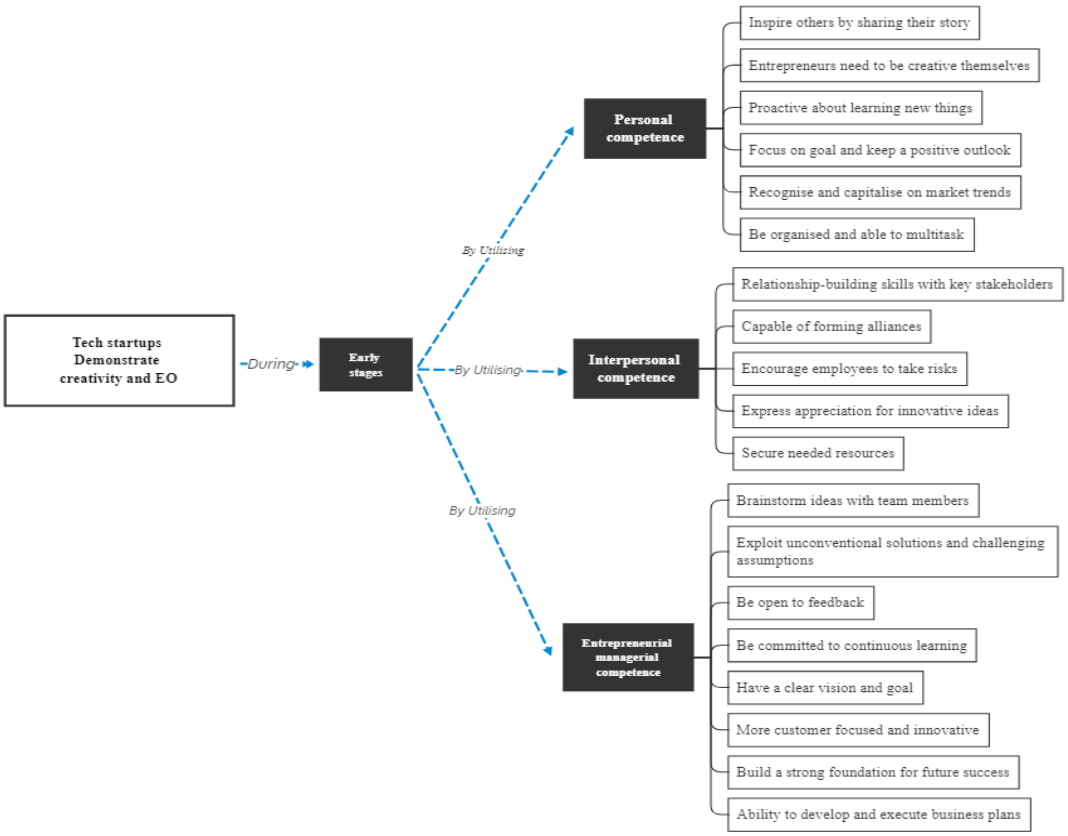

Figure 6.3: Demonstration of Creativity and Entrepreneurial Orientation Dimensions in Early Stages (Source: Author)

Figure 6.3 extends the examination of these relationships into the early stages of tech startups, showcasing how creativity and EO dimensions are not only theoretical constructs but are actively demonstrated and utilized from the inception of a business. This figure

reinforces the idea that the principles of EO are integral from the outset and that creativity is instrumental in driving these principles forward. The arrows that stem from ‘creativity and EO dimensions’ lead to three main categories of competencies: personal, interpersonal, and entrepreneurial managerial competencies. These competencies serve as underpinnings upon which entrepreneurs rely to showcase their creativity and EO dimensions as they navigate the early stages of their startups.

In terms of personal competencies, attributes such as storytelling, business acumen, proactive learning, positive mindset, and trend spotting are crucial. Entrepreneurs are empowered to unleash their creativity and innovate through these competencies. For example, storytelling facilitates the channelling of creative communication, whereas a proactive learning approach allows entrepreneurs to continually nurture fresh ideas. Moreover, interpersonal competencies encompass relationship building, fostering risk-taking, and accessing valuable resources. These competencies enable entrepreneurs to demonstrate proactiveness, competitive aggressiveness and networking effectiveness. The establishment of strategic partnerships is an embodiment of proactiveness and resourcefulness.

Finally, entrepreneurial managerial competencies such as creative problem-solving, incorporation of feedback, customer focus, and business strategy execution provide entrepreneurs with the means to showcase their leadership abilities. The act of testing assumptions is a manifestation of creativity, whereas customer orientation signifies proactiveness. The terms "demonstrate" and " utilise " in Figure 6.3 illustrate how entrepreneurs demonstrate creativity and entrepreneurial orientation through key competencies during the early stages of their venture. Entrepreneurs demonstrate innovativeness by utilising their personal competence for proactive learning and keeping an open mind to new ideas throughout their ventures. They demonstrate competitive aggressiveness by forming strategic partnerships and alliances that provide advantages over their competitors. Furthermore, entrepreneurs demonstrate risk-taking abilities by testing their assumptions and pursuing unconventional approaches. They also demonstrate proactiveness and energy teams by utilising personal competencies, such as inspirational storytelling. By leveraging interpersonal competence, entrepreneurs can secure resources and achieve business independence. They also demonstrate planning abilities and competitive

aggression through managerial competencies such as business strategy execution. In summary, "demonstrate" and " utilise " reflect how entrepreneurs tangibly demonstrate creativity and EO in the early startup stages by strategically using core competencies. This finding is logically structured around the research question, linking the results to the existing theory.

6.6 Level of Thematic Agreements

This study explores the various aspects that contribute to the success of tech startups. In line with Braun and Clarke's (2019) approach to thematic analysis, I delved into the depth and richness of each theme, specifically their relevance to the study questions. This study was divided into three major categories: creativity, readiness for uncertainty, and entrepreneurial competencies. According to Boyatzis (1998), recurring themes among participants indicate their relevance to this study. In this setting, critical themes that arose regularly throughout the interviews provided a comprehensive picture of the entrepreneurial processes.

The findings revealed significant themes in creativity, such as innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy. The participants strongly preferred proactiveness, as evidenced by 75% agreement. Subthemes such as continual growth, diversification, and opportunities through communication with clients received widespread support, emphasising the significance of aggressively grasping possibilities and developing in the digital startup environment. The themes of ready structure, culture, management, leadership, and employees emerged in the context of managing unpredictable times. The most often agreed upon theme was prepared management and leadership, emphasising the necessity for transformational leaders to navigate digital landscapes.

These findings help explain the entrepreneurial skills required for successful tech startups. Three critical competencies have emerged: personal, interpersonal, and entrepreneurial management skills. Personal abilities such as the ability to inspire others, proactive learning, and market trend recognition obtained the highest agreement ratings. The importance of forming alliances and gaining resources is emphasised by interpersonal competencies. Entrepreneurial and managerial skills such as using creative ideas, testing assumptions, and efficiently implementing business goals were rated as crucial.

Finally, this multi-thematic investigation offers a comprehensive view of the creativity dynamics, entrepreneurial readiness for uncertainty, and entrepreneurial competencies in tech startups. These themes help to explain entrepreneurship's varied nature and offer critical insights for present and aspiring entrepreneurs and organisations. They emphasise the importance of supporting creativity, being prepared for uncertainty, and having crucial competencies to thrive in a dynamic and unpredictable tech startup environment. These repeating themes reinforce the existing knowledge and guide entrepreneurial success in tech startups.

