Entrepreneurial Ecosystem Dynamics: The Influence of Context, Composition and Interactions on Entrepreneurial Activity

Claudia Shwetzer Herrera

Thesis submitted in total fulfilment of the requirements for the degree of
Doctor of Philosophy

La Trobe Business School
Department of Management, Sport and Tourism
College of Arts, Social Sciences and Commerce

La Trobe University
Victoria, Australia

2020

Table of Contents

List of Tables

List of Figures

Acknowledgements

Firstly, my gratitude goes to my supervisors, Professor Alex Maritz and Dr Quan Nguyen, for accepting me as a PhD student. I would like to thank them for their guidance, support and mentorship during my candidature.

I gratefully acknowledge the financial, academic and technical support of the La Trobe Business School and its staff that made my PhD research possible. I acknowledge that this work was supported by a La Trobe University Postgraduate Research Scholarship and a La Trobe University Full Fee Research Scholarship.

I would also like to thank Professor Clare D'Souza, Associate Professor Jennifer Laing, Dr Anne Brouwer, Gerard Holland, Lexy Sierak and Abby Shrivastava for their valuable support during different stages of the research.

I am also extremely grateful to the entrepreneurs and ecosystem actors who so generously contributed their time, wisdom and valuable insights, to be able to conduct this research.

Additionally, I would like to thank my dear friends who encouraged and supported me throughout this journey.

Lastly, I would like to thank my family, especially my parents and my husband, to whom I dedicate this thesis. Words cannot express how grateful I am for their love, encouragement and enduring support.

Abstract

Research on entrepreneurship has advanced significantly alongside the recognition of its crucial role for society and economic development. Traditionally entrepreneurship research has focused on the entrepreneur and the firm, but more recently, entrepreneurship scholars have provided a more holistic view, thereby introducing an interesting and fast growing body of literature on entrepreneurial ecosystems. The approach encompasses a diversity of elements involved in the multifaceted process of entrepreneurship, considering the characteristics of a location influencing entrepreneurial activity.

Past studies in this area have analysed the elements comprising these systems; however, gaps in the body of knowledge indicate that there is a need not only for further development of frameworks to study ecosystems but also to analyse the interrelations occurring between their elements. Additionally, the literature calls for further research to comprehend contextual aspects and the systemic nature of entrepreneurial ecosystems from an institutional and networks perspective. This research addresses the identified gaps, firstly, by analysing the influence of the context on entrepreneurial activity, and secondly, by examining the interactions between ecosystem's components and their influence on the dynamics of entrepreneurial activity, utilising an institutional and networks perspective.

The research follows a multi-method and multi-level design. A case study strategy is used to gain depth on the context and the interrelations occurring in the ecosystem; complemented with social network analysis to investigate structural and interactional dimensions of entrepreneurs' networks during their interactions with other ecosystem actors. The research is underpinned by the theoretical foundations of institutional and network theories, using propositions to explore dynamic variables. Thirty-six entrepreneurs and ecosystem actors within Melbourne were interviewed to gather their perspectives on the different elements in the ecosystem.

Findings indicate that the start-up infrastructure is crucial for the immediate benefits they offer and for providing a platform for interactions, contributing to thriving networks and social capital, enabling resource exchange and the development of shared values, trust, cooperation and reciprocity. The relevance of engaging in social networks and interactions is especially so for younger entrepreneurs, immigrants and international

students. Findings depict that understanding localised factors triggering entrepreneurship contributes to the development of strategies to promote and support it. In Melbourne, findings suggest that some entrepreneurs engage with entrepreneurship to overcome limitations such as the lack of local work experience. Other essential drivers include social, purpose-driven and profit-impact motivations. Additional findings include specific institutional characteristics influencing entrepreneurial activity within Melbourne.

The research contributions to the body of knowledge are the incorporation of an institutional and network perspectives for the study of entrepreneurial ecosystems, and a proposed model and methodology assisting in determining the dynamics and characteristics that enhance and hinder entrepreneurial activity within a specific location. This study advances understanding of the concept of entrepreneurial ecosystems, contributing to its development and conceptualisation, and assists entrepreneurs, educators and policymakers to develop strategies to create environments conducive to start-up formation and growth. The study was conducted during the Covid-19 pandemic, resulting in various challenges; mindful, however, that such crises may well be an enabler for entrepreneurial activity. The entrepreneurial ecosystem approach assists in reducing uncertainty linked to the perception of opportunities and resources availability, relevant for engaging with entrepreneurship and needed in this uncertain time.

Limitations to this research include the network data collection process, such as time and effort needed from participants. Additionally, findings being specific to the selected geographical area of research, limiting the ability to generalise to broader populations. Opportunities for future studies include the incorporation of other ecosystem actors' networks and interactions at the micro-level of analysis, regarding their engagement with entrepreneurial activities and the ecosystem.

Publications related to this Thesis

Shwetzer, C, Maritz, A & Nguyen, Q 2019, 'Entrepreneurial ecosystems: A holistic and dynamic approach', *Journal of Industry-University Collaboration*, vol. 1, no. 2, pp. 79-95.

Shwetzer, C, Maritz, A & Nguyen, Q 2019, 'Entrepreneurial ecosystems: A holistic and dynamic approach', *Paper Development Sessions of the Australian Centre for Entrepreneurship Research Exchange (ACERE) Conference 2019*, Sydney, Australia, 5-8 February 2019.

Shwetzer, C & Maritz, A 2017, 'Enhancing the impact and relevance of entrepreneurship and innovation education in Australia', *Proceedings of the Australian Centre for Entrepreneurship Research Exchange (ACERE) Conference 2017*, Melbourne, Australia, 7-10 February 2017.

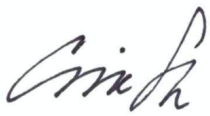
Statement of Authorship

Except where reference is made in the text of the thesis, this thesis contains no material published elsewhere or extracted in whole or in part from a thesis accepted for the award of any other degree or diploma.

No other person's work has been used without due acknowledgment in the main text of the thesis. This thesis has not been submitted for the award of any degree or diploma in any other tertiary institution.

All research procedures reported in the thesis were approved by the Arts, Social Sciences & Commerce College Human Ethics Sub-Committee (application number HEC19089).

Signature:



Claudia Shwetzer Herrera

2 September 2020

Chapter 1. Introduction

1.1 Chapter Introduction

This thesis presents the theoretical underpinnings for research developed to contribute to the efforts towards a better understanding and conceptualisation of the phenomenon of entrepreneurial ecosystems.

This chapter introduces the research background, providing context about entrepreneurship, innovation and entrepreneurial ecosystems. Next, it presents the problem and aim of the research. Then, it describes the scope and the justification of the research, followed by the methodology and main definitions. Lastly, it presents an outline of the entire thesis. The structure of this chapter is summarised in Figure 1.1.

1.2 Research Background

This research explores the phenomenon of entrepreneurial ecosystems in an attempt to advance understanding of the systemic and contextual aspects of the entrepreneurship process. The following section provides background on relevant topics concerning this study and lays the foundations for the investigation at hand.

1.2.1 Entrepreneurship

Entrepreneurs' origins date back to the 17th century, having their first associations with individuals undertaking commercial projects (Schwarzkopf, 2016). Nevertheless, at the beginning of the 21st century, the understanding of the role of entrepreneurship in society was still hectic. In more recent times, progress has been achieved, and entrepreneurship's significant role in the economy and society is recognised (Acs & Audretsch, 2010). Some of the topics addressed by entrepreneurship research include how individuals recognise opportunities for business creation (Davidsson, 2015; Shane & Nicolaou, 2015; Shane & Venkataraman, 2000), entrepreneurial thinking and mindset (Mauer et al. 2017; Haynie et al. 2010), entrepreneurship education (Galvão et al. 2020; Maritz et al. 2019; Neck & Corbett, 2018; Nabi et al. 2017; Maritz, 2017; Fayolle, 2013), the importance of

networks to entrepreneurs (Galkina & Atkova, 2020; Wang et al. 2019; Parida et al. 2017; Johannisson, 2000), entrepreneurship and culture (Audretsch, 2020), intentionality (Douglas & Prentice, 2019; Van Gelderen et al. 2015), national systems of entrepreneurship (Acs et al. 2014), and more recently, the entrepreneurial ecosystem approach (Audretsch, 2019; Stam & Van de Ven, 2019; Spigel, 2017; Motoyama & Knowlton, 2017; Stam, 2015; Mason & Brown, 2014).

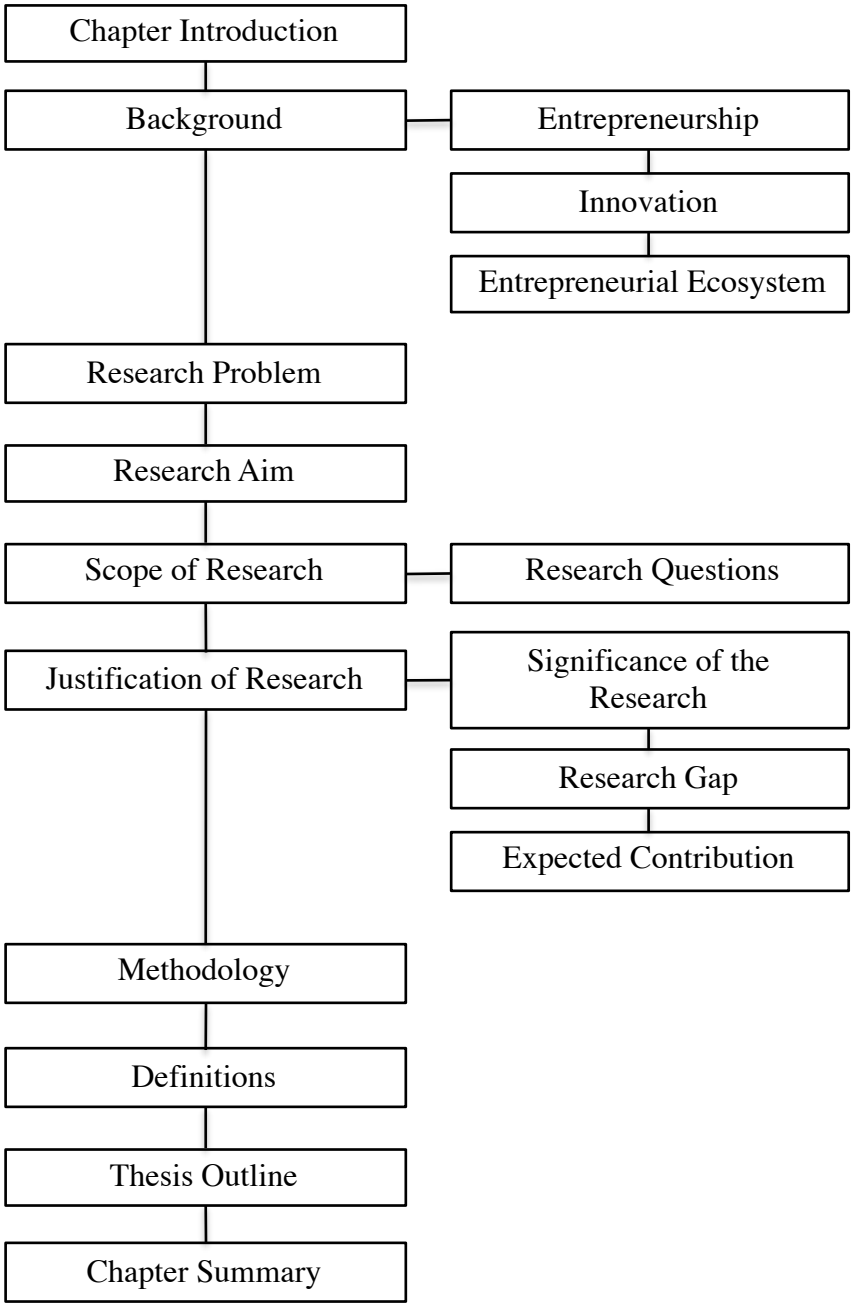


Figure 1.1 Chapter One Overview

Seminal work includes that by Schumpeter, who in 1934 referred to the *entrepreneur* as someone bringing structural changes into the economy through the creation of new industries. Within the field's evolution, scholars have recommended adopting a broader focus of the concept of entrepreneurship, for instance, embracing entrepreneurial diversity (Welter et al. 2017), and as a specific type of human activity through the concept of entrepreneurial action (Watson, 2013). Entrepreneurial activity encompasses more than the notion of starting a venture. Stam (2015), while associating the concept to that of entrepreneurial ecosystems, states that entrepreneurial activity is the 'process by which individuals create opportunities for innovation' (p. 1765).

The field of *entrepreneurship* has been defined as: 'the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited' (Venkataraman, 1997 as cited in Shane & Venkataraman, 2000, p. 218). Neck and Greene (2011, p. 55) state that entrepreneurship is 'about creating new opportunities and executing in uncertain and even currently unknowable environments'. Hindle (2010, p. 100) defines entrepreneurship as 'the process of evaluating, committing to and achieving, under contextual constraints, the creation of new value from new knowledge for the benefit of defined stakeholders'. Moroz and Hindle (2012) state that crucial elements of the entrepreneurship process include: the relationship between individuals and opportunity, value creation and new business model creation, timing, action and the context in which the entrepreneurial process takes place. Shane (2012), also adopting a process view refers to entrepreneurship as the discovery, evaluation and exploitation of opportunities, recombining resources in innovative ways, in the process of business start-up creation, growth and initiatives within firms.

1.2.2 Innovation

Innovation is central to entrepreneurship due to their mutually-dependent relationship (Acs et al. 2017a). For instance, a concept utilising explicitly both terms is that of Entrepreneurial innovation, which is a source of national competitive advantage (Autio et al. 2014). Drucker expressed the innovation-entrepreneurship relationship by stating that innovation is a driving force in the entrepreneurial process (Drucker, 1985). Albeit the interdependent connection between entrepreneurship and innovation, it is important to make the distinction between the two, for although very related, the terms are not the same; not all entrepreneurs innovate (Autio et al. 2014).

The innovation literature deals mostly with structures and institutions, whereas entrepreneurship literature is mostly about individuals or firms (Zahra & Wright, 2011). Research in the innovation field includes topics on open innovation (Nambisan et al. 2018; Chesbrough, 2003), disruptive innovation (Christensen, 2013; Markides, 2006), innovation systems (Acs et al. 2014; Lundvall, 2010), among other.

From a general perspective, innovation is the generation and implementation of new ideas, processes, products or services (Garcia & Calantone, 2002). When talking about the level of 'newness', incremental innovations refer to minor changes in existing technology, product improvements, or line extensions fitting within an existing market category or minimally altering it. On the other hand, radical innovations refer to more novel advances that can substantially change a technological trajectory and set the basis for a new market. Entrepreneurs can then exploit opportunities, for instance, new technologies and/or creating new markets, with different level of innovations, be incremental or radical innovations (Christensen, 2013).

Drucker (1985) describes *innovation* as being the specific instrument of entrepreneurship, providing resources with a new capacity to create wealth. Crossan and Apaydin (2010, p. 1155) elaborate a comprehensive definition of *innovation*: 'production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome'. The OECD adopts a more general definition in which *innovation* involves the introduction of a new product, production process, marketing method or firm organisation, and can take many forms (OECD, 2005). *Technological innovation* involves the development and introduction of a new product or new production process within the firm. *Non-technological innovation* involves, among other things, the introduction of new organisational methods related to practices, the workplace or the firm's external relations (Lombardi et al. 2017).

Within entrepreneurial ecosystems, innovation is an important process occurring both within firms and as an ecosystem outcome that brings value to society (Stam, 2015). This study acknowledges the multidimensionality of the concept, as portrayed in the adopted definition presented further in this chapter.

1.2.3 Entrepreneurial Ecosystem

The literature on entrepreneurial ecosystems offers insights into the systemic nature of entrepreneurship and local conditions that enable geographical areas to support entrepreneurial activity (Audretsch et al. 2018; Brown & Mason, 2017; Spigel, 2017; Stam, 2015; Isenberg, 2010); whilst trying to explain the interactions between three main components: individuals, institutions and organisations (Alvedalen & Boschma, 2017). The approach allows for understanding the context of entrepreneurship at a broader level, for studying the interdependent elements involved (Stam & Van de Ven, 2019), and analyse environments conducive to increasing the success of new firms (Audretsch et al. 2019).

The terms ‘entrepreneurship ecosystem’ and ‘entrepreneurial ecosystem’ are sometimes used interchangeably. Although Isenberg’s (2011, 2010) popular introduction as ‘entrepreneurship ecosystems’ is still in use, recent research has shifted to the more comprehensive term of ‘entrepreneurial ecosystems’. Entrepreneurial action and behaviour, as well as the entrepreneurial actors *per se*, are essential interdependent components of the entrepreneurial ecosystem approach (Brown & Mason, 2017). Entrepreneurial action involves behaviours conducive to entrepreneurship activity derived from the critical element of entrepreneurial thinking (Krueger, 2007). Entrepreneurial behaviour 'can be defined broadly within a range of activities including start-up, scale-up, opportunity recognition, economic development, market development, etc.' (Audretsch et al. 2018, p. 472). As such, the term 'entrepreneurial ecosystem' stretches far more than only concerning aspects of the business start-up process (Brown & Mason, 2017). Following a more comprehensive view, this research employs the term 'entrepreneurial ecosystem'.

Although still considered an emerging field, research in this area include topics about creating and implementing entrepreneurial ecosystems (Isenberg, 2010), entrepreneurship education ecosystems (Belitski & Heron, 2017), entrepreneurial ecosystems and economic policy (Isenberg, 2011), definitional approaches (Brown & Mason, 2017; Acs et al. 2017b), framework and systemic conditions (Audretsch, & Belitski, 2017; Stam, 2015), configuration and relationships between components (Spigel, 2017; Motoyama & Knowlton, 2017), dynamics of entrepreneurial ecosystems (Mack & Mayer, 2016), entrepreneurial ecosystems and high growth firms (Mason &

Brown, 2014), governance (Colombo et al. 2019; Colombelli et al. 2019), culture and the entrepreneurial ecosystem (Donaldson, 2020), and related concepts such as entrepreneurship support (Ratinho et al. 2020).

As a field under development, there is no commonly accepted definition of entrepreneurial ecosystems, although there have been some attempts to define it (Alvedalen & Boschma, 2017). Collectively, the concept involves a dynamic and systemic nature, encompassing multiple actors, processes and institutions (Brown & Mason, 2017). Mason and Brown (2014, p. 5) elaborate to define the entrepreneurial ecosystem as: 'a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organisations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of 'blockbuster entrepreneurship', number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment'. Spigel (2017) refers to ecosystems as supportive environments that foster innovation-based ventures and that include culture, social networks, investments, universities and economic policies; critical for economies based on entrepreneurial innovation.

As per the contributions above-mentioned, efforts are being made to delineate and develop the entrepreneurial ecosystem construct. A concept that denotes challenges for its study, but also offers a fruitful pathway for entrepreneurship research.

1.2.3.1 Business start-up and business growth

One of the misconceptions of the term 'entrepreneurial ecosystems' is the notion that it only concerns aspects of the business start-up process (Brown & Mason, 2017). Although much of the focus is on high-growth start-ups, entrepreneurial activity also manifests itself at diverse stages of a venture's development process. The current research supports this notion and considers the entrepreneurial activities of business start-up and growth within the business dimension adopted in this investigation.

Various models address the evolution of *entrepreneurial firms*, i.e. firms with strategies oriented toward innovation and growth through their capability to assume relevant risks

(Covin & Slevin, 1991). Most models follow the classic life cycle of organisational growth. In both strategy and entrepreneurship research, organisational life cycle models (also referred to as developmental or stage models), are used to analyse progressive stages of firms. Usually, life cycle models represent a cycle of emergence, growth, maturity and decline (Gartner & Brush, 1999; Churchill & Lewis, 1983). However, in the literature, the number of stages identified by scholars varies significantly (Levie & Lichtenstein, 2010; Davidsson et al. 2006). Each stage is characterised by its challenges and organisational responses, as portrayed in Table 1.1.

Table 1.1 Life Cycle Stages of Emergence and Early Growth

Stage	Strategic goal	Resource needs	Challenges
Emergence	Organisation survival	External resources and capabilities frequently firms do not possess	Liabilities of newness and smallness (e.g. legitimacy) Lack of internal resources and capabilities High levels of uncertainty
Early Growth	Intentionally grow beyond survival	Extensive and broader scope of resources	Still scarce firm resources Resource acquisition challenges: availability, access and environmental uncertainty around the firm

Source: Hite & Hesterly (2001)

Start-up stage

Organisational emergence is a process comprised of multiple start-up activities with the potential of leading to new business formation further on, at the start-up phase (Edelman et al. 2016). Start-up activities are the events and behaviours of individuals engaged in the process of starting a new venture, constituting the micro-foundations of entrepreneurial action (Shepherd, 2015). Nascent entrepreneurs are individuals who are actively involved in starting a new business (Dimov, 2010). The greater the scope of start-up activities undertaken by early-stage entrepreneurs, the greater the likelihood of successful organisational emergence. In the emergence stage, firms strive for their survival. This stage is characterised by high degrees of uncertainty regarding resources, routines and the environment, associated with the firm's newness.

Legitimacy and reputation tend to be lower than in later growth stages; however, perceptions of venture legitimacy change as a venture develops, with different audiences

providing different resources (Fisher et al. 2016). Challenges firms tend to face at the emergence stage include the lack of internal resources and capabilities (Gartner & Brush, 1999). As such, often with constrained capital, firms need to gain access to external resources and know-how, depending heavily on the firm's external network (Sorenson, 2018).

At the start-up phase, entrepreneurs define and validate the business concept: market opportunity (critical need, target market, market size, timing), the offering (product or service and value proposition), business model (resources, processes, economic model) and market strategy needed. Characteristics of this stage include a narrow focus, limited time and resources, modest levels of economic risk; the organisation is typically informal and not highly structured (Picken, 2017). Start-up indicators include sales of goods or services, profitability, market share, among others (Gerba & Viswanadham, 2016).

Although start-ups' time-associated definitions vary, these tend not to exceed the three-year mark. Parker and Belghitar (2006), state that individuals engaged further into the process of starting a new venture are less likely to remain nascent entrepreneurs, especially after two years, and more likely to proceed to the start-up phase. Hendrickson et al. (2015) define start-ups as businesses under three years old. The OECD (2017) includes in its definition of start-ups, newly born enterprises, plus those that are one and two years old. The Global Entrepreneurship Monitor (GEM), considers new business owners, those being in business more than three months and less than three and a half years (nascent and new entrepreneurs composing the total entrepreneurial activity or TEA) (GEM, 2017a). For the purpose of this research, start-ups are defined as businesses under 3-years old, comprising also early-stage or nascent entrepreneurs.

Growth stage

Penrose (1959) defines growth as both 'an internal process of development' and 'an increase in amount', perspectives heavily dominating through the Theory of the growth of the firm. Indicators of growth related to 'an increase in amount' perspective, include aspects such as employment and turnover, assets, market share, physical output, and various measures of profitability (Dobbs & Hamilton, 2007). However, as growth is not always linear, sustained or consistent over time, using such indicators represent challenges. Growth is a multi-dimensional, heterogeneous and complex phenomenon with a variety of stakeholders involved, each with different interests and aspirations

(Leitch et al. 2010). As such, McKelvie and Wiklund (2010) argue that other categories should be incorporated in addition to Penrose's perspectives, including franchising, licensing, joint ventures, and strategic alliances, all of which may help firms overcome problems concerning managerial capacity and a lack of resources.

At the growth or scale-up phase, the entrepreneur adds significant resources and leverages from processes and partnerships to grow. While doing so, entrepreneurs attempt to achieve a competitive advantage, scale and establish sustainable market leadership. In order to grow, the organisation should be structured, with established processes and discipline; making a transition from the more flexible environment found in a start-up. Informal communication and ad hoc decision making become no longer effective, being replaced by processes and policies. At this stage, the firm tends to be profitable, provide a return for investors and have market leadership (Picken, 2017). New venture's pathways to growth include diversification through acquisitions and the introduction of new products (Nuscheler et al. 2019).

In the growth stage, firms intentionally grow beyond survival and viability (Churchill & Lewis, 1983), changing into more established businesses. GEM (2017) considers established businesses, those being in business more than three and a half years. Businesses starting to grow typically require a more extensive and broader scope of resources, still face scarce resources (especially at early growth), and experience increased environmental uncertainty. However, legitimacy and reputation are present at a greater level than emerging firms (Fisher et al. 2016). Regarding resource acquisition, availability (search costs and difficulties of needed resources), access (ability to acquire needed resources) and uncertainty (predictability of conditions surrounding the firm) are main challenges firms face (Hite & Hesterly, 2001). For the purpose of this research, ventures at growth are defined as businesses that are more established, are intentionally growing beyond survival, and that have been operating for three years or longer.

Related terms to growth include high-growth firms, gazelles and unicorns. High-growth is associated with expectations of significant job creation potential within the first years of setting up a business (Fuentelsaz et al. 2020). *High-growth* relates to 'all enterprises with at least 10 employees at the beginning of their growth and having average annualised growth in the number of employees greater than 10% per annum, over a three year period' (European Union Commission as cited in OECD, 2017, p. 92). On a similar line, the OECD (2017) defines high-growth as 'enterprises with average annualised

growth in the number employees greater than 20% per year, over a three-year period, and with ten or more employees at the beginning of the observation period' (Eurostat-OECD as cited in OECD, 2017, p. 92). *Gazelles* are 'high-growth enterprises that have been employers for a period of up to five years' comprising 10 or more employees (OECD, 2017, p. 92). The more recent term *unicorns* refer to start-ups valued at more than $1 billion, being able to scale-up and create value effectively (Acs et al. 2017b). However, gazelles and unicorns are rather rare than common (Welter et al. 2017).

This study recognises the different types of entrepreneurial firms and the range of a venture's life cycle stages and focuses on business start-up and business growth. First, to adopt a dynamic (rather than static) approach, comprising entrepreneurial activities other than business start-up (Brown & Mason, 2017). The ecosystem approach supports start-up formation but also acknowledges the relevance of encouraging sustainable, growth-oriented innovative firms. Second, to gain insights into the characteristics of the composition, network interactions and associated resources within entrepreneurial ecosystems at two different stages. Investigating entrepreneurial processes occurring at multiple levels aid to explore the multiplicity of contexts (Welter, 2011), their impact on entrepreneurship and the dynamics shaping entrepreneurial ecosystems.

1.3 Research Problem

Starting or growing a business is a challenging and complex endeavour. Entrepreneurs' innovativeness, tenacity, abilities and capabilities comprise a vital part of the equation, but also the circumstances surrounding them can play a significant role. While a body of empirical research has allocated efforts to explain entrepreneurship, much of the focus has been on the entrepreneur and the firm. Entrepreneurship is not an isolated phenomenon. How then can the environment in which entrepreneurs are embedded be incorporated into the study of entrepreneurship? Furthermore, while certain conditions may work in one place, they might not work in another. How is it that the characteristics of a specific geographic location influence entrepreneurial activity? How is it that a broader view of entrepreneurial activity can assist in gaining a better understanding of the process and dynamics of entrepreneurship?

The emerging research stream of entrepreneurial ecosystems assists in addressing such issues. Therefore, this research adopts an entrepreneurial ecosystem approach. However, due to its newness, this systemic approach to entrepreneurial activity is still

underdeveloped (Cantner et al. 2020; Audretsch et al. 2019a; Cavallo et al. 2019; Alvedalen & Boschma, 2017). This research, firstly, addresses the contextualisation of entrepreneurship and, secondly, it addresses identified gaps within the entrepreneurial ecosystem's emerging literature. Specifically, it explores 1) how the context influences entrepreneurial activity, and 2) how the composition and interactions within an entrepreneurial ecosystem influence the dynamics of entrepreneurial activity. This with the intention of not only attempting to progress theory but also help elucidate what occurs in practice.

1.4 Research Aim

The research investigates the phenomenon of entrepreneurial ecosystems in the attempt to provide further understanding on the dynamic processes involved in entrepreneurship, to progress entrepreneurship research, and allocate efforts to provide support to entrepreneurs, policymakers and other entrepreneurial actors involved.

The study aims to contribute to entrepreneurship research by contextualising entrepreneurship, and to the entrepreneurial ecosystem literature, by establishing how the elements and the interactions within an entrepreneurial ecosystem influence entrepreneurial activity at the stages of start-up and growth of the venture creation process.

1.5 Scope of the Research

This research explores the influence of context, composition and interactions on entrepreneurial activity. To achieve this, an entrepreneurial ecosystem approach was employed.

The phenomenon of entrepreneurial ecosystems is underdeveloped and still in its infancy (Chen et al. 2020). It presents theoretical limitations, with viable theory and empirical evidence still evolving (Spigel, 2017; Brown & Mason, 2017; Motoyama & Knowlton, 2017). Accordingly, as per Edmondson and McManus (2007), the literature on entrepreneurial ecosystems predominantly presents characteristics of those found at the nascent stage of a field of research such as:

- Qualitative approaches
- New constructs, few formal measures

- Suggestive theories
- Calls for further research

More recently, with studies (e.g. Stam & Van de Ven, 2019; Liguori et al. 2019; Szerb et al. 2019) presenting some features of the intermediate stage:

- Qualitative and quantitative approaches
- Proposed relationships between new and established constructs
- Preliminary or exploratory testing of new propositions and/or new constructs
- Provisional theories, often integrating previously separate bodies of work

This research is positioned within the nascent to intermediate stages of development of a field (Edmondson & McManus, 2007). As such, it adopts a multi-method strategy, founded in qualitative inquiry, with an exploratory nature, and open to emergent themes in the data. It relies on rich, detailed data to 1) shed light on the phenomenon of entrepreneurial ecosystems, 2) advance a set of propositions, and 3) expand previous work on ecosystems. This with the overall aim of providing a suggestive model from an evolved conceptual framework of entrepreneurial ecosystem elements and interactions, serving as a basis for further inquiry.

The entrepreneurial ecosystem approach allows the inclusion of context and dynamics into the study of entrepreneurial activity. The multi-method strategy provides a diversity of procedures and techniques to address the research questions. Furthermore, the qualitative inquiry allows pursuing depth and rich insights, aspects valued in a developing field.