6.7 Theoretical Framework

According to the literature review, Australia, NZ, and Singapore are examples of countries that do not pay sufficient attention to the development of contextual frameworks. In this chapter, I propose a theoretical framework that illustrates the status quo of technology startups in these countries. Given that each organisation starts a venture in such an uncertain and dynamic market, this framework includes all the aspects that they pass through. It was intended to help tech entrepreneurs in these countries identify their respective challenges and opportunities and position themselves to be successful in the long run.

Figure 6.4 presents a comprehensive theoretical framework that elucidates the intricate connections between creativity, EO, and the management of uncertainty within tech startups. The middle section emphasises the enhancement of EO dimensions through creativity. The upper section illustrates the ways in which startups effectively address uncertain circumstances by using creativity and EO across various organisational aspects. Finally, the lower section shows the ways that entrepreneurs demonstrate creativity and EO through their core competencies during the initial stages of their ventures. This framework summarises the study's findings on promoting EO through creativity, the use of creativity and EO by startups to navigate uncertain conditions, and the ways in which entrepreneurs exemplify creativity and EO through core competencies in the early phases of their ventures. Therefore, this integrated framework encapsulates the synergistic relationship between creativity, EO and uncertainty management in tech startups.

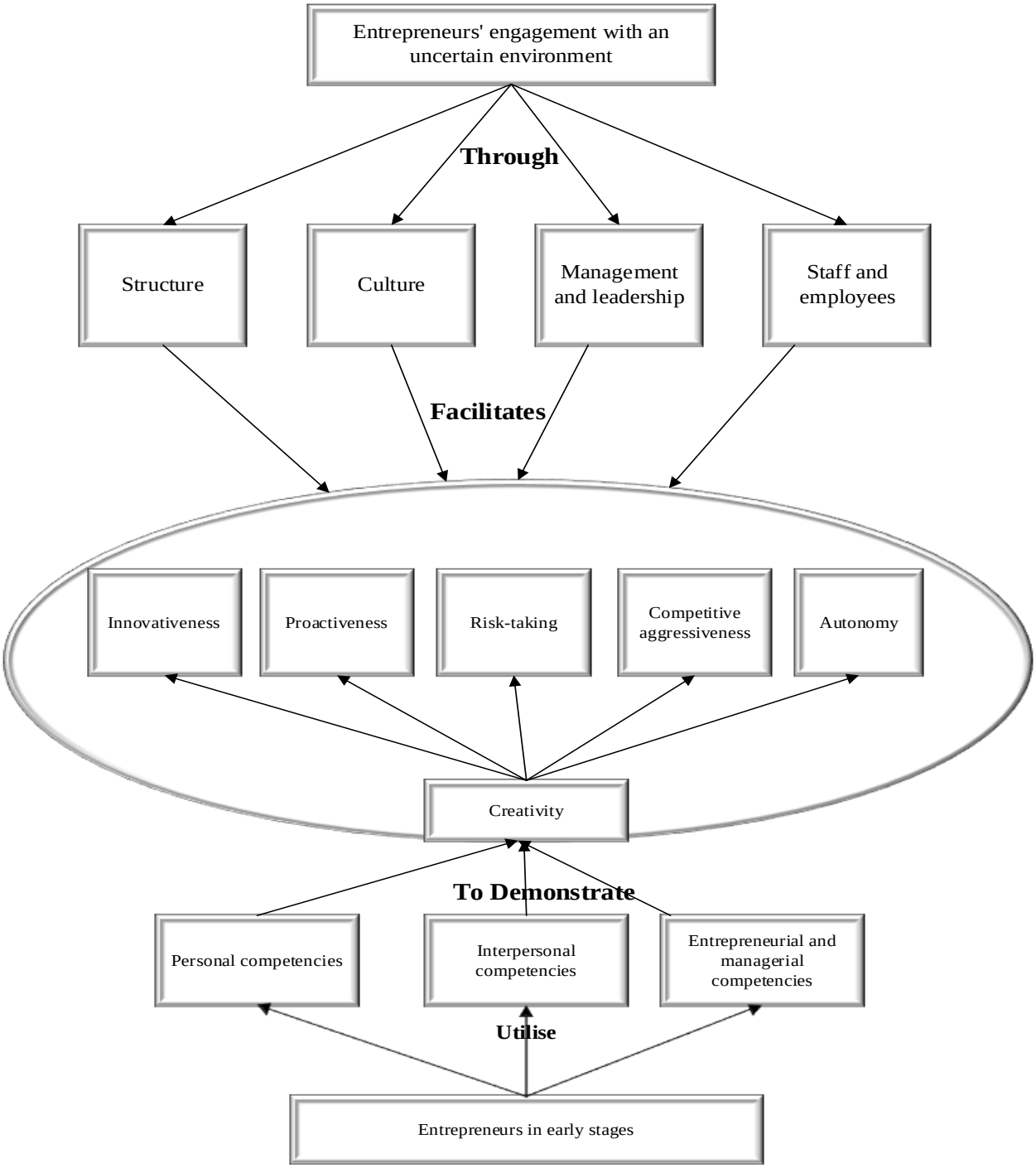

Figure 6.4: Theoretical Framework (Source: Author)

The primary objective of Figure 6.4 was to consolidate the key elements from previous visual representations (see Figures 6.1, 6.2, and 6.3) into a comprehensive framework that helps explain the dynamic interplay between creativity, EO, and uncertainty faced by tech startups in Australia, NZ, and Singapore. A theoretical lens is provided to examine these constructs

and their interdependencies, specifically within the context of early-stage ventures operating under volatile conditions. In this study, the seminal EO model developed by Lumpkin and Dess (1996) was verified, refined, and developed. In the first step, extensive qualitative interviews with tech entrepreneurs validated the five dimensions of innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy. The results empirically support the continued relevance of these dimensions in tech startups (Al Mamun & Fazal, 2018).

Second, this study generates new theoretical insights into the mechanisms and processes through which creativity enhances each EO dimension. For example, cognitive flexibility, an attribute of creativity, enables startups to reconceptualise problems and reconfigure business models (Chen et al., 2022). Furthermore, it explains how creativity enhances competitive aggressiveness by reducing rival intimidation (Gupta & Gupta, 2015).

Third, this study explores how startups use creativity and EO to deal with uncertain environments, expanding Lumpkin and Dess's framework. As a result, this study identifies key organizational adjustments that startups can make for best practices related to structure, culture, leadership, and staffing in turbulent times (Giones et al., 2019). According to this study, startups invest plenty of resources in developing flexible structures, such as employee networks and flat hierarchies, to remain flexible and adaptable to the challenges they face due to uncertainty.

In addition, this study promotes the development of personal, interpersonal, and managerial competencies, which act as conduits to actualise creativity and EO, an area of research that has been understudied by prior research (Aftab et al., 2022). For example, this study argues that managers need to possess the ability to communicate effectively with others, manage conflict effectively, and learn from mistakes to promote creativity and executive oversight.

In conclusion, by validating EO dimensions, unravelling the creativity-EO link, applying the model to uncertainty, and proposing competency conduits, this study provides an update to Lumpkin and Dess' seminal model by expanding and enriching it with an updated perspective. It brings the model into sharper focus in the context of modern tech startups by bringing it to sharper resolution.