The analytical framework guiding and informing this research consists on 1) entrepreneurial ecosystem attributes (Spigel, 2017), framework and systemic conditions (Stam, 2015); 2) the integration of aspects from these two views in an initial conceptual framework; 3) an institutional perspective with a focus on formal and informal institutions (North, 1990); and 4) a network perspective with a focus on social networks (Borgatti & Halgin, 2011; Borgatti et al. 1998) within the structural and interactional dimensions (Coviello, 2006).

1.5.1 Research Questions

The main research questions and sub-questions addressed by this research are:

1) **How does the *context* influence entrepreneurial activity and its outcomes within an entrepreneurial ecosystem?**
   1.1 How is the specific context in Melbourne influencing entrepreneurial ecosystem dynamics?
   1.2 What are the characteristics of the local environment?

2) **How do the *composition* (configuration) *and interactions* within an entrepreneurial ecosystem influence entrepreneurs and entrepreneurial activity dynamics at the stages of emergence and growth?**
   2.1 How do the attributes, formal and informal institutions influence the entrepreneurial ecosystem?
   2.2 How do the different elements enhance or hinder entrepreneurial activity?
   2.3 How are the different elements of the entrepreneurial ecosystem interacting?
   2.4 What are the associated resources involved between entrepreneurs and other ecosystem actors' interactions?

1.6 Justification of the Research

Entrepreneurship plays a crucial role in social and economic development as well as fostering technology and innovation (Acs et al. 2014). The impact of entrepreneurial activity can be perceived in all sectors and at all levels of society; be it for national economies, industries and individual organisations. More specifically, it is related to growth, competitiveness, productivity, wealth generation, job creation and formation of new industries (Morris et al. 2015; Lackéus, 2015; Blenker et al. 2014). Due to these apparent benefits, there is an increasing tendency of governments to promote entrepreneurship (Mason & Brown, 2014). For instance, through entrepreneurship education as a means to foster economic activity (Fayolle, 2013; O'Connor, 2013), as well as through the development of strategies to implement National Systems of Innovation and Entrepreneurship to spill over these economic and societal benefits into nations (Acs et al. 2014; Acs et al. 2017a).

During this entrepreneurial movement or growing attention towards entrepreneurship, the more recent concept of entrepreneurial ecosystems has emerged within the

entrepreneurship discipline as an approach for gaining a better understanding about the context of entrepreneurship at a macro-level, considering a systemic view (Audretsch & Belitski, 2017). The concept consists of 'interdependent actors and factors that enable and constrain entrepreneurship within a particular territory' (Stam & Van de Ven, 2019, p. 1). Although growing in popularity, the concept remains underdeveloped (Brown & Mason, 2017; Stam, 2015), making it difficult to comprehend details about their structure and interactions (Motoyama & Knowlton, 2017), impact on the entrepreneurship process (Spigel, 2017), contextual factors (Zahra et al. 2014) and holistic approaches focusing on interrelated aspects of entrepreneurship (Alvedalen & Boschma, 2017).

1.6.1 Significance of the Research

The field of entrepreneurship has advanced significantly; however, as above-mentioned, it has overlooked the role of systems in helping explain the prevalence and performance of entrepreneurship (Acs et al. 2017b). Adopting a much broader view—an entrepreneurial ecosystem approach—contributes to integrate the process of entrepreneurship to the wider group of actors involved (Motoyama & Knowlton, 2017) and consider the diversity of interactions. Furthermore, as the concept has origins from the business literature as well as practitioner communities, it can offer both a theoretical and practical perspective (Brown & Mason, 2017).

Placing emphasis on interdependencies between actors and elements, whilst focusing in value creation within a particular region (Acs et al. 2017b), the entrepreneurial ecosystem approach is the latest conceptual tool attempting to explain these type of agglomerations and interactions, in which entrepreneurs are the main actors and entrepreneurship is explained from a systemic perspective, whilst relying on relational elements and multi-actor networks within regions (Brown & Mason, 2017).

Incorporating a contextualised view of entrepreneurship moves away from the focus on the individual and the firm (Autio & Acs, 2010) and contributes to our understanding of the phenomenon and dynamics of entrepreneurial activity (Welter, 2011; Mason & Brown, 2014). Given the degree of interchange between entrepreneurs and the ecosystem, contextual studies seem to be an appropriate path for understanding the processes involved and the mechanisms for acquiring and allocating resources towards opportunity identification and construction. Analysing aspects regarding entrepreneurial actions and the surrounding environment can provide significant insights into the

entrepreneurship process (Björklund & Krueger, 2016). Moreover, enhancing understanding of the roles that the different elements play within an ecosystem help identify the types of support that are in place and the ones needed to be implemented to stimulate entrepreneurial activity (Audretsch et al. 2018). Due to these reasons and the identified research gaps presented next, the entrepreneurial ecosystem approach appears to be a fruitful pathway for research.

1.6.2 Research Gaps

Context can be both an asset and a liability for entrepreneurship (Acs et al. 2017; Welter, 2011). While its significance has been recognised and calls for contextualised approaches to entrepreneurship have been made in the past (Baumol, 1990; Gartner, 1995; Welter, 2011), more recently, scholars still stress the need for further research about the influence of context on entrepreneurship. Linking the relevance of context with entrepreneurial ecosystem research, Autio et al. (2014) call for further research on contextual interactions to assist in the understanding of how contexts influence the configuration of entrepreneurial ecosystems, highlighting that there is a need to study the institutional characteristics and dynamics of different entrepreneurial ecosystems. Brown and Mason (2017) state that initial conceptualisations of entrepreneurial ecosystems lack the incorporation of the complexities of the socio-spatial context; due to the common focus on characteristics and behaviours of individuals and firms within the entrepreneurship literature, often ignoring the role that the context plays in regulating firms' behaviours and choices. Recent studies also concerned with understanding the context of entrepreneurship taking a systemic approach includes that of Stam and Van de Ven (2019). They utilise a systems framework for studying entrepreneurial ecosystems and develop an ecosystem index for their measurement.

Concerning other identified gaps within the entrepreneurial ecosystem literature, as research on this field emerges, questions are still unanswered. Such as the lack of understanding of how the elements of the entrepreneurial ecosystem interact (Motoyama & Knowlton, 2017; Roundy et al. 2018; Chen et al. 2020), how the different elements enhance entrepreneurship (Alvedalen & Boschma, 2017), how the structure and connections of internal attributes vary within regions and influence entrepreneurs and ecosystem's dynamics (Spigel, 2017), the influence that formal and informal institutions have on the entrepreneurial ecosystem (Alvedalen & Boschma, 2017; Chen et al. 2020), and micro-level analysis examining how different actors, materials and goods are

organised within ecosystems (Audretsch et al. 2019). Scholars argue that a limitation of the current work on entrepreneurial ecosystems is its focus on listing and documenting the presence of ecosystem elements without much understanding of the interdependencies among them (Mack & Mayer, 2016). Furthermore, how does entrepreneurial diversity (e.g. immigrant, youth, female) contribute to the creation and sustainability of ecosystems as part of the societal dimension (Audretsch et al. 2019). Consequently, calling for studies of entrepreneurial ecosystems for its further development and enhancement (Audretsch et al. 2018; Brown & Mason, 2017; Motoyama & Watkins, 2014).

This research addresses the following, described in more detail in Chapter 2:

- Further study into the contextualisation of entrepreneurship—through an entrepreneurial ecosystem approach
- How elements within the ecosystem interact—through a macro and micro-level view, and a network approach
- How the different ecosystem elements influence entrepreneurial activity and ecosystem dynamics—through the ecosystem's internal attributes, formal and informal institutions

1.6.2 Expected Contribution

Regarding the theoretical contribution, the research contributes to the advancement of knowledge of the entrepreneurial ecosystem construct by expanding an initial conceptual framework of entrepreneurial ecosystems, adapted and developed from previous work by Spigel (2017) and Stam (2015), to provide a suggestive conceptual model of entrepreneurial ecosystem elements and interactions. Based on conceptual and empirical research, the model proposes the integration of an institutional and network perspective to the study of entrepreneurial ecosystems, allowing for rich insights through the use of these theoretical lenses. The *institutional perspective* with a focus on formal and informal institutions (North, 1990) helps to determine relevant elements and characteristics of the entrepreneurial ecosystem and the influence of the context in the configuration of the entrepreneurial ecosystem (Autio et al. 2014), as well as the influence of institutions on entrepreneurial activity within the ecosystem (Alvedalen & Boschma, 2017). The *network perspective* with a focus on social networks and connections (Borgatti et al. 2018; Borgatti et al. 1998), addressing structural network properties, helps to explain the

nature of network relationships between elements connected in the entrepreneurial ecosystem as well as aspects of the interactions taking place (Alvedalen & Boschma, 2017), and associated resources involved the process (Edelman & Yli-Renko, 2010).

Regarding contributions to policy and practice, the research contributes to advance understanding of what constitutes an entrepreneurial ecosystem, for lack of understanding of the concept can lead to misapplication. The concept of entrepreneurial ecosystems is aimed to stimulate economic prosperity (Isenberg, 2010). It can be useful to analyse the dynamics of venture formation and growth within specific geographical locations and considering their own trajectories and characteristics (Brown & Mason, 2017). As a phenomenon culturally bound, observing the dynamics in different contexts can be conducive to a better understanding of the entrepreneurship processes and provide guidance to policymakers when values and aspirations of cultures and their people are considered (Björklund & Krueger, 2016). Furthermore, outcomes of this approach can help elucidate elements within an entrepreneurial ecosystem that enable or constrain entrepreneurial activity, unveil significant aspects concerning entrepreneurship, and provide avenues for policy application.

Lastly, regarding methodological contribution, the study assists in the development of a methodology that helps capture elements and interactions influencing entrepreneurial activity within a specific area. Building on work from Spigel (2017), Stam (2015), the research proposes a suggestive model that assists in this task. Furthermore, based on research conducted by these scholars and Isenberg (2010), the present research allowed the development of a comprehensive guide with questions to address (through qualitative inquiry) relevant aspects of the ecosystem (macro view). Additionally, the research proposes a complementary method (through social network analysis) to assess micro-level interactions.

1.7 Methodology

The research follows a pragmatically driven multi-method design, founded in qualitative inquiry (Spigel, 2017; Motoyama & Knowlton, 2017). Utilising a combination of methods and procedures that best meet the needs and purposes of the research, an interpretive framework based on pragmatism focuses in the outcomes of the study, in the applications ('what works') and solutions to problems (Patton, 1990), whilst taking the position that there are multiple routes to knowledge (Johnson & Gray, 2010).

Qualitative research rather than quantitative research is considered an appropriate approach better suited to understanding entrepreneurs' interactions with the environment (Dana & Dana, 2005) and an in-depth analysis of the characteristics, composition and interactions (Edelman and Yli-Renko (2010). Appropriate approaches for studying the phenomenon of entrepreneurial ecosystems include the case study strategy. Case study methodology (Yin, 2018) can be used to analyse the dynamic processes involved, considering the local embeddedness of the phenomenon (Motoyama & Knowlton, 2017), as portrayed in several studies utilising such an approach (Spigel, 2017; Motoyama & Knowlton, 2017; Fraiberg, 2017; Isenberg & Onyemah, 2016; Björklund & Krueger, 2016).

The novel and underdeveloped concept of entrepreneurial ecosystems (Chen et al. 2020; Alvedalen & Boschma, 2017) is consistent with qualitative methods which are suitable for understanding phenomena still in early stages of theory development (Edmondson & McManus, 2007). Additionally, case study methodology allows the investigation of a contemporary phenomenon within its real-world context (Yin, 2018), helping to understand it and advance its conceptualisation (Eisenhardt & Graebner, 2007).

This study utilises case study research as primary method, complemented with a social network perspective. Accordingly, the research utilises several data collection techniques (semi-structured interviews, observations and documents), several analysis procedures (thematic analysis and social network analysis), underpinned by an institutional and network perspectives as theoretical lenses.

1.8 Definitions

For the purpose of this research, the adopted main definitions are the following.

Entrepreneurship. The process of discovery (or creation), evaluation and exploitation of opportunities, leading to recombining resources in innovative ways (Shane, 2012) and to the creation of value.

Entrepreneurial activity. Refers to 'the creation of innovative organisations, products, and initiatives that generate value for society' (Roundy et al. 2018, p. 1). Cumulative entrepreneurial activity generates prosperity, ultimately leading to value creation, in which creating opportunities for innovation is key (Stam, 2015).

Entrepreneurial ecosystem. A set of interconnected entrepreneurial actors, entrepreneurial organisations, institutions and entrepreneurial processes, which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment (Mason & Brown, 2014), involving a dynamic and systemic nature (Brown & Mason, 2017) within a supportive environment.

Innovation. Driving force of the entrepreneurial process (Drucker, 1985) which involves the introduction (or new combinations) of new products and services, considering it both, a process and an outcome (Crossan & Apaydin, 2010).

1.9 Thesis Outline

The thesis is structured into five chapters. Chapter 1 sets the foundations for the research. Through a systematic literature review, Chapter 2 presents aspects of the antecedents, advancements, characteristics and challenges within entrepreneurial ecosystems research. Chapter 3 describes the methodology employed, including philosophical stands, research strategy, techniques and procedures. Chapter 4 presents the analysis of the data and findings of the research. Finally, Chapter 5 integrates and discusses the findings, and presents the limitations, the research's contribution, ending with the concluding remarks.

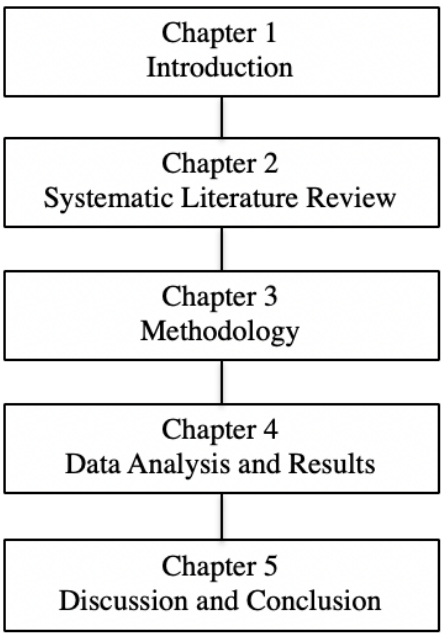


Figure 1.2 Thesis Overview

1.10 Chapter Summary

This research embarks on investigating and advancing the understanding of entrepreneurial ecosystems dynamics, comprising aspects about their composition and interactions. The study aims to determine the composition and interactions within an entrepreneurial ecosystem to explicate the elements, interrelationships and supportive mechanisms influencing the dynamics of entrepreneurial activity, through a contextualised view of entrepreneurship.

The study draws attention to the impact of context, networks and institutions on the configuration, practices (dynamics) and symbols of entrepreneurial ecosystems. Such approach assists in the investigation and further conceptualisation of entrepreneurial ecosystems, contributing to determine relevant elements and characteristics influencing entrepreneurial activity.

The next chapter presents the systematic literature review used as the theoretical foundation of this study.

Chapter 2. Systematic Literature Review

2.1 Chapter Introduction

This chapter introduces the systematic literature review, which comprises existing empirical and conceptual research on entrepreneurial ecosystems and associated topics. The aim of this systematic search is to outline previous research and insights, and to unveil potential areas for future research. The review findings offer a synthesis of the entrepreneurial ecosystem phenomenon, including aspects of its emergence and antecedents, definitions, differences and similarities with related concepts, characteristics, shortcomings and suggested areas for further research.