Overall, this study established a theoretical framework that can be built in several ways. It would be interesting to examine the relative importance of the five EO dimensions during the various stages of a startup or the interactions between these dimensions and creativity over time. Other factors, such as organisational size, age, and market characteristics, may also influence the relationship between creativity and EO. Furthermore, future studies could examine the interactions between the three competence levels and the ways in which they influence EO and creativity. Figure 6.4 depicts the comprehensive contextual framework from these findings.

6.8 Chapter Summary

This chapter (Chapter 6) comprehensively explores and evaluates the significant insights derived from the analysis. This chapter focuses primarily on three crucial sections. First, an in-depth analysis was conducted to explore the relationship between creativity and EO dimensions. Creativity plays a vital role in enhancing all five EO dimensions within the realm of tech startups: innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy. This analysis empirically supports Lumpkin and Dess's (1996) EO model, helping to explain the ways that creativity acts as a catalyst for fostering EO dimensions. Second, the chapter delves into entrepreneurs' perceptions of creativity and the role of EO in uncertain environments. In line with this, startups rely heavily on creativity and EO to adapt and respond swiftly to unpredictable business landscapes. Consequently, changes in structure, culture, management, leadership, and staffing occur within startups to foster creativity and EO during times of uncertainty. Third, the exploration focuses on the ways in which EO and creativity are demonstrated in the early stages of a startup. In this vein, personal, interpersonal and entrepreneurial managerial competencies were identified as facilitators for entrepreneurs to exhibit creativity and EO dimensions during these early stages. These competencies align with Lumpkin and Dess's model and offer valuable insights into promoting creativity and EO for the success of startups. Furthermore, a theoretical framework was presented that elucidates the interaction between creativity and EO in tech startups during uncertain times across Australia, NZ, and Singapore. This framework encapsulates the connections between the constructs of the study and highlights potential avenues for future research in this field. In summary, this chapter thoroughly analyzes the study findings, correlates them with

existing theory, and develops a contextual framework to understand the role of creativity and EO in tech startups in the countries under study.

Chapter 7: Conclusion and Recommendations

7.1 Introduction

This concluding chapter summarises and reflects on the researcher's investigation into the relationship between creativity and EO dimensions within early-stage startups in Australia, NZ, and Singapore in an uncertain environment. This chapter recaps the study's findings and implications, acknowledges limitations, and proposes future research directions and recommendations stemming from the research. The previous chapter discussed in detail the findings of the current study, in addition to comparing them with prior findings. In this chapter, I conclude the study findings. First, this chapter provides a brief overview of the study. Second, it concludes by providing answers to the research questions based on the findings. Third, this chapter highlights the theoretical and practical implications for academics, policymakers, organisational management, and major stakeholders. Fourth, it elaborates on the limitations of this study and provides recommendations for future research. This chapter concludes with recommendations for scholars and practitioners.

This study aimed to explore the ways in which creativity relates to Lumpkin and Dess's (1996) five dimensions of EO–risk-taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy–in the setting of tech startups. In other words, the purpose of better understanding the behaviours and practices of early-stage entrepreneurs that promote creativity and exemplify EO in their companies was to investigate the strategies anchored in Lumpkin and Dess's (1996) EO model, which enables them to adapt and survive in the face of uncertainty. This comprehensive study intended to provide critical insights and important knowledge to the academic literature and a practical understanding of entrepreneurial success in uncertain situations.

The literature review in Chapter 2 demonstrated the relationship between creativity and Lumpkin and Dess's (1996) EO model. This review indicated that an insufficient number of studies have explored this relationship. The second and third objectives reviewed the ways that companies engage in creativity and EO dimensions during uncertainty in their early stages, laying a solid foundation for the empirical study.

The study's subsequent qualitative phase, emphasised in Chapter 5, provided essential insights into the ways in which creativity promotes Lumpkin and Dess's (1996) EO model and the strategies used by entrepreneurs during times of uncertainty. This section highlights the ways in which entrepreneurs in the tech startup sectors in Australia, NZ, and Singapore have created an organisational environment that encourages creativity and EO dimensions. These entrepreneurs have effectively generated creativity within their organisations by employing daily interaction practices and establishing reward systems. This chapter also reveals how early-stage entrepreneurs demonstrate creativity and EO during the early stages of startup companies. These findings provided a complete paradigm for understanding the interactions between creativity, EO, and uncertainty.

In summary, the findings of this study emphasise the importance of EO in effectively navigating unpredictable circumstances, emphasising the relationship between EO, creativity, and uncertainty as critical components in the successful launch and operation of tech startups, specifically in their early stages. The repeating themes that emerged from the study serve as a signpost for entrepreneurial success in the tech industry, emphasising the need to cultivate creativity, be ready for uncertainty, and possess crucial competencies. The next section summarises how these study questions were answered in accordance with the previous chapters.

7.2 Research Questions

Having provided a brief overview of this study in the previous section, the purpose of this section is to answer the study questions in accordance with the previous chapters.

> RQ1. How does creativity relate to Lumpkin and Dess's (1996) five dimensions of entrepreneurial orientation from the perspective of entrepreneurs in tech startups?
> RQ2. How do entrepreneurs engage in creativity and entrepreneurial orientation during times of uncertainty?
> RQ3. How do entrepreneurs demonstrate creativity and entrepreneurial orientation in the early stages of a startup?

7.2.1 Relationship Between Creativity and Lumpkin and Dess's (1996) Five Dimensions of Entrepreneurial Orientation from Perspectives of Entrepreneurs in Tech Startups (RQ1)

As explored in Chapters 1,2 and 3, early-stage technology startups navigate a dynamic and often uncertain landscape. They face numerous challenges, such as securing funding, adapting to market shifts, and building a strong customer base. These challenges require agility, innovation, and resilience, qualities that hinge on an entrepreneur's individual entrepreneurial orientation (IEO) combined with their creative abilities. This is precisely where my research comes in. I investigated the interplay between these two constructs to understand how creativity fuels the five dimensions of EO: innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy. As a result, it was found that creativity plays a crucial role in promoting the development of unique ideas and provides a competitive advantage (Altinay et al., 2021). It also promotes cognitive flexibility and team diversity, which are essential for stimulating innovation (Chen et al., 2022; Lumpkin & Dess, 2001). In addition, trust within startup teams and commitment to continuous learning further enhance innovation (Goncalves, 2021; Lumpkin et al., 2009).

Additionally, creativity plays an important role in startups in terms of proactiveness, revealing that individuals with knowledge of creativity exhibit heightened awareness of opportunities, specifically during challenging periods. These individuals possess a sharp eye for detail, which enables them to uncover aspects that are often overlooked by others. They explore new markets relentlessly, especially if they hold leadership positions, discover untapped possibilities, and understand their continual expansion (Dai et al., 2014). Instead of confining themselves to a single course, they established broad objectives and pursued diverse avenues to achieve them. Notably, creative individuals distinguish themselves by taking risks and embracing open-mindedness, defying conventional modes of thinking, and venturing beyond established boundaries. They constantly strive for advancement by actively seeking input from stakeholders and interacting with clients to formulate optimal solutions (Hu et al., 2018).