The chapter is structured as follows. First, the review method is described, and the findings of the review are depicted. Then, the resulting conceptual framework guiding the research is presented. Finally, pathways for future research, propositions developed from the review and conclusions are outlined. Figure 2.1 summarises the contents of this chapter.

2.2 Systematic Literature Review Process

This section introduces the steps undertaken for conducting a systematic review of the literature, which comprised two stages. First, an initial review involving general aspects on entrepreneurship; and second, a systematic literature review targeting more specific topics and organised procedure.

2.2.1 Overview of the Literature

A broad literature search and an emergent inquiry were implemented on general aspects of entrepreneurship, innovation, and entrepreneurship education to obtain an overview of these overarching topics and guide next steps. The advantage of pursuing a first overview of the literature is that it aids in establishing the grounds and criteria for a more organised search (Hart, 1998). Articles included publications of known scholars of the field and

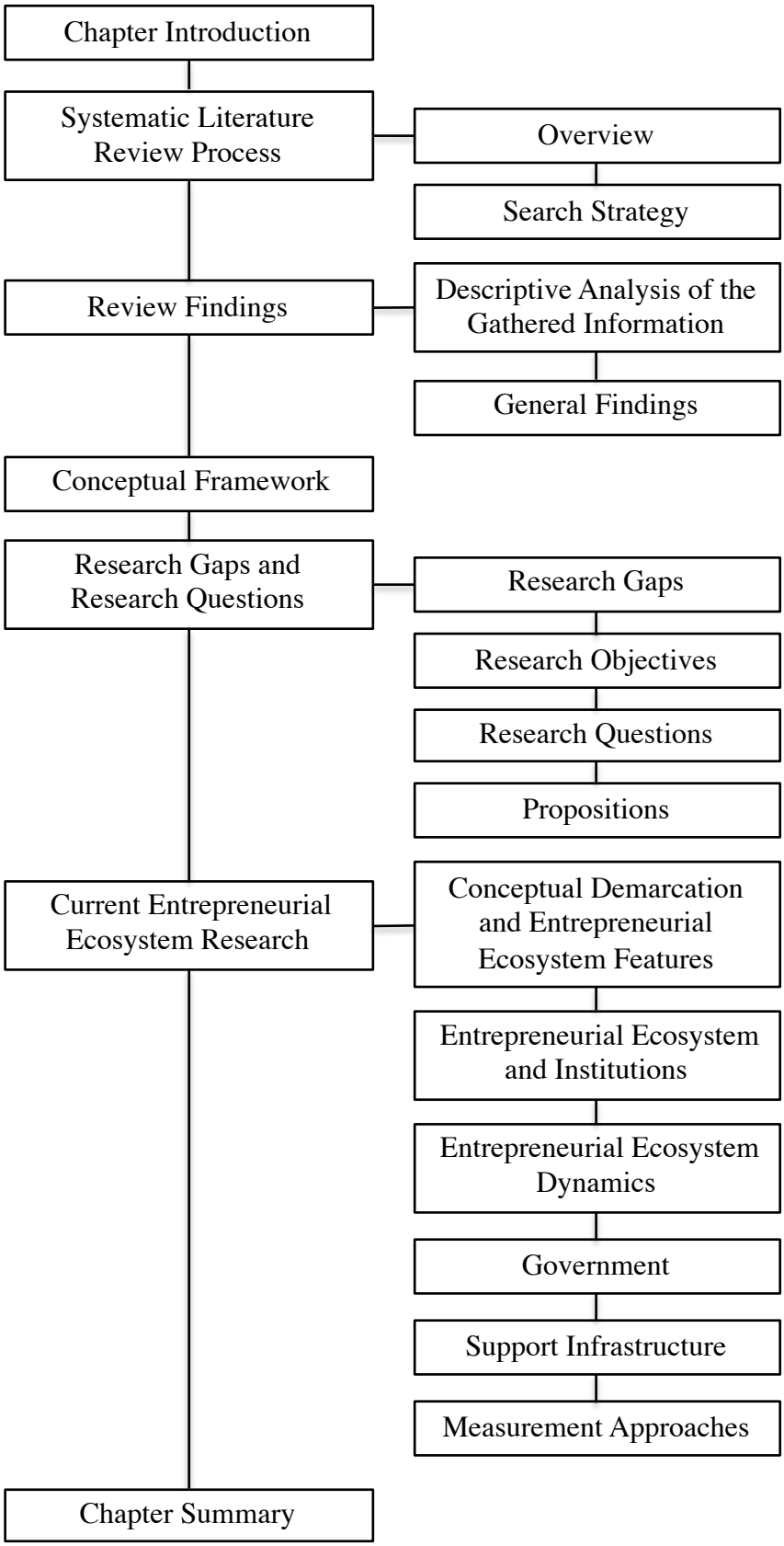


Figure 2.1 Chapter Two Overview

relevant references found in those articles, taking into account the utilisation of recent articles and their publication in highly reputed journals such as Entrepreneurship Theory and Practice, Journal of Business Venturing, Entrepreneurship and Regional Development, Education and Training, among other.

Three main findings emerged from this first stage and overview of the literature. Firstly, that although there have been significant advancements in the fields of entrepreneurship and entrepreneurship education, there is still a need for allocating efforts to bring closer education and practice (Belitski & Heron, 2017; Fayolle, 2013). Secondly, that adopting a broader approach to study entrepreneurship, could assist towards a more comprehensive view of the dynamic processes involved, ultimately contributing to the aim of further developing and enhancing understanding on the topic, as well as aspects occurring in practice. Lastly, that networks and institutions are theoretical frameworks proposed to be integrated into this broader view (Alvedalen & Boschma, 2017; Spigel, 2017; Estrin et al. 2013).

These findings led to pursue further investigation towards the integration of entrepreneurship to the broader approach and recent concept of entrepreneurial ecosystems. The literature overview allowed to obtain knowledge about the field of entrepreneurship, to identify areas for further research, and to delimit the topics for conducting the systematic literature review. The second stage consisted of more defined research criteria and informed review on entrepreneurial ecosystems guided by the following review questions:

1) What is an entrepreneurial ecosystem and what is its composition?
2) What are the antecedents, evolution and advancements of the concept of entrepreneurial ecosystems?
3) What previous research has been conducted on the topic at both, international and Australian specific context?
4) What is the role of entrepreneurship education in entrepreneurial ecosystems?
5) What are the theoretical underpinnings of the concept of entrepreneurial ecosystems?

The literature review consisted of a systematic approach adopted from Belitski and Heron (2017), based on Hart (1998) and Tranfield et al. (2003). According to Tranfield et

al. (2003), a systematic literature review is a search strategy that identifies key scientific contributions to a field, attempts to reduce researchers' biases and improves the quality of the review process. It aims objectivity providing descriptions of the steps taken. This evidence-informed approach emphasises both methodological rigour and relevance for practice. The authors state that a systematic literature review consists on the process of synthesising research in a systematic, transparent and reproducible manner aiming to produce a reliable knowledge stock and a traceable pathway of the researchers' decisions, procedures and conclusions.

2.2.2 Systematic Search Strategy

The next sections describe the adopted strategy to conduct the systematic review including the scope, inclusion and exclusion criteria, included journals and the data extraction process.

2.2.2.1 Scope and procedure

The scope consisted of a comprehensive umbrella of topics due to the nature of the topic under study, which is, heterogeneous, diverse, and broad. The search strategy included the main search term 'entrepreneurial ecosystems' in conjunction with the following search strings emerging from the literature review overview 1) antecedents, 2) education, 3) components, 4) partnerships, 5) national innovation and entrepreneurship systems, 6) best practice, 7) institutions and networks, and 8) geographical dimension (international and Australia).

The review was conducted utilising the electronic search engine Web of Science covering sources published between 1997 and 2017 (current entrepreneurial ecosystems research was added at a later stage of the research, at section 2.6 of this chapter). Web of Science enables a multidisciplinary and comprehensive search of peer-reviewed publications (Hausberg & Korreck, 2020), at numerous prestigious and high impact research journals. The search retrieved a copious number (7,000+) of hits due to the broad number of topics (strings) attached to the main term (Appendix A). The first 40 items under each of the eight categories were screened by title, abstract and the criteria described in the next section. This narrowed down the items to approximately 200 articles. Lastly, a list of 74 articles and items from other sources—obtained through the

systematic search and additional relevant sources—were selected, forming the main basis of the review (refer to Table 2.1 and Table 2.2).

Table 2.1 Journals and Articles Included in the Systematic Review

Journals included in the review	Articles in review	Other sources	Items
Administrative Science Quarterly	1	Books/Handbooks	1
Annual Review of Sociology	1		
Education and Training	1		
Entrepreneurship Research Journal	1		
Entrepreneurship Theory and Practice	3		
European Planning Studies	2		
International Marketing Review	1		
International Review of Entrepreneurship	1		
Journal of Business and Technical Communication	1		
Journal of Business Venturing	3		
Journal of Enterprising Communities: People and Places in the Global Economy	1		
Journal of Management	2		
Journal of Management Development	1		
Journal of Small Business and Enterprise Development	1		
Research Policy	2		
Small Business Economics	5		
Small Enterprise Research	2		
Strategic Management Journal	3		
Technology Innovation Management Review	2		
The Journal of Technology Transfer	1		
Total	35		
Total articles and other items in the review	36		

2.2.2.2 Inclusion and exclusion criteria

The type of publications considered included a variety of sources in the attempt of gathering information and insights from different perspectives, with attention to quality (e.g. quality journals and some award-winning AOM entrepreneurship articles), and diversity of sources (Tranfield et al. 2003). Sources included peer-refereed journals, book chapters and special issues, relevant reports such as the Australian Chief Scientist, Global Entrepreneurship Monitor (GEM), OECD thematic and background papers, and selected Conference papers such as Isenberg's (2011).

Table 2.2 Articles Added to the Systematic Review from Relevant References

Additional articles	Articles in review	Other sources	Items
Academy of Management Review	1	Background paper OECD	1
Academy of Management, Learning and Education	1	Conference paper	1
Advances in Entrepreneurship, Firm Emergence and Growth	1	Book/Handbook	4
Australian Journal of Political Science	1	Harvard Business Review	1
Education and Training	1	Reports	2
Entrepreneurship and Regional Development	5		
Entrepreneurship Theory and Practice	4	Total	9
European Planning Studies	1		
Innovations: Technology, Governance, Globalization	1		
International Journal of Organizational Innovation	1		
International Small Business Journal	1		
Journal of Business Venturing	1		
Journal of Business Venturing Insights	1		
Journal of Technology Transfer	1		
Organization Science	1		
Regional Studies	2		
Scandinavian Journal of Management	1		
Small Business Economics	1		
The Journal of Technology Transfer	2		
Urban Studies	1		
Total	29		
Total articles and other items in the review	38		

Internet publications were mostly not considered, except government and policy-relevant resources and *Harvard Business Review* publications. Both empirical and conceptual papers were included (refer to Appendix B for details about the process).

The search and selection criteria included the following considerations:

1) Relevant to the topic
2) Highly cited papers (mostly concerning more established topics addressed, rather than the topic of entrepreneurial ecosystems *per se*, due to its recency)
3) Recent articles (within the covered review period: 1997 - 2017)
4) Encompass the selected umbrella of topics (established search)

Relevant related articles were also considered in this systematic search, mainly deriving from the references listed on previously selected articles.

In summary, the review of 74 items encompassed:

1) Articles from the main systematic literature review
2) Related articles from the reference lists
3) Selected and related articles from the general literature review
4) Articles from 2018 (two items added at a later stage)

This process allowed access to a range of valuable, diverse and comprehensive sources of information allowing rich insights.

2.2.2.3 Extraction of the data

The extraction of the data followed a systematic procedure, which besides reducing bias, allows for a standardised method to gather information, links the formulated review questions to the procedure and facilitates the analysis of the data being extracted (Tranfield et al. 2003). The data-extraction process included the following: details of the source (i.e. title, author(s), year of publication, journal), keywords, approach, the origin of data used in the study, the geographic scope of the study, objective, methodology, main ideas, definition of the entrepreneurial ecosystem, elements of entrepreneurial ecosystems, argument, findings, frameworks, emerging themes, theoretical contribution, and pathways for further research.

2.3 Review Findings

The following section describes the findings on the main topic of entrepreneurial ecosystems and related concepts.

2.3.1 Descriptive Analysis of the Gathered Information

The main themes that emerged through this process comprise 1) definitional aspects and under-theorisation of the concept, 2) entrepreneurial ecosystems as a tool for creating resilient economies and recommendations for governments for creating them—national and regional development, 3) interdependencies and relationships within the elements composing entrepreneurial ecosystems, and 4) dynamic and contextual aspects. The review indicates that the investigation of entrepreneurial ecosystems is gaining

momentum, as evidenced by a majority of the studies addressing this specific topic being published post-2010. Recent studies focus on possible constructs for theorisation, the relevance of interactions and the crucial roles that universities and an entrepreneurial culture play.

As the area is an emerging one, conceptual studies predominated over empirical studies. The literature presents predominant characteristics as those found at the nascent theory development stage of a field such as research questions leading to explorative approaches, qualitative data as the primary method of data collection, as well as efforts towards conceptualisation and suggestive models (Edmondson & McManus, 2007). About the research approach, empirical studies presented a predominant cross-sectional design. Most findings were based on qualitative approaches including, in their majority, case study design and some others presenting ethnographic fieldwork, thematic and narrative approaches.

2.3.2 General Findings

The umbrella of topics addressed include aspects such as antecedents of entrepreneurial ecosystems, the relation with universities and education, actors and components, partnerships and collaborations, national innovation and entrepreneurship systems, best practice, institutional and networks perspective, and contextual aspects.

2.3.2.1 Antecedents

The study of entrepreneurship has evolved significantly concerning the level and complexity of analysis (Blenker et al. 2014). Its recognition of being vital to the market economy is still highlighted, driving practitioners and scholars to understand it further (Arruda et al. 2013). For many years entrepreneurship was conceptualised at the microeconomic level, with attention to individuals and firms, research on who the entrepreneurs were, and the type of individual traits that led them to success (Motoyama & Knowlton, 2017; Sine & David, 2010). Research on entrepreneurial action focused mostly at the individual level, with a focus on start-ups as the organisational manner where the entrepreneurial action was taking place (Autio et al. 2014).

Over the past few decades, the entrepreneurship discipline has expanded from a focus on the entrepreneur and the firm to a broader area of study, shifting towards a more

interactive view of entrepreneurship. Pioneering work is that of Van de Ven (1993) on the 'social system framework', identifying actors involved with innovation and entrepreneurship at the local scale, such as universities, financing and skilled workforce; leading to the belief that entrepreneurship is not only about the isolated individual but also the connection to other networks of actors (Motoyama & Knowlton, 2017).

In more recent years, the acknowledgement of other forms of entrepreneurial action and opportunity recognition became broader; it was identified that these could also occur in other organisational settings (Autio et al. 2014), such as in established corporations (Bessant & Tidd, 2011), corporations and universities' spin-offs (Siegel & Wright, 2014), family firms (Randerson et al. 2016), social movements (Rao et al. 2000), and social entrepreneurial ventures (Zahra & Wright, 2011), shifting its attention towards a much broader view. The more recent approach of entrepreneurship research (i.e. entrepreneurial ecosystems) integrates the process of entrepreneurship to a broader group of entrepreneurial actors involved (Motoyama & Knowlton, 2017), incorporating entrepreneurial behavioural patterns of individuals, institutions and businesses, such as the university-industry-government partnership (Belitski & Heron, 2017).

Another aspect addressed by the entrepreneurial ecosystem approach is the association of systems with entrepreneurship. In the field of economics, the role of entrepreneurship has been generally ignored while analysing economic systems. Similarly, the entrepreneurship field has generally ignored the role of systems in explaining the occurrence and performance of entrepreneurship. The entrepreneurial ecosystem approach intends to correct these issues (Acs et al. 2017b). Although also concerned with actors' interdependence and value creation, the approach focuses on 'productive entrepreneurship' as an output of the ecosystem, rather than emphasising its focus on value capture and competition, as the strategy literature on ecosystems does (Acs et al. 2017b). *Productive entrepreneurship* refers to 'any entrepreneurial activity that contributes directly or indirectly to the net output of the economy or to the capacity to produce additional output' (Baumol, 1993, p. 30).

Related concepts to the 'entrepreneurial ecosystem' construct are not recent, such as Van de Ven's (1993) aforementioned systemic view on entrepreneurship. However, the entrepreneurial ecosystem publications are much younger, published approximately within the last 17 years, and gaining momentum in the past few years (Alvedalen &

Boschma, 2017). Research in this area includes topics such as the relevance of contextual factors to the entrepreneurship process (Brown & Mason, 2017; Acs et al. 2014; Welter, 2011), relational approaches attending to interactions between key aspects of the systems (Motoyama & Knowlton, 2017; Motoyama & Watkins, 2014), antecedents and conceptualisation (Brown & Mason, 2017; Acs et al. 2017b), its connection to universities and education (Belitski & Heron, 2017; Guerrero et al. 2017; Maritz et al. 2016; Maritz et al. 2015a; Fayolle & Kyro, 2008), diversity and resilience (Roundy et al. 2017), significance to governments and policy (Brown & Mason, 2017; Autio et al. 2014; Isenberg, 2011; Isenberg, 2010), among other.

In summary, this recent area of entrepreneurship research has shifted the entrepreneurship literature from a focus on the identification of psychological traits and characteristics present in entrepreneurial individuals (Autio et al. 2013) and lists of factors that enhance entrepreneurship (Stam, 2015) to a much broader focus. However, the still eminent and almost 'myopic focus' on the individual (Autio et al. 2014) and the venture dominates, forming a gap regarding the relevance of context and its influence in behaviour and performance (Autio & Acs, 2010). Consequently, articulating a need for the study of entrepreneurial ecosystems for its further development and enhancement (Audretsch et al. 2018; Brown & Mason, 2017; Motoyama & Watkins, 2014).

The above rationalisation leads to *Proposition 1:*

> The entrepreneurial ecosystem approach adopts a comprehensive view of entrepreneurial activity, comprising the entrepreneur, the interrelations with the environment and diversity of entrepreneurial actors.

2.3.2.2 The concept of entrepreneurial ecosystems

The entrepreneurial ecosystem concept has gained much attention in a relatively short period of time, especially in policy circles. Although a concept initially introduced by Moore (1993), it was Isenberg (2010, 2011) who popularised it within non-academic audiences. With origins from the business literature as well as practitioner communities, it offers both a theoretical and practical perspective (Brown & Mason, 2017). By examining elements and interactions occurring during the entrepreneurship process, the approach could contribute to gaining a better understanding of what occurs in practice—adding to the efforts of bringing closer theory with practice (Fayolle, 2013).

According to Acs et al. (2017b), the entrepreneurial ecosystems literature builds from the regional development literature and the strategy literature, with commonalities such as systems thinking and interdependencies between actors. Contrasting characteristics the authors mention concern a territorial demarcation and an aggregated regional performance regarding regional development aspects, whilst within the strategy area, the literature assumes a global context perspective and focuses in value creation by individual firms. Although both lineages (i.e. regional development and strategy) have developed an approach to industrial organisation, they have mostly ignored the crucial role of the entrepreneur in the new value creation process (Acs et al. 2017b).

Emphasising on interdependencies between actors and factors, whilst focusing in value creation within a particular region (Acs et al. 2017b), the entrepreneurial ecosystem approach is the latest conceptual tool attempting to explain these type of agglomerations and interactions. In which, entrepreneurs are the main actors, entrepreneurship is explained from a systemic perspective, and with a view much aligned with the innovation systems literature, relying on relational elements and multi-actor networks within regions (Brown & Mason, 2017). Isenberg (2011) points out that the entrepreneurial ecosystem strategy is aimed to stimulate economic prosperity, being significant for cluster strategies, innovations systems, knowledge-based economies and national competitiveness policies; and emphasises that policy has undermined significant aspects of entrepreneurship and its application.

Stemming from the viewpoint in which the entrepreneur cannot be isolated, for entrepreneurship occurs within an array of interdependent actors (Feld, 2012; Stam, 2015), developing entrepreneurial regions involves not only firm attributes and performance but also the context in which the venture operates (Mason & Brown, 2014). Thus, although traditionally the process of new venture creation relied predominantly on the resource-based approach (Burvill et al. 2018), other aspects have also drawn attention to scholars such as the behavioural, social and cultural attributes (Baker & Nelson, 2005; Sarasvathy, 2001); or for instance, establishing temporal, historical, spatial, institutional and social contexts, when trying to understand economic behaviour (Welter, 2011).
Edelman and Yli-Renko (2010), however, do not underestimate the significance of resources concerning the entrepreneurial concept. The authors state that environmental uncertainty could influence attributional processes linked to the perception of opportunities. That entrepreneurs' perceptions for identifying or creating opportunities as

well as the resources' availability derive from the environment and its dynamism. The authors elaborate that if perceptions are strong, then the entrepreneurs' intentions to enter the risky arena and complexities of starting new ventures will be stronger too, suggesting that environmental dynamism contributes towards these matters. Among suggested pathways for further research, the authors direct attention to the exploration of the roles that different types of resources play in the formation of a new venture; and to further in-depth analysis of the characteristics of the local or regional environment, stressing the relevance of understanding the complex relationships among the environment, perceptions and entrepreneurial start-up efforts.

In sum, the entrepreneurial ecosystem approach explains entrepreneurship from a systemic perspective (Brown & Mason, 2017). It emphasises the interdependence between actors within a particular region in the process of value creation (Acs et al. 2017b), and in multi-actor networks in which entrepreneurs are the central actors (Brown & Mason, 2017). The approach can stimulate economic prosperity (Isenberg, 2011) and regional development (Mason & Brown, 2014), and provide a dynamic environment that influences entrepreneurs' perceptions and help reduce uncertainty (Edelman and Yli-Renko, 2010).

The justification mentioned above leads to *Proposition 2:*

> A dynamic entrepreneurial environment can influence actors' perceptions and entrepreneurial efforts to engage in entrepreneurial activities.

2.3.2.3 Theoretical limitations and other challenges

The concept of entrepreneurial ecosystems assists in analysing the dynamics of new venture formation within specific geographical locations; however, the literature does not yet show a common understanding of what entrepreneurial ecosystems are, portraying a lack of sufficient theoretical and empirical studies (Stam, 2015). Aspects contributing to the lack of clarity include the adoption of different approaches, e.g. geographical and non-geographical. For instance, some view ecosystems as a facilitator of innovation (innovation at its core), while others essentially relate it to spatial aspects of entrepreneurial activity (entrepreneurship at its core) (Brown & Mason, 2017).

Although the concept is appealing to policymakers, the lack of understanding can lead to misapplication (Brown & Mason, 2017; Stam, 2015). For instance, disregarding its systemic nature and heavily focusing on specific target groups could be detrimental (Brown & Mason, 2017). A solely focus on start-ups, overlooks the fact that firms' needs change as they evolve; or focusing only on technology-based firms and university spin-offs, emphasises this type of activity, which tends to be unrealistic regarding the composition of most of the ecosystems (Isenberg, 2011; Brown & Mason, 2017). On a similar line, Acs et al. (2017b, p. 1) state that 'entrepreneurship studies have largely overlooked the role of systems in explaining the prevalence and performance of entrepreneurship', an aspect that the study of entrepreneurial ecosystems is trying to address.

Additionally, further analysis is needed to understand how successful ecosystems emerge (Mack & Meyer, 2016), how ecosystems develop and continue to exist; keeping in mind that ecosystems differ from one another, with their own institutional trajectories, idiosyncrasies and characteristics (Brown & Mason, 2017). Further research is needed regarding systemic and interdisciplinary approaches to entrepreneurship (Acs et al. 2014). Entrepreneurial ecosystems scholars claim a need to understand entrepreneurship in broader contexts such as their regional, temporal and social settings (Autio et al. 2014), aspects regarding legitimacy, network interactions, power relationships, cultural aspects and their impact on performance (Acs et al. 2017b).

Furthermore, the network of interactions of individual elements within the entrepreneurial ecosystems has not been sufficiently explored (Motoyama & Watkins, 2014). Past studies have focused on identifying elements without an analysis of the relationships occurring between those elements. The lack of understanding of how the elements of an entrepreneurial ecosystem interact makes it difficult to comprehend the ecosystem's dynamics (Motoyama & Knowlton, 2017). Additionally, research is needed to understand how the various elements of the entrepreneurial ecosystem enhance entrepreneurship (Alvedalen & Boschma, 2017).

Another challenge relates to the misconception that ecosystems' main focus is on start-ups (Isenberg, 2011). Whilst new firms are important for employment creation, it is only a fraction of these firms the ones that generate the majority of employment growth and can scale-up (Acs et al. 2017b). Thus, while ecosystems are supportive environments for

potential entrepreneurs and start-ups, they also are for growth-oriented innovative firms and larger-scale corporate entities (Brown & Mason, 2017). As Isenberg (2010) asserts, ecosystems' focus is on actors, processes and institutions, such as large firms, universities, public sector and banks. With the special feature of bringing enhanced and consistent performance to the different actors involved (Acs et al. 2017b), whether concerning the firm or the individual actors (Terjesen et al. 2017).

Other challenges involved in the study of entrepreneurial ecosystems include identifying the ecosystem services that a region is trying to achieve (Stam, 2015). Correspondingly, to have a better entrepreneurial ecosystem, we need to know which elements need to be improved and to what end (e.g. productivity, employment) (Acs et al. 2017b). Acs et al. (2017b) identify that an additional challenge involves determining the scope. The authors mention studies could address, for instance, a temporal focus, an industrial-geography focus (relating specific industries with regions), an actor focus, or a regional geography focus to understand better local characteristics influencing the ecosystem.

In summary, as an emerging field, there is a lack of sufficient theoretical and empirical research (Stam, 2015). Challenges include a variety of approaches taken (Brown & Mason, 2017), scope (Acs et al. 2017b), isolated views of the entrepreneur (Autio et al. 2014), understanding how ecosystems emerge (Mack & Meyer, 2016), ecosystem interactions (Motoyama & Knowlton, 2017) and how the different elements enhance entrepreneurship (Alvedalen & Boschma, 2017).

The previous rationalisation leads to the elaboration of *Proposition 3*:

> Examining the composition and interactions of entrepreneurial ecosystems contribute to determining the elements that conform it and how these enhance or hinder entrepreneurship and the dynamics of entrepreneurial activities.

2.3.2.4 Systemic nature of entrepreneurial ecosystems and related concepts

The dynamics of entrepreneurship can be better understood in systemic terms (Acs et al. 2014). A defining characteristic of systems is that they consist of components that interact to produce system performance. The literature on National Systems of Innovation adopts a systems approach to understanding innovation (Acs et al. 2014). One of the objectives to pursue this is shifting away from the focus on the linear model of

innovation and emphasise the interactive and iterative processes involved (Lundvall et al. 2002). A similar effect occurs with the literature on entrepreneurial ecosystems when trying to better understand the process of entrepreneurship.

In respect to related concepts to the entrepreneurial ecosystem construct, the term inevitably draws connections to previous work, for instance, on cluster theory, industrial agglomerations and innovation systems. Although with differing conceptual viewpoints, these perspectives have common understandings about regional resources leading to increased entrepreneurship and growth; such as 1) shared cultural understandings and institutional environments conducive to cooperation; 2) social networks for knowledge spillovers, connections with key actors and information sharing about entrepreneurial opportunities; and 3) government policies and universities supporting these views, funding specific support programs and removing institutional barriers to entrepreneurs (Spigel, 2017). Although the concept of entrepreneurial ecosystems has commonalities with these and other perspectives, it is important to differentiate them. Table 2.3 shows a synthesis of related constructs, depicting a brief description, focus, actors involved and representative works.

Attempting to understand industrial concentrations by grouping them is not a recent topic (Brown & Mason, 2017). As it occurs in the study of 'agglomeration economies' with Marshall towards the end of the 1800s; knowledge spillover between unrelated industries with Jacobs in the 1960s; industrial success related to geographical foundations during the 1980s and 1990s (e.g. ceramics and textiles industrial sectors in northern Italy); and, clusters with Porter in the 1990s and his relevant work in translating the concept for policymakers (Brown & Mason, 2017). Even though clusters operate in different ways and with their own dynamics, the cluster increased popularity lead policymakers to a replication attempt of the Silicon Valley phenomenon as the main tool to improve economic performance within regions (Isenberg, 2011).

Table 2.3 Related Constructs to the Concept of Entrepreneurial Ecosystems

Construct	Period	Definition/ Description	Key focus	Central actors	Representatives
Agglomeration Economies	1890's	Development of specialist infrastructure, human capital, suppliers.	Industry localisation. Specialisation of industrial concentrations.	Firms in the same market collaborating and sharing knowledge.	Marshall, 1890
Economic Geography	1980s-1990s	Study of the location of factors of production in space (Krugman, 1991).	Inter-related SMEs based around traditional industrial sectors (e.g. ceramics and textiles in Italy). Pays attention to regional economies and organisations' benefits from a related variety (firms in similar industries locating in the same geographic area).	SMEs and Industrial sectors.	Malecki, 1997
Clusters	1990's	Geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but also cooperate (Porter, 2000, p. 15).	Firms' benefit from local specialisation, geographic location and knowledge spillovers.	Firms, institutions and individual actors.	Porter, 2000; Saxenian, 1996
Innovation Systems	1990s-2000s	Main theoretical underpinnings include that knowledge is a main resource in the economy, that knowledge is produced and accumulates through innovation processes embedded in the national institutional context, and that context matters for innovation outcomes (Lundvall, 1999).	Systemic processes and its relation to localised knowledge generation and transfer. Emphasis on relational aspects between actors and their impact on the innovation process.	Institutional actors.	Freeman, 1995; Lundvall, 2010
Regional Innovation Systems	1990s-2000s	Networks and institutions linking knowledge-producing hubs (e.g. universities, public research labs) with innovative firms in a region, producing knowledge spillovers and increasing a region's innovativeness (Cooke et al. 1997).	Construction and distribution/transfer of knowledge during the innovation process within regions.	Universities, research organisations, regulatory bodies, venture capitalists.	Cooke, Uranga & Etxebarria, 1997
National Systems of Entrepreneurship	2000's	Resource allocation systems that are driven by individual-level opportunity pursuit, through the creation of new ventures, with this activity and its outcomes regulated by country-specific institutional characteristics (Acs et al. 2014, p. 476).	While National Innovation Systems focus on institutions, National Systems of Entrepreneurship focus on individuals. Systemic approach towards understanding entrepreneurship. Focuses on individuals in pursuit of new venture creation and growth. Fails to address the spatial specificities of entrepreneurship.	Entrepreneurs	Acs, Autio & Szerb, 2014

Source: Self-made

As previously mentioned, the National Systems of Innovation (NSI) is another related concept. It involves processes of knowledge generation and transfer, with attention to the relations between institutional actors and their influence in the innovation process (Lundvall, 2010). The NSI focuses on technological and science-based innovation, with invention, R&D and technology, as primary drivers of innovation (Autio et al. 2014). This concept depicts the processes of innovation and the way countries implement it through complex interactions of cooperation and communication among several institutional actors. Strengths of this concept include pointing out its non-linear traits and the importance of context. Amongst its weaknesses are focusing much in structure whilst undermining the micro-foundations of innovation dynamics, and a lack of emphasis on the relevance of entrepreneurship in the innovation process (Autio et al. 2014).