In the context of risk-taking, creativity encourages people to explore new avenues and take appropriate risks (Kelley & Kelley, 2012; Lumpkin & Dess, 1996). This study explored four subdimensions: lessening the fear of failure, increasing willingness to experiment, inspiring new ideas, and efficient risk assessment. Respondents showed that creative people do not fear taking risks because they know that entrepreneurship cannot be limited to safe environments. Therefore, they form teams with creative people who are willing to take risks. However, in-depth research is preferred to decrease risk levels (Salvi & Bowden, 2020).

Moreover, creativity is a key driver of competitive aggressiveness, and the findings show that individuals who have an inherent inclination towards creativity tend to exhibit elevated levels of competitiveness. This inclination originates from their fervent desire to distinguish themselves from their peers and to highlight their distinctive abilities and viewpoints. Furthermore, individuals with creative inclinations are less susceptible to being daunted by competition, given that they are firmly rooted in their steadfast beliefs in the extraordinary nature of their innovative ideas. Moreover, their innate creativity allows them to adapt to changes in the market landscape, thereby cultivating a heightened perception of competitive aggressiveness. Finally, creativity strengthens startups by increasing their autonomy, promoting original ideas, reducing reliance on external sources, and promoting innovation (Amabile et al., 2004). The relationship between creativity, control, and autonomy requires a delicate balance that promotes innovation and stability (Speklé et al., 2017).

In summary, a profound improvement in the EO dimensions in tech startups is evident through creativity, which effectively promotes innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy. The validity of Lumpkin and Dess's (1996) EO model was further confirmed by this analysis, which highlighted the central role of creativity in entrepreneurial ventures. However, it also underscored the importance of wise management to overcome challenges, such as instability and excessive risk-taking, and ultimately ensure sustainable success (Lumpkin & Dess, 2001).

7.2.2 Entrepreneurs Engage in Creativity and Entrepreneurial Orientation During Times of Uncertainty (RQ2)

Chapter 1 discusses the inherent complexities and volatilities of early-stage tech startups. Amidst these dynamic environments characterised by uncertain markets, evolving customer preferences, and limited resources, a critical question arises: How do entrepreneurs successfully navigate uncertainty and build resilient ventures? This research, addressing RQ2, delves into this pivotal question by exploring the specific strategies and practices employed by entrepreneurs to harness creativity and entrepreneurial orientation (EO) as potent success tools.

Entrepreneurs' prowess shines through their ability to effectively manage various organizational aspects, including structure, culture, leadership practices, and employee readiness. The foundation lies in a well-prepared structure imbued with an entrepreneurial mindset characterised by resilience, responsiveness, and agility. This manifests in elements such as clear performance indicators, market responsiveness, decentralised management, and digital competence (Akhter et al., 2022; Lumpkin & Dess, 1996).

Resilience, coupled with proactive communication, is pivotal. It helps identify potential challenges, reduces stress, and maintains focus, empowering entrepreneurs to manage creativity and EO effectively (Muhtasom et al., 2022). Quick responsiveness and adaptability are equally crucial in an environment where customer preferences and market conditions change rapidly (Muhtasom et al., 2022).

A conducive culture forms a second pillar of success. Entrepreneurs foster continuous learning organisations that nurture high engagement, support innovation, and promote collaboration. They encourage nonlinear thinking and embrace the acceptance of complexity, ultimately amplifying creative output and equipping employees to navigate uncertainty effectively (Akhter et al., 2022; Ferreira et al., 2020; Mickiewicz & Kaasa, 2022).

Effective leadership also plays an important role in this process. Entrepreneurs showcase transformational and creative leadership styles, adapt management approaches to evolving circumstances, and acquire new skills. Emphasis is placed on exploring novelty, building

entrepreneurial networks, and developing a compelling vision for the organisation's future. Digital competence enables leaders to navigate a rapidly changing digital landscape (Madi Odeh et al., 2023; Rimita et al., 2020).

Finally, prepared staff members are essential. Entrepreneurs ensure access to information and knowledge, establish robust HRM practices, encourage cross-training and skill development, and delegate authority to diverse workgroups, ultimately enhancing an organisation's creative capacity and resilience (Akhter et al., 2022; Mickiewicz & Kaasa, 2022).

By adopting these comprehensive strategies, entrepreneurs build an environment that fosters creativity, EO, and, ultimately, resilience. In this study, startups demonstrated these qualities, particularly innovativeness and proactiveness, through agile restructuring, digital process adoption, and fostering an innovative organizational culture (Lumpkin & Dess, 1996). This aligns with Kail's (2010) framework, which emphasises the importance of nonlinear thinking, diversity, and flexibility in navigating unpredictable environments.

Overall, this research revealed that entrepreneurs who skillfully harness creativity and EO can effectively navigate uncertainty and build flourishing ventures. Their strategies enhance resilience, agility, innovativeness, and proactiveness, aligning with established models like Lumpkin and Dess's (1996) EO framework and Kail's (2010) framework. Ultimately, this empowers them to thrive in the face of challenges and ensures the survival and growth of their businesses.

7.2.3 Entrepreneurs Demonstrate Creativity and Entrepreneurial Orientation in Early Stages of a Startup (RQ3)

Chapter 1 discusses the inherent complexities of the startup ecosystem, which is characterised by limited resources, uncertain markets, and evolving customer preferences. These challenges intensify during the early stages, making success contingent upon strategic approaches and effective utilisation of individual capabilities. This research, addressing RQ3, delves into how entrepreneurs demonstrate creativity and entrepreneurial orientation (EO) during this critical period, ultimately influencing their venture trajectories. These findings revealed a strong correlation between entrepreneurial competencies and the five EO

dimensions outlined by Lumpkin and Dess (1996): innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy.

Personal competence forms a bedrock. Early-stage entrepreneurs leverage their stories and experiences to motivate and inspire others, which is a crucial skill in fostering team cohesion and a shared vision. Their ability to identify and capitalise on market trends aligns with the EO's proactiveness dimension, enabling informed strategic decisions. Moreover, continuous learning and seeking new knowledge equips them to stay ahead of the curve and address industry shifts. Finally, their personal creativity and ability to inspire others demonstrate a vested interest in the venture's success, enhancing team morale and engagement.

Interpersonal competence, centred around relationship management (Khoury et al., 2012), mirrors EO's proactiveness and competitive aggressiveness dimensions. Building strong relationships with stakeholders, from suppliers to government bodies, provides invaluable insights, resources, and support networks. Cultivating alliances between suppliers and customers fosters loyalty, generates positive publicity, and facilitates customer expansion. These strategic relationships empower entrepreneurs to navigate through challenges and propel their ventures forward.

Furthermore, fostering a culture that encourages risk-taking is essential for early-stage startups. Embracing calculated risks opens the door to innovative solutions for customer service and marketing, aligned with the EO innovativeness dimension. Recognising and appreciating employees' efforts and performance is crucial for maintaining motivation and achieving driving goals. Securing adequate financial and non-financial resources, including strong relationships, lays the groundwork for long-term sustainability.

Entrepreneurial managerial competence, encompassing creativity, customer focus, and effective communication, plays a pivotal role in early-stage success. These attributes, identified by Gundry et al. (2014), align with EO innovativeness, proactiveness, and competitive aggressiveness dimensions. By establishing a learning-oriented organisation and developing innovative solutions, entrepreneurs drive their progress and differentiate themselves in the marketplace. Their customer-centric approach ensures a product/service alignment with evolving customer needs, thereby contributing to a competitive advantage.

These findings extend Lumpkin and Dess's (1996) EO model by emphasising the significance of proactiveness, innovativeness, and autonomy in the early stages. Entrepreneurs' aggressive pursuit of learning opportunities and trend detection exemplifies proactiveness. Their emphasis on creativity as a core competency embodies innovativeness. Additionally, the study's highlighting of team-based performance connects to EO's autonomy dimension, suggesting that an efficient division of responsibilities empowers team members and aligns their efforts towards shared goals.

In conclusion, this study sheds light on the intricate interplay between personal, interpersonal, and managerial competencies, showing how entrepreneurs effectively translate these competencies into creativity and EO during the critical early stages of their ventures. These findings, aligned with Lumpkin and Dess's (1996) EO model, suggest that strategically nurturing proactiveness, innovativeness, and autonomy is crucial to entrepreneurial success in this dynamic and challenging environment.

7.3 Research Implications

Many organisations put their efforts into surviving, especially during vulnerable, uncertain, complex, and ambiguous situations, given that risk-taking propensity often decreases because of limited knowledge and understanding of unprecedented circumstances. Therefore, this study has multiple guiding implications that are beneficial not only for academics and researchers but also for policymakers and mature and early-phase startups. These implications are divided into theoretical and practical categories, which are described in the subsections that follow.

7.3.1 Theoretical Implications

The findings of this study have several theoretical implications. First, they provide a valuable explanation of the relationship between creativity and Lumpkin and Dess's (1996) five EO dimensions. Although prior scholars, such as Khedhaouria et al. (2015) and Ferreira et al. (2020), have provided an indirect link between creativity and EO, this study provided a more detailed and clear understanding of not only the association between creativity and EO but also its dimensions. Lumpkin and Dess identified five major dimensions of EO, including

innovativeness, proactiveness, risk-taking, autonomy and competitive aggressiveness. However, this study further explored the subdimensions of each of the five dimensions, which is a more detailed version of these five dimensions. Hence, this study is a valuable addition to existing literature on EO dimensions. In addition, the current study highlighted the link between creativity in the Lumpkin and Dess model's five identified EO dimensions, which is another major contribution to the existing theory in terms of EO dimensions. This provides a clear understanding not only for academics but also for researchers to study and test the dimensions of EO.

Some prior studies have explored EO in the context of tech startups (Lee et al., 2019). Similarly, many studies have explored creativity in the context of startups (Palos-Sanchez et al., 2020). However, there is a lack of evidence on these variables in the context of early-stage startups. Therefore, this study adds to existing literature. Moreover, this study was conducted in Australia, NZ, and Singapore to examine the impact of creativity on the dimensions of EO in early-stage tech startups. Therefore, the findings of this study contribute to the existing literature on the three aforementioned countries and technology-related startups.

Furthermore, this study provides insights that may be compared to existing literature from North America and Europe. While previous research has primarily focused on Western and other developed countries (Covin & Slevin, 1989; Lumpkin & Dess, 1996; Xie & Paik, 2019), this study provides empirical evidence that validates the relevance and applicability of these concepts to the Asia-Pacific region, specifically Australia, NZ, and Singapore.

Furthermore, the relationship between creativity and competitiveness confers valuable insights, thereby further enriching Miller's claim about the competitive nature of EO. Similarly, the findings of this study on the ways that the impetus for creativity influences proactiveness contribute to the reinterpretation of Covin and Slevin's (1989) perspective on this specific dimension of EO.

Finally, the insights gained from this study on the relationship between creativity and uncertainty provide a more nuanced understanding of McGrath's (1999) theory of real options reasoning in the entrepreneurial context. These findings will inform future research

endeavours to explore the role of creativity in entrepreneurial decision-making under conditions of uncertainty.

7.3.2 Practical Implications

Similar to theoretical implications, the findings of this study have several practical implications. These practical implications are important for policymakers, organisations, entrepreneurs, and other stakeholders. For startup founders, the findings suggest adopting experimental product development approaches to drive innovation. As stated in the text, entrepreneurs must encourage new and innovative ideas and inspire employees to share them with others. This can involve design thinking and rapid prototyping methodologies to gather customer feedback and incorporate it into iterations (Brown, 2008). Additionally, founders should proactively evaluate markets by tapping into incubators and accelerator ecosystems for intelligence in technological and regulatory shifts. The ability to recognise and capitalise on market trends enables informed decisions regarding opportunities. Risks can be mitigated through iterative testing, ensuring sufficient operating runways, and securely backing up intellectual property and critical data.

For corporate venture groups, the analysis recommends providing autonomy to new venture leaders to encourage the testing of original ideas. As this study revealed, entrepreneurs should provide autonomy to their employees who may feel less reliant on others, have more control, and create their own ideas. Corporates can also establish internal crowdsourcing platforms, allowing staff to volunteer time on early-stage creative projects. Moreover, investment criteria for seed funding should emphasise resilience factors such as flexibility rather than detailed long-range projections. Setting milestones related to experimentation progress allows uncertain venture space and time to be iterated (Blank, 2013).

Finally, for policymakers seeking to bolster the entrepreneurial ecosystem, the findings suggest promoting cultural acceptance of uncertainty and risk-taking through educational programming. Entrepreneurship curricula emphasising scenario analysis and systems thinking can provide relevant cognitive toolkits (Sarasvathy, 2001). On the funding side, grants could incorporate assessment criteria focused on competencies rather than elaborate

proposals ill-suited to unpredictable environments. Regulators can also enable the controlled testing of inventive solutions through constrained sandboxes.

In addition to specific recommendations, the findings of this study are particularly relevant for Australia, considering the similarities in entrepreneurial ecosystems and business conditions between NZ and Australia. Both countries use the Australian and NZ Standard Industry Classification as their tax codes, and statistics show that Australians travel to NZ to start businesses (Fath et al., 2022). Notably, NZ, a long-time home for Australian expats, has been developing into a startup hotbed. This trend can be ascribed to the region's low living costs and the growing pool of bright entrepreneurs known for their innovative qualities (Fath et al., 2022). Moreover, Australia maintains a close bilateral connection with Singapore, with economic integration as a major priority. As a result, this study contributes significantly to entrepreneurial dialogue in these interrelated regions.

Ultimately, this study benefits Australia because there is evidence in the entrepreneurial domain that many startups in Australia move to Singapore and NZ (Fintech News Singapore, KPMG, 2021). Further, it contributes significantly to the bilateral relationship between Australia and both Singapore and NZ, bolstering investor interest in monitoring and optimising investment growth in a burgeoning area of technological entrepreneurship. Moreover, this study is an important form of learning for entrepreneurs in Australia before they move their startups to Singapore or NZ. This study, which focuses on entrepreneurs and their insights, informs others about the practical pressures of being creative and facing other entrepreneurial pressures to sustain themselves in the market.

7.4 Limitations of Study

A study conducted in Australia, NZ, and Singapore, countries that have distinct entrepreneurial and creative landscapes, garnered significant and valuable contributions. However, it is crucial to acknowledge and consider these limitations in future studies.

The global COVID-19 pandemic posed unique challenges, given the mandatory lockdowns and social distancing policies during the study period. Pivoting quickly to virtual interviews enabled timely data collection but precluded in-person visits to creative spaces, as originally

envisioned. This reliance on video calls versus face-to-face discussions may have subtly impacted data richness despite diligent efforts to facilitate depth. Capturing these technology startup experiences amidst pandemic turbulence will provide a snapshot of entrepreneurial resilience for future analysis, although emerging virtual methods have inherent limitations.