A similar approach is taken when analysing Regional Innovation Systems (RIS) to study regional performance (e.g. innovativeness, productivity), whilst linking knowledge-producing institutions such as universities with research labs and innovative firms enabling knowledge spillover and fostering innovation (Acs et al. 2017b). A related concept emerging in Europe that builds from innovation policy, economic geography and regional economic development is that of Smart Specialisation. Smart Specialisation relates to the promotion of regions to engage in 'entrepreneurial discovery processes' identifying opportunities in distinctive innovation domains (Aranguren et al. 2015). Being universities and other public research organisations key innovation actors (Vallance et al. 2018), they become instrumental to the support and implementation of the initiative of Smart Specialisation (European Commission, 2014). The differentiation of Smart Specialisation from earlier regional innovation approaches relies on the incorporation of 'entrepreneurial discovery processes', through which regions identify their strengths, characteristics and assets, rather than merely imitating or replicating trends from elsewhere (Pugh, 2018).

Building on the Regional Innovation System (RIS) approach, the Regional Innovation Strategies for Smart Specialisation (RIS3) emerged to become the predominant regional innovation policy framework in Europe (Pugh, 2018). Incorporating elements of new industrial and entrepreneurship policy, this new approach aims to increase the efficiency of innovation policy (McCann & Ortega-Argilés, 2015), in which localities are being pushed to develop targeted research and innovation strategies, reducing duplication and fragmentation of investment in similar domains across regions (Vallance et al. 2018).

The industrial profile of a region influences the knowledge base of an economy, and consequently, its approach to innovation (Asheim, 2012). The RIS3 concept also builds on the 'place-based' approach to regional development, in which geographical context matters (including the social, cultural and institutional characteristics of the place), and where it is recognised that the knowledge for the development of a place is obtained through a collaborative interplay of local and external actors (Morgan, 2017).

Challenges of this perspective include conceptual ambiguity, problems in defining regional boundaries, the ability to have interactive and evolutionary policy approaches capable of shifting according to political and economic situations in order to be sustained and deemed relevant (Pugh, 2018), confusion around the composition, causal relationships and measurements aspects of systems (Asheim, 2012).

National Systems of Entrepreneurship (NSE) allocate resources at the individual-level for the pursuit of opportunities in the process of new venture creation, guided with country-specific regulations and institutional framework (Acs et al. 2014). While the NSI literature focuses significantly in structure and more comprehensive representation, the NSE literature is mostly concerned with resource allocation systems focused on the individual and actions that constitute entrepreneurial behaviour, failing to address spatial particularities (Autio et al. 2014). Within the view of systemic entrepreneurship, agents act when perceiving new opportunities and mobilise resources from the environment to exploit them (Acs et al. 2014). Although entrepreneurial ecosystems are also related to resources, these are specific to the entrepreneurship process (e.g. start-up culture, financing), rather than focusing on industrial benefits found in clusters (Spigel, 2017).

The analysis and depiction of related constructs to the concept of entrepreneurial ecosystems, allows demarcation of similarities and differences between these terms, providing a clearer notion of the entrepreneurial ecosystem construct.

2.3.2.5 Characteristics of entrepreneurial ecosystems

The systematic literature review revealed distinguishing characteristics associated with entrepreneurial ecosystems. These are presented next.

Multiple elements involved

Entrepreneurial ecosystems do not emerge, develop and sustain due to a unique characteristic. Instead, they comprise several variables that are needed for them to exist and evolve (Isenberg, 2010), such as the presence of skilled workers, lawyers and accountants that specialise in the needs of new ventures, large local firms and universities (Spigel, 2017). Accessible local and international markets, financing, mentorship, regulatory framework and support systems are also essential components (Isenberg, 2010).

Dynamic nature

Entrepreneurial ecosystems are 'naturally evolving systems' (Isenberg, 2010). The concept is inherently a dynamic one. It recognises the importance of entrepreneurial processes and the interactions occurring within (Brown & Mason, 2017), emphasising relational approaches addressing interactions between key aspects of the system (Motoyama & Watkins, 2014).

Local embeddedness

Entrepreneurship is largely a local phenomenon (Spigel, 2017). For instance, while Silicon Valley has a unique structure and culture that distinguish it for its thriving networks, high-profile entrepreneurs, and access to finance, other areas present different characteristics, impacting the variation of rates of entrepreneurship within different metropolitan regions (Motoyama & Knowlton, 2017) and across countries. Entrepreneurs typically start their new ventures in the localities in which they live; once businesses start operations, it becomes less possible for them to move. These circumstances convey certain characteristics to the region and suggest that some geographical environments are more conducive to entrepreneurship than others (Audretsch et al. 2018). Rather than adopting a homogeneous view, the study of entrepreneurial ecosystems assumes heterogeneity, with different regions having distinct ecosystems (Motoyama & Knowlton, 2017).

2.3.2.6 Entrepreneurial ecosystem frameworks

Frameworks about and related to entrepreneurial ecosystems are presented next.

Framework of entrepreneurial innovation and context

Entrepreneurial innovation is a notion that links the stimulation of innovation through entrepreneurial firms. It involves the disruption of existing industries and the creation of new ones through multi-level processes, multiple actors and multiple contexts, in which entrepreneurs interact with their ecosystem (Autio et al. 2014).

To explore the influence of diverse contexts on entrepreneurial innovation Autio et al. (2014) developed a framework that considers: 1) industry and technological contexts, 2) organisational contexts, 3) institutional and policy contexts, 4) social contexts, 5) temporal contexts, and 6) spatial contexts. *Industry and technological* context involve aspects such as entrepreneurial activity concerning industry life cycles, aspects of industry structure and resource allocation, and attributes of technology shaping innovative and entrepreneurial activities. *Organisational* context relates to organisational culture, skill effects, experience and practices, such as incentives on entrepreneurial innovation. *Institutional and policy* contexts relate to the diversity of forms in which formal and informal institutions can influence entrepreneurial activity. *Social* context focuses on the influences derived from networking processes that occur between entrepreneurs and other stakeholders, and outcomes such as knowledge production and transfer through interactions, ultimately deriving in entrepreneurial innovations. *Temporal* context involves the evolutionary processes impacting all the aforementioned contexts, for instance, industries evolving (new, growth, maturity, decline), organisations and institutions changing over time; and evolutionary processes of entrepreneurial ecosystems. Lastly, *spatial* context relates to the geographical distribution of entrepreneurial firms (e.g. global, national, regional, local), the embedded institutions, policies and norms inherently infused in each dimension, and about entrepreneurs' mobility and the impact to entrepreneurial activity.

Areas highlighted for further research regarding contextual interactions include: 1) interactions between ownership and governance within different contexts; 2) understanding how contexts influence different configurations of entrepreneurial ecosystems, the need of analysing institutional characteristics and dynamics of different entrepreneurial ecosystems; 3) how ecosystems evolve; 4) development and operalisation of policies (Autio et al. 2014).

The presented reasoning leads to *Proposition 4*:

> The study of entrepreneurial ecosystems can contribute to understanding how context influence entrepreneurship and entrepreneurial activity.

Domains of the entrepreneurial ecosystem

Isenberg (2011) consolidates the elements of entrepreneurial ecosystems in six domains which interact in complex ways and are present when entrepreneurship is self-sustaining: 1) *Policy*, includes aspects of leadership and government concerning institutions, financial support, regulatory framework and legislation; 2) *Finance*, relates to the diverse sources of funding such as angel investors, venture capital, private equity, and micro-loans; 3) *Culture*, include success stories, risk tolerance, innovation and creativity, social status of the entrepreneur and wealth creation; 4) *Supports*, encompass non-governmental activities such as business plan competitions, conferences and associations; support professionals in areas such as legal, accounting, investment, advisors; and, infrastructure such as telecommunications, clusters, incubators; 5) *Human capital*, relates to labour (skilled and unskilled), and educational aspects (professional and academic degrees, entrepreneurship training); and 6) *Markets*, relates to early customers, production and distribution as well as to networks. These domains are expected to provide better grounding to aspects directly related to the entrepreneur, impacting their decisions and success (Isenberg, 2011).

Building on Isenberg's (2011) conception of entrepreneurial ecosystems, Brown and Mason (2017) describe main elements of the entrepreneurial infrastructure: a planned *financial system* that can allow the transition between diverse sources of funding according to the firm's stage to grow and upscale (North, 2013). *Informal and formal networks* not only providing access to entrepreneurs to improve their resource limitations at start-up stages (e.g. connections, mentoring opportunities, business clubs) but also enabling knowledge sharing throughout the ecosystem; factors that very often are context-specific and intrinsic to certain social and cultural aspects (Brown & Mason, 2017).

Mason and Brown (2014) identify four main aspects contributing to an entrepreneurial ecosystem's operation: 1) *Entrepreneurial actors*, support and mentoring services such as business incubators, accelerator programs and networking activities for nascent (start-

up), novice (early-stage) and serial entrepreneurs; 2) *Entrepreneurial resource providers*, financial providers such as banks, VCs, and business angel networks; sources of alternative funding such as crowdfunding, peer to peer lending, and stock market access; linkages to large firms, universities and R&D centres; 3) *Entrepreneurial connectors*, professional associations, start-up communities and entrepreneurship clubs, business enterprise centres, investors services and business brokers; and 4) *Entrepreneurial orientation*, self-employment and entrepreneurship social perception, role models, entrepreneurship education, embracing innovation and failure tolerance.

Spigel (2017) describes the conformation of entrepreneurial ecosystems by its attributes. As the author stipulates, although not all elements are necessary to be present for entrepreneurial ecosystems to thrive, these attributes can significantly contribute to creating supportive environments for entrepreneurial activity. The author argues that entrepreneurial ecosystems are composed of 10 'cultural, social and material attributes that provide benefits and resources to entrepreneurs and that the relationships between these attributes reproduce the ecosystem' (p. 49).

The 'cultural attribute' relates to the underlying beliefs and outlooks about entrepreneurship within a region. It includes 1) *Cultural attitudes*, supportive culture toward entrepreneurship and tolerance to risk; 2) *Histories of entrepreneurship*, successful local entrepreneurs inspiring younger entrepreneurs, benefits and possibilities of a potential career path, possibility of policymakers promoting these stories. The 'social attribute' relates to resources acquired through the social networks within a region. It includes: 3) *Networks*, that can aid the entrepreneur to gather market and technological knowledge, acquire resources, gain access to customers and suppliers and access to knowledge flow and knowledge streams; 4) *Investment capital*, critical for start-up and necessary for start-up growth, investors (e.g. venture capitalists, angel investors, family and friends) that can also act as advisors to firms, connection between local investors and the local entrepreneurial community is fundamental for the growth of entrepreneurial firms; 5) *Mentors and dealmakers*, can improve entrepreneurs' performance, firm formation and survival rates, dealmakers proactively build new connections between entrepreneurial actors contributing to firm formation and growth within regions, and assist in developing new business skills and develop their own social capital; 6) *Worker talent*, skilled employees used to the specific demands of working in small firms and with certain tolerance for risk in the chaotic environment of a start-up, necessary

precursor for success and key component for the competitiveness of new ventures; essential resource for new ventures, includes technical workers but also experienced managers who can help entrepreneurs as firms grow and mature, can help find suitable matches adding to the value of dense social networks. Lastly, the 'material attribute' relates to tangible attributes present in a region, be physical such as universities or formalised rules such as entrepreneurial policies. This attribute includes 7) *Universities*, where the development of new technologies take place creating entrepreneurial opportunities, be through academic entrepreneurs or by firms approaching universities to gain access to knowledge (e.g. commissioning research, hiring graduates or through informal connections like public talks or discussions with faculty), in addition to the development of human capital of a region and development of entrepreneurial mindsets in students; 8) *Support services and facilities* – physical infrastructure, specialised assistance for early-stage firms (e.g. accountants, patent lawyers, human resource advisors), firms can access capabilities they do not possess internally such as incubation, acceleration and co-working facilities, plus the important access to networks; important facilitators of entrepreneurial activity – often a key node of an ecosystem; 9) *Policies and governance*, government rules and regulations, policies can create publicly funded support programs and encourage entrepreneurship (e.g. tax benefits, investment of public funds, reductions in bureaucratic regulation, networking and incubation programs), critical elements of the economic and political contexts in which entrepreneurship takes place; and 10) *Strong local markets* – open markets, new ventures and entrepreneurial spin-offs can be encouraged when there is a presence of local customers with specialised needs, entrepreneurs can identify opportunities through the interaction with the local markets, platform for making early sales and building capabilities, crucial for the development of entrepreneurial ecosystems.

The above literature portrays different configurations of elements composing entrepreneurial ecosystems. It denotes the complexity and extent of multiple actors and processes involved. Commonalities between these frameworks include the interdependencies between individuals (e.g. entrepreneurs, labour), support organisations (e.g. incubators, start-up communities), institutions (e.g. formal, informal institutions), policy (e.g. regulations, legislations), resources (e.g. finance, mentors), culture (e.g. social status of entrepreneurs, risk tolerance), and social aspects (e.g. informal and formal networks, dealmakers).

2.3.2.7 Entrepreneurial actors and components

The following section encompasses actors and components recurrently mentioned and identified in the systematic literature review.

Entrepreneurs

Being a central actor, studies related to entrepreneurial ecosystems should consider the entrepreneur per se (Acs et al. 2017b). Entrepreneurs are at the heart of the entrepreneurial ecosystem concept (Isenberg, 2010). Whilst the innovation systems literature places entrepreneurship towards the borders of the concept (Stam, 2015), entrepreneurs are the core actors of the entrepreneurial ecosystem (Brown & Mason, 2017).

Firms

Large firms often can be a central piece in the configuration of some ecosystems. They can attract a skilled workforce, can incubate entrepreneurs and ultimately shape the ecosystem. Although initially not widely acknowledged, their importance and spillovers have been recognised in the recent ecosystems literature (Brown & Mason, 2017).

Entrepreneurial culture

The relationship between culture and entrepreneurship help explain how the embedded culture of a particular social and economic environment can shape entrepreneurial behaviour (Peris-Ortiz & Merigó-Lindahl, 2015). Culture and, specifically, positive societal norms and attitudes towards entrepreneurship, are important elements of entrepreneurial ecosystems (Cavallo et al. 2019; Isenberg, 2011). A supportive entrepreneurial culture is a catalyst for the creation and development of an entrepreneurial ecosystem (Chen et al. 2020). Social values, individual attributes and government strategies conveyed through policies such as promoting entrepreneurs, role models and decreasing bureaucratic procedures to engage in new ventures; all play a significant role in impacting entrepreneurial activities. Such is the case with universities and their involvement with entrepreneurship education and entrepreneurship-related undertakings (Lombardi et al. 2017), as described next.

Entrepreneurship education

Entrepreneurship education also plays a crucial role. It fosters entrepreneurship and contributes to the efforts to change attitudes towards entrepreneurship (O'Connor, 2013).

It is considered as an essential component of entrepreneurial ecosystems (Belitski & Heron, 2017; Maritz et al. 2015a), which can assist in creating a positive attitude towards entrepreneurship—key element within ecosystems—and help improve the perception of entrepreneurs as beneficial for society (Brown & Mason, 2017; Isenberg, 2011).

Education and training contribute to the task of obtaining knowledge about entrepreneurship and allows graduates to generate more rational and well-developed initiatives with more possibilities to survive and grow (Coduras et al. 2008). A study conducted by Davidsson and Honig (2003) investigating the role of human capital (i.e. tacit and explicit knowledge) on entrepreneurial discovery and exploitation, found that both tacit (e.g. work and start-up experience) and explicit (e.g. formal education and business education) knowledge had an influence primarily during entrepreneurial discovery. Nascent entrepreneurs with higher levels of human capital were more inclined to pursue entrepreneurial actions conducive to starting their own businesses. While during the exploitation phase—although with weaker indicators in comparison to those found at the discovery phase—results showed an increase of entrepreneurial activities in participants taking business classes and with previous start-up experience, in contrast of those with only general, formal education.

It was in the 1990s that universities, alongside with governments, started realising the importance of entrepreneurship and began investing into teaching and research (Thornton et al. 2011), with the first entrepreneurship course being delivered in 1947 at Harvard Business School and entrepreneurship education programs growing rapidly and globally since then (Nabi et al. 2017). In more recent times, the presence of entrepreneurship courses and entrepreneurship education programs (EEPs) has grown stronger (Maritz et al. 2017; Blenker et al. 2014). Effects associated with the implementation of entrepreneurship education include individual growth, increased school engagement, job creation, societal resilience and economic growth (Lackéus, 2015). When individuals experience entrepreneurial training, the attitudes and intentions hold towards entrepreneurship tend to change significantly (Krueger, 2007).

Entrepreneurship education is instrumental in facilitating university-industry and university-industry-government collaborations, and enabling links between universities, scientists, students, entrepreneurs and government (Belitski & Heron, 2017). Furthermore, entrepreneurship education can become a pathway not only for learning but

also of exposure to entrepreneurial activity, influencing entrepreneurial attitudes and intentions (Krueger, 2007). For instance, getting involved and participating with mentors, projects, entrepreneurs, start-up programs, industry and government collaborations, networking events and incubators. Pedagogies for delivering entrepreneurship education include problem-based learning (PBL) (Savery, 2006); experiential learning (Robinson & Malach, 2007; Roberts, 2012); blended learning (Jones & Lau, 2010).

University

Universities are drivers of an entrepreneurial culture (Australia's Chief Scientist, 2015) and one of the key elements of the entrepreneurial ecosystem (Spigel, 2017). They play a significant role in the identification and exploitation of opportunities (Audretsch, 2014), in influencing entrepreneurial intention among students (Trivedi, 2016), and in overall, stimulating entrepreneurship. It has been found that 'universities as stakeholder can be one of the most influential factors in encouraging new entrepreneurs' (Trivedi, 2016, p. 794), and promoting an entrepreneurial culture in collaborative efforts with other stakeholders such as public policymakers. Furthermore, bringing growth of industrial conurbations around them, universities are increasingly considered as a source of regional economic development (Etzkowitz, 2003).

Universities have endured transformations. As the economy evolves, so does universities' focus of attention. Shifting from being focused on physical capital to knowledge, and more recently, to entrepreneurship, universities' role within society has also changed (Audretsch, 2014). From having a focus on freedom and independence of scholarly inquiry to becoming an essential component for entrepreneurial development (Andersson et al. 2010), and an instrumental source of knowledge for economic growth and performance (Audretsch, 2014).

Such is the case of its inclusion in the Triple Helix (university-industry-government), a model depicting the university's greater role in society (Etzkowitz, 2003). Regarded as a core model for innovation, the Triple Helix results from knowledge production interactions derived from these three main actors. It proposes that these interactions are essential for improving the conditions for innovation in knowledge-based societies (Etzkowitz & Leydesdorff, 2000). As noted by Erina et al. (2017), a limitation of this model is that university teaching and research tend to be far from industry needs, thus reducing the university's potential to exploit knowledge generated by universities, in

addition to the lack of incentives to engage in research commercialisation by universities themselves.

Further expansion of the Triple Helix model, resulted in the Quadruple Helix Innovation System Framework, incorporating to the university-industry-government triad the element of public and civil society—including the notion of media, culture, values, lifestyle and art (Carayannis & Campbell, 2009). The Quintuple Helix Innovation System Framework followed, by the incorporation of the environment or socio-environmental ecology, to the model of knowledge production and innovation. The more recent concept involves government, industry, university, civil society and the environment, intertwining in dynamic, complex interactions that enable regional entrepreneurial ecosystems (Carayannis et al. 2012; Carayannis et al. 2018). Although the model presents similarities with the entrepreneurial ecosystem approach, in this model, the entrepreneur is not a central piece.

Alongside their development, universities started to shift from holding the traditional academic roles and certified knowledge generation, to the additional focus of promoting innovation and playing an essential part in economic growth. However, the sole fact of producing knowledge did not ensure spillovers and commercialisation leading to innovative actions and economic growth. To address this, entrepreneurial universities came into the picture with two main aims 1) the generation of new knowledge and 2) the modification of their activities and values to facilitate technology transfer and knowledge spillovers (Audretsch, 2014). This view pursues not only education and research *per se*, but also its practical implications and contribution from application in entrepreneurial ways (Guerrero & Urbano, 2012). The research problem definition is no longer only an internal process but also comes from outside sources—while interacting and collaborating with university researchers—allowing a two-way flow between research, and economic and social activities (Etzkowitz, 2003).

Intending to put knowledge to use, the entrepreneurial university utilises a series of mechanisms towards this. For instance, ownership rights to intellectual property, academic entrepreneurship, companies that buy rights and commercialise inventions, the use of endowment funds to capitalise new firms, among others. As the university becomes involved in such technology transfer processes and firm formation activities, it becomes entrepreneurial (Etzkowitz, 2003). Within an entrepreneurial society,

knowledge-based entrepreneurship facilitates entrepreneurial activity, employment creation and becomes a driving force for economic growth and prosperity (Guerrero & Urbano, 2012). Other examples of supportive measures within universities include 1) expansion of the entrepreneurship and entrepreneurial education offer, improving students' skills, attributes and behaviours to develop creative and critical thinking (Fayolle, 2007) (sometimes this education is not limited to students but also offered to staff); 2) support mechanisms for students engaging in new firm creation (e.g. liaison offices, technology transfer offices and incubators); 3) enhancing favourable attitudes towards entrepreneurship facilitating the development of entrepreneurs (Guerrero & Urbano, 2014); 4) diffusion of role models and successful entrepreneurs; 5) monetary and non-monetary reward systems to promote entrepreneurship; 6) providing leadership for the creation of entrepreneurial thinking and actions (Guerrero et al. 2016a).

Policy

Policy is another key element within entrepreneurial ecosystems (Isenberg, 2011). Nations, regions and universities adopt policies to promote innovation through entrepreneurial firms and contribute to economic growth. Some of these initiatives include promoting university-based start-ups, establishing incubators and accelerators, government programs and the development of laws stimulating innovation-related activities, firm creation and research (Autio et al. 2014).

The concept of entrepreneurial ecosystems has been embraced by governments and global organisations, such as the OECD, as a tool assisting policy regarding entrepreneurship (Stam, 2015). Considerations in this regard include the importance of establishing a different set of policies for entrepreneurship than the ones for self-employment and SMEs (business ownership and self-employment is one thing, entrepreneurship another), as economic policy still has no clear distinction amongst self-employment, small business ownership and entrepreneurship, urging an appropriate separation of these activities (Isenberg, 2011).

Finance

Financial organisations that focus on specific needs concerning start-ups provide support in different ways. Drover et al. (2017) explain that the most common sources of equity financing in growth-oriented entrepreneurship include venture capital, corporate venture capital, angel investment, crowdfunding and accelerators. *Venture capital* firms tend to

be geographically concentrated, work closely with ventures in which they invest, providing capital and guidance. Venture capitalists typically invest in mid-stage to late-stage deals. *Corporate venture capital* involves established companies making equity investments in entrepreneurial firms, as an extension of the company's primary focus, operated by a company's arm. This type of investment tends to focus on early-stage to mid-stage ventures. It can provide, besides capital, industry knowledge, access to customers as well as shaping innovation strategies for their own company. *Angel investors* are individuals investing their own capital into young ventures. Often former entrepreneurs, they not only provide investment but also guidance through their area of expertise. When organised as investor groups or angel networks, angel investors pursue high potential deals while investing collectively. Angel investors tend to invest in the early stages of the venture life cycle. *Equity crowdfunding* has more recently emerged and initially faced significant legal challenges. This type of financing involves large amounts of online investors contributing small amounts for portions of company ownership. *Accelerators* are fixed-term, cohort-based programs that assist in developing ventures, typically at early stages. The immersive experience tends to offer mentorship, training and funding, sometimes in exchange for equity (Drover et al. 2017).

Support organisations

Support organisations assist entrepreneurs in the creation of new ventures and growth. They provide a range of services on diverse aspects concerning technical and business advice (Motoyama & Knowlton, 2017). They include the following:

- *Incubators*- organisations that offer supportive environments to assist new firms and are considered promoters of economic development and innovation. They are typically conformed of shared office space, shared support services that reduce overhead costs, coaching and networks (Hausberg & Korreck, 2020).
- *Accelerators*- have the main purpose of supporting start-ups through intensive programs providing coaching, mentoring and funding (Clarysse et al. 2015). Successful examples include TechStars and Y Combinator.
- *Dealmakers*- individuals that use their social networks and human capital to improve the entrepreneurial environment within regional economies, facilitating new connections and new firm formations (Feldman & Zoller, 2012). These individuals can be successful business people, philanthropists,

entrepreneurs or leaders playing an active role within entrepreneurial communities (O'Connor et al. 2018).

- *Professional associations-* organisations of employers generally grouped by industry, aiming certain groups of entrepreneurs and assessing them through the different entrepreneurship phases (O'Connor et al. 2018).

2.3.2.8 Measurement approaches

The measurement of entrepreneurial ecosystems indubitably represents challenges. Bruns et al. (2017) suggest that due to their heterogeneity and complexity, entrepreneurial ecosystems are not possible to be measured, but their presence could be noticed when assessing variations of entrepreneurial activity on economic growth. However, although metrics utilised to measure entrepreneurial activity (e.g. number of jobs created, number of firms founded) may provide a baseline, these do not entirely capture the health or condition of the ecosystem (Roundy et al. 2017). Similarly, Acs et al. (2017b) recommend caution to be made when using GEM's Total Entrepreneurial Activity (TEA) measure, as it is not an entirely appropriate measure of entrepreneurship when relating it to growth and development.

Despite the challenges, there have been some attempts to measure entrepreneurial ecosystems. One of the approaches measures the dynamism within a specific ecosystem (Brown & Mason, 2017) by including the identification of 'dealmakers' as a measure of dynamism (Feldman & Zoller, 2012). Another approach focuses on specific elements (as pursued by the Kauffman Foundation), such as density, fluidity, connectivity and diversity (Stangler & Bell-Masterson, 2015). Additional attempts adopt National level approaches, utilising the Global Entrepreneurship Development Index (GEDI) (Acs et al. 2014). Acs et al. (2017b) propose counting the number of Unicorns (i.e. start-ups valued over $1 billion) as a measure of performance, suggesting it can represent the presence of entrepreneurial ecosystems, even better than indicators of self-employment and new firm formation since the existence of these type of start-ups portray an operational entrepreneurial ecosystem. For instance, results of this study portrayed a total of 174 Unicorns globally, marking Silicon Valley as the world leader (57), followed by Beijing (19), the Greater New York area (16), Shanghai (8) and the Greater Los Angeles area (7). The study showed that the US is still the leader, that China follows and that the rest of this type of firms are distributed in different cities around the world (including London, Bangalore, Hong Kong and Stockholm).

2.3.2.9 Theoretical frameworks

The following section introduces theoretical frameworks, identified through this review, that can assist in conducting research and scholarship of the concept of entrepreneurial ecosystems. Theories such as network theory and institutional theory could contribute towards gaining a better understanding, explaining elements, interactions and overall integration of entrepreneurial ecosystems.

Networks perspective

Networks play a crucial role because entrepreneurship is embedded in social relationships (Lefebvre et al. 2015). They are essential since entrepreneurs frequently face new situations and have to arrange networks according to their needs (Johannisson, 2000). Within ecosystems, social networks help connect entrepreneurs, advisors, investors and workers, allowing the flow of knowledge and skills (Spigel, 2017). Advantages of social networks within regions include helping create avenues for knowledge spillovers between firms and universities, sharing information about entrepreneurial opportunities, gather market and technological knowledge and connecting investors and other financing sources with entrepreneurs (Spigel, 2017).

Within entrepreneurship research, the concept of networks has become relevant because it recognises the environmental context of the entrepreneur (O'Donnell et al. 2001). Neck et al. (2004, p. 201) define networks as 'a set of nodes (for example, persons, organisations) linked by a set of social relationships (for example, friendship, transfer of funds, overlapping membership) of a specific type'. The positions that individuals and firms have within the networks impact on opportunities for new ventures, as well as while facing adversities (Stuart & Sorenson, 2005). Johannisson (2000) enumerates three types of networks: 1) information networks for opportunities, 2) exchange networks for acquiring resources and, 3) networks for influence, related to legitimacy and competition.

Previous research on networks includes the use of network tools that have been used at micro-level addressing networks of firms, and macro-level dealing with ties and structures of new ventures, but this micro-macro-level approach has only been taken recently (Alvedalen & Boschma, 2017). Motoyama and Knowlton (2017) adopt such an approach to analyse the case of St. Louis, Missouri, in which the authors examine the connections of the ecosystem at three different layers: among entrepreneurs, among

support organisations and between and among entrepreneurs and key support organisations.

An area dedicated to the investigation of networks is that of social network analysis, the study of structure and patterns of relationships among social entities, be people, groups or organisations (Hawe et al. 2004). The social network perspective assists in analysing relevant research questions concerning entrepreneurial ecosystem dynamics, through qualitatively investigating and analysing the actors and interactions between the entrepreneurial ecosystem's elements and the type [nature] of network relationships (Motoyama & Knowlton, 2017).