In terms of diversity, concentrating on Australia, New Zealand, and Singapore provided regional breadth, but the findings may not directly translate to other Asia-Pacific countries, given variations in business cultures, governmental policies, and entrepreneurship infrastructure across the region. Conceptual insights into creativity and orientation transcend specific locations. Focusing on gathering data, predominantly through certain databases, may also have shaped participant sourcing.

While the sample of 20 entrepreneurs achieved diversity across technology verticals and startup stages, the recruitment process involved non-probability sampling. Therefore, the participants may not fully capture all founders in these innovation ecosystems. For example, only 11% were female versus typical tech startup rates of 13-15% globally (GEM, 2021). However, saturation emerged across the main themes of creativity and orientation. After the first 10-15 interviews, incremental data showed an increasing replication of codes and concepts with diminishing new insights. According to the established guidelines, an adequate sample size was achieved in this study. Moreover, the participants sufficiently mirrored known founder traits, such as being mostly male, technically educated, and ages 30-45. Therefore, while statistical generalisation has limitations without random sampling, analytical inferences can be drawn for a broader population, given the demographic similarities in salient characteristics. Extending this research to more randomly selected participants could enhance their representativeness.

7.5 Future Implications and Directions

This study illuminates the intricate relationship between creativity and entrepreneurial orientation (EO) in tech startups across Australia, New Zealand, and Singapore. However, recognising its limitations provides opportunities to propose an agenda guiding future research directions based on the findings.

The enduring impact of COVID-19 merits a dedicated examination of how altered creative processes and virtual workflows can reshape the link between creativity and orientation. Comparative assessments and longitudinal studies that track startups across remote work adoption would provide timely insight. Additionally, the geographical scope could be widened to cover more regions in Southeast Asia and the Indo-Pacific, given cultural variances that potentially influence how creativity strengthens the EO pillars. Industry-specific dynamics also warrant exploration as a unique challenge in the artificial spheres.

Regarding methodology, blending qualitative findings with quantitative data from sources like patents, social media, and business registers may yield a more all-encompassing perspective. Big data analytics leveraging machine learning on large-scale startup and innovation datasets can unveil wider creativity and orientation patterns. Comparative studies of contrasting entrepreneurial ecosystems can foreground the contextual factors that affect correlations.

Furthermore, creativity and orientation sub-dynamics deserve attention, including leadership behaviours that balance creative risks with strategic needs and team communication patterns fostering ideation. The psychological traits underpinning creativity and EO also need to be elucidated regarding their connections to start-up behaviours, such as opportunity recognition.

Finally, implications beyond startups should be examined, including how corporations incorporate creative leadership and how social enterprises address societal issues through entrepreneurial thinking. Assessing educational programs would provide insight into the effective cultivation of creative orientation among future founders.

The proposed research agenda stems from this study's foundations while tackling its limitations and outlining the next steps for comprehension. Continued exploration will unravel the nuances of this relationship and illuminate startup success mechanisms.

7.6 Recommendations

At the end of their research endeavour, researchers should write about the implications of their findings, including their theoretical contributions and practical suggestions. Therefore, providing practical and theoretical recommendations is beneficial as the final step in conducting this study.

7.6.1 Practical Recommendations

This study provided valuable insights that can be used by entrepreneurs in their endeavours to formulate recommendations to enhance EO and promote creativity. The first recommendation highlights the significance of actively seeking learning opportunities and staying informed of industry trends. As argued by Lumpkin and Dess (1996), this proactive approach creates an environment conducive to risk-taking and innovation, ultimately contributing to maintaining competitiveness. The second recommendation emphasises the importance of cultivating a creative business environment. This involves fostering team diversity and encouraging creative thinking. Lumpkin and Dess affirmed that sharing ideas within an organisation significantly enhances innovation and creativity. Moving on to the third recommendation, it is suggested that organisations develop an affinity for risk-taking by appreciating their role in driving innovation and entrepreneurship. This notion finds support from Lumpkin and Dess and Covin and Slevin (1989), who proposed that organisations can foster this culture by educating employees on risk calculation and mitigation, ultimately promoting a willingness to take calculated risks.

The fourth recommendation proposes that entrepreneurs should perceive competition as a challenge rather than a threat and adapt to changing market conditions accordingly. This perspective aligns with Lumpkin and Dess's (1996) viewpoint and can result in a substantial competitive advantage. The fifth recommendation advocates granting employees a certain level of autonomy to their employees. Empowering employees fosters a sense of responsibility and potentially sparks new ideas, as indicated by Lumpkin and Dess (1996). This empowerment can offer people a sense of involvement in decision-making and assist organisations in meeting their goals. The sixth recommendation emphasises the need for continuous learning, employee engagement, and unconventional thinking. This aligns with

the viewpoints of Lumpkin and Dess (1996) and Kumar and Shukla (2022), who asserted that organisations should embrace mistakes as a part of the learning process, which is instrumental in fostering a proactive and innovative culture. Finally, the seventh recommendation asserts that the structure and leadership within an organisation play a critical role in fostering an entrepreneurial mindset. Cardoso Castro (2019) suggested that a well-structured organisational framework and effective leadership enhance resilience and responsiveness to market conditions. Meanwhile, Santos-Vijande et al. (2022) highlighted the necessity of fostering a culture of innovation that emphasises the importance of risk-taking activities and collaborative spaces.

7.6.2 Theoretical Recommendations

In accordance with this study's insights, the theoretical recommendations offer numerous avenues for future studies, each of which promises to advance academic discourse on entrepreneurship. First, an area that calls for exploration is comprehending the ways in which early-stage entrepreneurs can cultivate EO through active learning and recognising industry trends (Altinay et al., 2021). Such endeavours can further develop theoretical knowledge (Rauch et al., 2009). Another area of theoretical enquiry revolves around the role of creativity within team dynamics, specifically the ways in which diversity in creative thinking and the encouragement of open idea-sharing cultures within a team can affect team performance and organisational innovation. Exploring this realm can inform strategies to cultivate environments that foster creativity and innovation. Saeed et al.'s (2014) meta-analysis corroborates this proposition, which examines the ways that national cultural and macroeconomic factors influence the relationship between EO and performance. Their study highlighted the need to explore the determinants of the EO–performance relationship further. Further studies should focus on understanding the influence of personal, interpersonal, and entrepreneurial managerial competencies on entrepreneurial success (Lumpkin & Dess, 1996). Future researchers could explore the interconnectedness and effects of these competencies on EO.

Another fruitful path for theoretical exploration lies in understanding the role of a risk-taking culture in driving innovation and entrepreneurship. Elucidating the ways in which risk-taking

propensity is nurtured and its impact on entrepreneurial success can offer valuable insights for entrepreneurs and organisations (Rauch et al., 2009). Further research is warranted to explore the influence of employee autonomy on creativity and innovation in startups. Prior studies have identified employee autonomy as a significant factor in fostering organisational creativity and innovation (Rauch et al., 2009). Thus, future researchers should investigate the relationship between employee autonomy, creativity, and innovation in startups. Finally, special attention should be paid to investigating the role of structure and leadership in fostering an entrepreneurial mindset in startups. Delving further into the ways in which organisational structure and leadership can nurture resilience, responsiveness, and digitisation is highly recommended (Ferreira et al., 2020). These theoretical recommendations aim to broaden the studies across various domains related to entrepreneurship and innovation. These insights can potentially enhance the theoretical understanding of EO, team dynamics, competencies, risk-taking culture, employee autonomy, and the influence of structure and leadership in fostering an entrepreneurial mindset. Valuable guidance can be provided to entrepreneurs, organisations, and policymakers who operate within the fields of entrepreneurship and innovation. In addition, given the importance of this finding, policymakers should introduce tax incentives for startups to focus on sustainable solutions.

7.7 Summary

My motivation for this study emerged from the widespread disruption caused by the COVID-19 pandemic, which devastatingly influenced numerous businesses while paradoxically creating new entrepreneurial opportunities. Australian, NZ and Singaporean startups were explored because of their renowned development, creativity, and entrepreneurial endeavours. The objective was to understand the resilience and resourcefulness of entrepreneurs during times of uncertainty. Moreover, the context of these enterprising Asia-Pacific hubs allowed for a multicountry perspective, which enriched the study with more universal insights. Therefore, the study highlights the dual nature of crises, which present threats and

opportunities and reflects on the ways that entrepreneurs can effectively harness creativity and EO as ‘springboards’ and ‘catalysts’ in the face of uncertainty.

The study concludes by synthesising the key findings that highlight the critical role of creativity in enhancing the dimensions of EO in the tech startup industry. My study focused on the ways in which startups navigate uncertainty using creativity and EO and how entrepreneurs effectively leverage their core competencies for this purpose. Despite certain limitations, such as sample size, geographical variations, and limited prior studies, this exploratory study makes a significant empirical contribution. It helps explain the dynamics of creativity and EO in tech startups amid uncertainty, contributing to academic discourse and providing practical strategies for entrepreneurs who aim to thrive in turbulent business environments in Australia, NZ, and Singapore.

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Appendixes

Appendix 1: Ethics Approval

Quest Ethics Notification – Application Process Finalised – Application Approved

Quest.notreply@vu.edu.au
Tue 13/04/2021, 3:26 PM
Seliv.kannan@vu.edu.au
Khaled Naser Magableh
Inbox
Dear DR SELVI KANNAN

Your ethics application has been formally reviewed and finalised.

» Application ID: HRE21-004
» Chief Investigator: DR SELVI KANNAN
» Other Investigators: MR Khaled Naser Magableh
» Application Title: Relationship between creativity and entrepreneurial orientation of the tech startups in Singapore, New Zealand, and Australia
» Form Version: 13-07

The application has been accepted and deemed to meet the requirements of the National Health and Medical Research Council (NHMRC) 'National Statement on Ethical Conduct in Human Research (2007)' by the Victoria University Human Research Ethics Committee. Approval has been granted for two (2) years from the approval date; 13/04/2021.

Continued approval of this research project by the Victoria University Human Research Ethics Committee (VUHREC) is conditional upon the provision of a report within 12 months of the above approval date or upon the completion of the project (if earlier). A report proforma may be downloaded from the Office for Research website at: http://research.vu.edu.au/hrec.php.

Please note that the Human Research Ethics Committee must be informed of the following: any changes to the approved research protocol, project timelines, any serious events or adverse or unforeseen events that may affect continued ethical acceptability of the project. In these unlikely events, researchers must immediately cease all data collection until the Committee has approved the changes. Researchers are also reminded of the need to notify the approving HREC of changes to personnel in research projects via a request for a minor amendment. It should also be noted that it is the Chief Investigators' responsibility to ensure the research project is conducted in line with the recommendations outlined in the National Health and Medical Research Council (NHMRC) 'National Statement on Ethical Conduct in Human Research (2007)'.

On behalf of the Committee, I wish you all the best for the conduct of the project.

Secretary, Human Research Ethics Committee

Phone: 9919 4781 or 9919 4461
Email: researchethics@vu.edu.au

Appendix 2: Interview Protocol

Part A: Participant's Background	
1	To begin, can you please tell me about your background (age, education, pre-entrepreneurial experiences, firm size, firm type, firm sector, products and services).

Part B: Entrepreneurial Orientation	
1	Would you describe your firm as an early-stage entrepreneurial business? Please explain why.
2	What are the primary characteristics that you think form the entrepreneurial business?
3	What types of skills have you found useful while building the tech startup? Is there something that you would still like to possess?
4	What factors influenced your decision to start a business in Singapore/New Zealand/Australia?
5	How do you usually take new steps or strategic actions and initiate when the result is highly uncertain? Or, do you choose to initiate when fewer resources are at risk and you know the result quite well (e.g. initiate new services, new processes, new products, renewal acts, launch new ventures and open new markets)?
6	Would you describe the firm as innovative and initiating novel ideas and creative practices that may or may not affect new ideas or strategic actions (e.g. initiating new services, new processes, new products, renewal acts, launching new ventures and opening new markets)?
7	How would you describe the strength of the relationship between the number of new ideas generated and their successful implementation?
8	How do you think your business is continually pursuing new opportunities?
9	Do you think your business believes that innovation is an absolute necessity for businesses in the future? If so, how are you working to achieve this?
10	To what extent are workers in your firm granted freedom to change existing ways of doing things to push for novel ideas and be creative to achieve new initiatives or strategic actions (e.g. initiate new service, new processes, new products, renewal acts, launch new ventures and open new markets)?
11	How do you usually seize new initiatives or strategic movements that directly counter the existing stances held by your competitors (e.g. initiate new services, new processes, new products, renewal acts, launch new ventures and open new markets)?
12	What will you do if you are unsuccessful in securing your business opportunity?
13	What are the challenges and opportunities that might affect your business? Are there any specific challenges or concerns that you think may have an impact on your business?
14	What would you say are the biggest advantages of setting up a business in Singapore/New Zealand/Australia?

Part C: Creativity	
1	In your opinion, what factors would influence your entrepreneurial creativity?
2	What are the skills that you believe one must have to create a high-growth business?
3	What problems did you encounter? How vital was technology to the achievement of your goals?
4	What types of performance outcomes have you recorded in your business in recent years? What factors do you consider to be vital to success?
5	What type of creative entrepreneur are you? What types of personality traits do you think are significant?

Part D: Uncertainty	
1	What is your perception of uncertainty in a business environment?
2	What experiences have been important to you personally in terms of operating in a volatile and uncertain business environment?
3	Can you give some examples of successful strategies that you implemented that led to success in today's uncertain business environment?
4	Describe a situation in which you needed to respond to major change. How did you cope?

Appendix 3: Consent Form for Participants Involved in Research

Information to Participants:

We would like to invite you to be a part of a study to understand from you, as an entrepreneur, your perspectives on the relationship between entrepreneurial orientation (such as your thinking and action on matters involving innovativeness, proactiveness and risk-taking, autonomy and competitive aggressiveness) and creativity in new ventures, specifically, in the early stages (the first 42 months) of your tech startup. You have been chosen because your startup has been registered in either Singapore, New Zealand or Australia, which is the focus of the study.

Your contribution to this study will benefit you and others in this tech startup space. We believe that first, the study's findings will help entrepreneurs (business owners and founders) to gain insights from other tech startups and understand their perspectives on creativity and entrepreneurial orientation to improve their creative insights and decision-making. Second, we believe that it will be beneficial to you and others because we hope to design and develop a tool that can be applied in the startup practice and possibly tailor learning programs that might take creatively oriented entrepreneurs to the next level.

We will engage with you virtually (Skype, Zoom or MS Teams) and conduct an interview. Participation is voluntary and we are grateful if you would spend an hour with us to share your experiences.

Consent by the Entrepreneur, the Participant:

I,

of (company address and details)

certify that I am at least 18 years old* and am voluntarily giving my consent to participate in the study *Relationship between creativity and entrepreneurial orientation of tech startups in New Zealand, Australia and Singapore* being conducted by Khaled Magableh (PhD candidate) from Victoria University.

By ticking the following, I confirm my participation in this study that will be conducted virtually.

I confirm that I have read and understood the information sheet for the study.	☐
I understand that my participation is voluntary and I am free to withdraw during the study and before publication.	☐
I understand that any information given by me may be used in future reports, academic articles, publications or presentations by the researcher/s but my personal information will not be included and all reasonable steps will be taken to protect the anonymity of participants involved in this project.	☐
I understand that my name and my organisation's name will not appear in any reports, articles or presentations without my consent.	☐
I understand that data will be kept according to university guidelines for a minimum of 10 years after the end of the study.	☐
I agree to take part in the above study.	☐

I confirm my participation and this is my signature.

Signed:

Date:

If you have any concerns, questions or feedback, please do not hesitate to contact me, Khaled Magableh, at khaled.magableh@live.vu.edu.au

If you have any queries or complaints, you may contact my principal supervisor:

Chief Investigator:

Dr Selvi Kannan

Victoria University Business School

Building G, Room G411

Footscray Park Campus

Melbourne, 3000

Email Selvi.Kannan@vu.edu.au; Telephone +61 (3) 9919 5374

Or

The Ethics Secretary:

Victoria University Human Research Ethics Committee

Office for Research

Victoria University

PO Box 14428, Melbourne, Victoria, 8001

Email Researchethics@vu.edu.au; Telephone (03) 9919 4781 or 4461.

Appendix 4: Information to Participants Involved in Research

Information to Participants Involved in Research

You are invited to participate

You are invited to participate in a research project *Relationship between creativity and entrepreneurial orientation of tech startups in New Zealand, Australia and Singapore*.
This project is being conducted by student researcher Khaled Magableh as a part of a PhD study at Victoria University under the supervision of Dr Selvi Kannan from the Business School at Victoria University.

Project explanation

Business ventures are crucial to the development and success of national and regional economies. However, these businesses perform in an environment of growing density and vitality with serious consequences for their capacity to prosper and survive. In this modern era of rising uncertainty, some of these businesses will not succeed while others will grow above the difficulties they face and succeed by using crucial entrepreneurial measures, such as creativity and entrepreneurial orientation. This study investigates the relationship between entrepreneurial orientation (innovativeness, proactiveness and risk-taking, autonomy and competitive aggressiveness) and creativity in new ventures, specifically, early-stage (the first 42 months) tech startups in Singapore, Australia and New Zealand. The study's outcomes will help entrepreneurs (business owners and founders) to gain insights from tech startups and understand their perspectives about creativity and entrepreneurial orientation to improve their creative insights and decision-making. This study will benefit government and non-government technology entrepreneurship support organisations in Singapore, Australia and New Zealand. At the organisational level, it will develop a deeper understanding using evidence that illustrates entrepreneurs' experiences in Singapore's, Australia's and New Zealand's technology sectors. It will provide information that might help these firms to develop more effective support policies for current and future entrepreneurs. At the individual level, it will increase entrepreneurs' abilities to manage and successfully plan their entrepreneurial activities within uncertain times.

What will I be asked to do?

Participation will take one hour. The research interviews will include a set of open-ended questions that focus mainly on your experience of starting and developing your business in three areas: entrepreneurial orientation, creativity and uncertainty. At the beginning of the interview, the purpose of the study will be explained and your permission will be obtained to start the interview. Your interview will be recorded for research transcription purposes and to ensure accuracy. At the conclusion of the interview, the researcher will thank the participant and provide them with an opportunity to give feedback and express any further thoughts. A list of the interview question will be given to the participant to feel more comfortable within the interview.

What will I gain from participating?

Your participation will help to add value to the entrepreneurship literature. Significantly, it will help to develop a better understanding of the nature of the technology startup ventures in Singapore, Australia and New Zealand and the Asia-Pacific region. In addition, this participation will be important because the study focuses on explaining entrepreneurial activities in tech startup firms in Singapore, Australia and New Zealand to find the most effective ways of engaging in entrepreneurial activities. Understanding entrepreneurs' attitudes will also help to provide insights from tech startups and understand their creativity and entrepreneurial orientation to improve their creative insights and decision-making. Upon request, you will receive a copy of the executive summary of the research

results. Your participation in this research is voluntary. During the interview, you may choose to refuse to answer any question or withdraw from the interview at any time. However, I will be delighted to provide you with a copy of the research report upon request as soon as it is published.

How will the information I give be used?

This information will be used to publish this thesis titled *Relationship between creativity and entrepreneurial orientation of tech startups in New Zealand, Australia and Singapore.* Thus, your identity will be confidential, anonymous and will not be used in any published findings of this research, journal article, professional publication, possible book or conference presentation(s). This research will use code names for yourself and other participants to ensure anonymity, privacy and confidentiality.

What are the potential risks of participating in this project?

Your participation in this study has no foreseeable risks associated with it. All efforts will be taken to ensure the confidentiality of the collected data. Thus, your identity and that of other participants will be confidential, remain anonymous and not be used in any published findings of this research, journal article, professional publication, possible book and conference presentation(s). This research will use code names for yourself and other participants. The interview transcript and any other explanations about entrepreneurs (tables or diagrams) will use these code names to ensure anonymity. Interview data will only be seen by my supervisor and examiners, who will also protect you from risk. To ensure that the collected data are protected, the data will be retained for five years upon completing the project. Paper records will be shredded and placed in the security recycling bin and electronic data will be deleted or destroyed in a secure manner. All hard data will be kept in a locked filing cabinet and soft data in a password-protected computer in the investigator's office in the research lab in the R:Drive at Victoria University. Data will be saved on the university network system where practicable (because the system provides a high level of manageable security and data integrity, can provide secure remote access and is backed up regularly). Only the researcher will have access to the data. Data will be kept securely at Victoria University for five years before being destroyed.

How will this project be conducted?

The research sample will include 20 entrepreneurs from tech startups in Singapore, Australia and New Zealand. The researcher will conduct the research overseas (face to face) and using video-calling (Zoom or Skype) to conduct semi-structured interviews with participants. Within the uncertain times of COVID-19, and the international and domestic travel restrictions, perhaps the most obvious way to replicate face-to-face interviews virtually is using web-based videoconference platforms, such as Zoom (Zoom Video Communications Inc., San Jose, CA) and Skype (Microsoft Corp., Redmond, WA).

Who is conducting the study?

Chief Investigator:
Dr Selvi Kannan
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Building G, Room G411
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Melbourne, 3000
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Student Researcher (PhD Candidate):
Khaled Magableh

Victoria University Business School.
Phone: +61 4 0919 9661
Email: khaled.magableh@live.vu.edu.au

Any queries about your participation in this project may be directed to the chief investigator listed above.
If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, Victoria, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.