As before mentioned, a shortcoming within the entrepreneurial ecosystem literature consists on the identification of elements of the system, without giving appropriate relevance to the connections among them and considering them equally important (Motoyama & Watkins, 2014). A multi-level social network approach, employing social network analysis, can help in the task of investigating the content, structure and interactions composing an entrepreneurial ecosystem (Motoyama & Knowlton, 2017).

Institutional perspective

Institutions, or more generally conceived 'rules of the game', constitute an important pillar of entrepreneurial ecosystems. Some of the elements of the institutional system impacting entrepreneurial activity include market frameworks, resource allocation and economic incentives that the system creates for the actors within the entrepreneurial ecosystem (Sussan & Acs, 2017). On a regional perspective, shared understandings and institutional environments are important resources that can, either, contribute to interfirm cooperation and normalise practices of knowledge sharing and firm mobility, or, act as barriers (Spigel, 2017).

According to Sine and David (2010), the institutional perspective emphasises 'how socially constructed environments shape organisational behaviours and outcomes' (p. 3). The term 'institution' refers to formal rules, agreements, informal interactions and assumptions that organisations and individuals follow. These derive from regulatory bodies, governmental agencies, courts, professions and societal and cultural practices that stipulate conformance, and create the logic and expectations that determine the actions of organisations (Bruton et al. 2010).

Institutional theory addresses how individuals, groups and organisations comply with rules and norms, which vary across countries and cultures, to secure their positions and legitimacy (Scott, 2007). Formal institutions influence economic outcomes and opportunity costs. They include rules and laws, for instance, intellectual property protection and regulation of entry. Another type of formal institutions includes entrepreneurial support organisations and professions, such as the ones assisting during start-up and growth (e.g. venture capitalists, lawyers, accountants). Informal institutions typically operate through established social norms, perceptions of legitimacy and social desirability. Informal institutions include aspects such as culture, social norms, peer influences, programs developed to promote and legitimise the role of entrepreneurs (Autio et al. 2014).

The institutional perspective is being increasingly used as a theoretical lens within the field of entrepreneurship. Although initially employed in entrepreneurship research since 1999, its use has recently grown (Bruton et al. 2010). The institutional perspective plays an important role in explaining the elements that shape entrepreneurial success, since rather than focusing only on efficiency, it also incorporates regulatory, social and cultural aspects influencing organisations (Bruton et al. 2010). Resources are vital to new venture success, notwithstanding, elements such as laws, culture, economic incentives and the history of an industry, also have an impact on it (Bruton et al. 2010). All these aspects enable or constrain interactions across individuals, firms and other organisations (Alvedalen & Boschma, 2017). Institutional theory is a theoretical lens that can help identify and investigate these issues (Bruton et al. 2010).

Research on institutional theory includes Scott's (2007) classification of institutional forces 1) the *regulative* pillar, that deals with behaviour, sanctions and conformity; 2) the *normative* pillar, based on social, professional and organisational interactions and the values and norms adhered to these processes; and 3) the *cognitive* pillar, that deals with individual behaviour based on certain beliefs and actions. Bruton et al. (2010) assert that research comprising institutional theory has approached institutions at a macro-level. However, they mention that it could also be approached at a micro-level, focusing on individual behaviour. For example, studying the mindset of individuals undergoing different events (e.g. firm privatisation) could help expand the macro-micro-level theory, for instance, the institutional-individual mindset. The institutional theory includes many streams. Some of these are presented next.

Proposed by Giddens (1984), the *theory of structuration* follows the premise that actions and institutions are linked to each other. Based on the analysis of both structure and agents, structuration is defined as 'the structuring of social relations across time and space, in virtue of the duality of structure' (p. 376). The author's conception of human agency draws attention to the importance of the individuals' activity. It employs a perspective of duality in structure (i.e. material/ideational, micro/macro), taking into account the nature of structure as both a means and an outcome. Structure is described as rules, practices and resources involved in the reproduction of social systems; fundamentally as 'memory traces', forming the foundations of human knowledge, and eventually translated into action (Giddens, 1984).

Neoinstitutional theory emerged in the 1970s, suggesting that organisations not only respond to economic pressures but also pressures in their social and symbolic environments created by other organisations (Suddaby et al. 2013). The neoinstitutional perspective consists of the study of structural effects on organisations. It is a set of concepts and theories explaining environmental effects on organisational and cultural homogeneity (Thornton et al. 2012), through mimetic, normative or coercive forms. Main constructs include the notion of rational myths (i.e. unproven assumptions regarding effective organisational performance) and diffusion (i.e. adoption and propagation of these rational myths of performance throughout organisations) (Suddaby et al. 2013).

Institutional entrepreneurship, introduced by DiMaggio (1988), addresses endogenous explanations of institutional change (Battilana et al. 2009). It deals with the idea that not only institutions influence their members' behaviours, but also members can influence, change or create new institutions. It addresses how new institutions emerge and how institutional change happens from within (Battilana et al. 2009). The concept is related to the activities pursued by actors interested in particular institutional arrangements, who leverage resources to create new institutions or transform existing ones. Some of the aspects institutional entrepreneurs are engaged with are framing issues and problems, mobilising people and other resources, and infusing beliefs, norms and values (DiMaggio, 1988).

Institutional logics, introduced by Alford and Friedland (1985), developed from neoinstitutional theory. It addresses theorisation of both the material (practice-based)

aspects of institutions and the cultural (symbolic-based) aspects. It explains not only organisational and cultural homogeneity but also heterogeneity. The meanings of material practices are translated and communicated through symbols. At the same time, symbols play an important role when addressing institutional heterogeneity and change, for social practices can be institutionalised only when the collective meaning is achieved. The institutional logic perspective integrates the material and the symbolic to tackle research on culture and cognition influencing action (Thornton et al. 2012). Thornton and Ocasio (2008) define institutional logic as the socially constructed, historical patterns of cultural symbols and material practices—including assumptions, values, and beliefs—by which individuals and organisations provide meaning to their daily activity, organise time and space, and reproduce their lives and experiences.

The mentioned streams of institutional theory are summarised in Appendix C. Strengths and weaknesses of the constructs are presented, in addition to the link to entrepreneurship and entrepreneurial ecosystems.

Delving into the network and institutional perspectives, allowed to determine its appropriateness and establish the focus utilised during the analysis of entrepreneurial ecosystems, as suggested at the commencement of the review.

From the *network perspective,* a focus on social networks and connections, addressing structural network properties, can help explain the nature of network relationships between elements connected in the entrepreneurial ecosystem, aspects of the interactions taking place (Alvedalen & Boschma, 2017), and the associated resources involved the process (Edelman & Yli-Renko, 2010).

From the *institutional perspective,* a focus on formal and informal institutions (Alvedalen & Boschma, 2017) can help determine relevant elements and characteristics of the entrepreneurial ecosystem and the influence of context in the configuration of the entrepreneurial ecosystem (Autio et al. 2014). It can help examine how institutions influence entrepreneurial activity within the ecosystem (Alvedalen & Boschma, 2017).

Based on the information concerning networks and institutions and the apparent contribution of these perspectives to the study of entrepreneurial ecosystems, *Proposition 5* is presented:

Network and institutional perspectives provide a framework for analysing the composition and interactions among institutions, individuals and organisations within an entrepreneurial ecosystem.

2.3.2.10 Development of entrepreneurial ecosystems

In the attempt to guide the development of entrepreneurial ecosystems, Isenberg (2010) stipulates the following principles: 1) stop emulating Silicon Valley, 2) shape the ecosystem around local conditions, 3) engage the private sector from the start, 4) favour the high potentials, 5) get a big win on the board, 6) tackle cultural change head-on, 7) stress the roots (develop toughness and resourcefulness), 8) do not over-engineer clusters; help them grow organically, and 9) reform legal, bureaucratic, and regulatory frameworks. These principles targeted to foster venture creation and growth, aim the attention of governments; crucial engines for these holistic systems.

Through the study of start-up communities, Feld (2012) mentions that these involve aspects concerning entrepreneurship, economic development, innovation and networked societies. The author elaborates that start-up communities comprise entrepreneurs, government, universities, investors, mentors, service providers and large companies, all playing important roles in their development. The author proposes the following principles to build a vibrant start-up community (p. 25):

1. Entrepreneurs must lead the start-up community
2. The leaders must have a long-term commitment
3. The start-up community must be inclusive of anyone who wants to participate in it
4. The start-up community must have continual activities that engage the entire entrepreneurial stack

While examining the case of Boulder, Colorado, the author suggests that fostering and building a start-up community should strategically include key partners supporting growth. Specific characteristics contributing to Boulder's development include creativity, being a smart city, and its good quality of life. Other features significantly contributing to the start-up community are its *inclusiveness*, the *interactions* among all participants, the strong sense of *collaboration*—guided by a 'give before you get' attitude, and the prevailing *dynamics*. Such features lead to a strong sense of community accompanied by

a strong 'ethos of mentorship and support' (p. 17). Feld (2012) identifies nine attributes of a successful start-up community, as listed below in Table 2.4.

Table 2.4 Attributes of a Successful Start-up Community

Attribute	Description
Leadership	Strong group of entrepreneurs who are visible, accessible and committed to the region being a great place to start and grow a company.
Intermediaries	Many well-respected mentors and advisors giving back across all stages, sectors, demographics and geographies as well as a solid presence of effective, visible, well-integrated accelerators and incubators.
Network density	Deep, well-connected community of start-ups and entrepreneurs along with engaged and visible investors, advisors, mentors and supporters. Optimally, these people and organisations cut across sectors, demographics and culture engagement. Everyone must be willing to give back to his community.
Government	Strong government support for and understanding of the significance of start-ups to economic growth. Additionally, supportive policies should be in place covering economic development, tax and investment vehicles.
Talent	Broad, deep talent pool for all levels of employees in all sectors and areas of expertise. Universities are an excellent resource for start-up talent and should be well connected to the community.
Support services	Professional services (legal, accounting, real estate, insurance and consulting) are integrated, accessible, effective and appropriately priced.
Engagement	Large number of events for entrepreneurs and community to connect, with highly visible and authentic participants (e.g. meet-ups, pitch days, conferences, start-up weekends, boot camps, hackathons and competitions).
Companies	Large companies that are the anchor of a city should create specific departments and programmes to encourage cooperation with high-growth start-ups.
Capital	Strong, dense and supportive community of venture capitalists, angels, seed investors and other forms of financing should be available, visible and accessible across sectors, demographics and geography.

Source: Feld (2012, pp. 186–187)

Other instrumental aspects contributing towards the development of entrepreneurial ecosystems include fostering an entrepreneurial culture through public policy involvement and support (Isenberg, 2010), as well as through the development of entrepreneurial mindsets and competencies through entrepreneurship education and entrepreneurial universities (Guerrero et al. 2015). Other important aspect concerns the identification of the industries within a region, with attention to their strengths and potential, as these are crucial for ecosystems' creation and development (Start-up Genome, 2018). An aspect that resonates with Kuratko et al. (2017) regarding new

venture legitimation within ecosystems. The authors elaborate that pursuing opportunities with high levels of newness (newness being both a source of competitiveness and a liability), evidently bring significant challenges, whereas doing so using existing technologies or markets could be an easier path.

High-growth entrepreneurship

An entrepreneurial ecosystem encompasses diverse entrepreneurial activities such as innovative start-ups, high-growth start-ups and entrepreneurial employees; and the aggregated value created as an outcome by the entrepreneurs and other ecosystem actors within a specific institutional context (Stam, 2015). As such, the entrepreneurial ecosystem approach supports start-up formation but also acknowledges the relevance of encouraging sustainable, growth-oriented innovative firms.

Mason and Brown (2014) state that increasing the number of high-growth firms involves several aspects, in which transactional forms of support (e.g. financial support) are not sufficient. Large established businesses (including the ones led by entrepreneurs or entrepreneurial blockbusters), entrepreneurial recycling and an information-rich environment, are ecosystem features creating supportive environments that allow the development of high-growth firms. The authors describe *blockbuster entrepreneurship* as a 'successful entrepreneurial firm that has grown to an exceptional size and has created significant wealth for its founders, investors, senior management and employees' (p. 9). Relevant since these entrepreneurial successes have significant benefits for the ecosystem with spillover effects (e.g. role models, serial entrepreneurs, angel investors, venture capitalists, board members, advisors, mentors). Concerning *entrepreneurial recycling*, the authors explain that the term relates to entrepreneurs who have built successful (but not necessarily large) companies, that are then sold; and those entrepreneurs that have exited their business due to failure. When entrepreneurs remain involved in the ecosystem after exiting their businesses (through sale or failure), they tend to generate more entrepreneurial activity, reinvesting their wealth and experience and nurturing the ecosystem (Mason & Brown, 2014).

The considerations mentioned above, in addition to promoting and supporting a culture of entrepreneurship and innovation (including improving perceptions about failure and regulations that stifle innovation), can contribute to the efforts of developing a thriving

ecosystem. An ecosystem that attracts and supports innovative start-ups, high-growth start-ups, entrepreneurial employees and the other ecosystem actors involved.

2.3.2.11 Examples of best practice

Examples of well-known entrepreneurial ecosystems in regions and cities include Boulder as mentioned earlier (Feld, 2012), the renown Silicon Valley (addressed in more detail further in this chapter), Route 158, the Boston and Stanford cluster in the US, with world-class educational institutions and spin-offs (Szerb et al. 2013). Other recently thriving ecosystems include Aalto area near Helsinki, Finland, London Roundabout and the Thames Valley in Berkshire, England (Audretsch & Belitski, 2017). The following are two instances of such thriving ecosystems.

Aalto Entrepreneurship Society (Aaltoes) is an example of successful creative resource utilisation. Led by university students, the volunteer-based operation has promoted growth entrepreneurship in Finland. Albeit their limited resources, the organisation has been successful in increasing entrepreneurial activity and making entrepreneurship more attractive in the local ecosystem. Some of the elements present that help create beneficial entrepreneur-ecosystem interaction include creative resource generation and utilisation in the opportunity construction process, acting in ways that highlight synergy, proactive construction activities, and rich feedback within the ecosystem's environment. In this particular case, proactive concretisation and (re)formulating for synergy were found to be two important mechanisms for 1) attracting and sustaining resources and 2) enhancing entrepreneurial action in the interaction between the ecosystem and the entrepreneur, being key elements for its success (Björklund & Krueger, 2016).

Another example of thriving ecosystems comprises Waterloo and Calgary in Canada. Spigel (2017) explores, through comparative case analysis, the different configurations and how this influences the type of resources entrepreneurs can have access to start and grow their businesses. Furthermore, the author investigates and explains the relationships between cultural, social and material attributes within these two ecosystems. The author states that entrepreneurial ecosystems should not be considered successful due to high rates of entrepreneurship, but rather through the extent of how the interaction between the attributes of the ecosystem creates support for that region, increasing the competitiveness of new ventures. Illustrating how ecosystems can differ, the author found that Waterloo has a dense ecosystem composed of robust attributes conducive to

high-risk and high-growth, whereas although Calgary's ecosystem is weaker in its attributes, thriving forces derive from its strong industry sector of oil and gas.

2.3.2.12 International context

Ecosystems are part of a broad strategy of nations, states and cities to develop markets, foster innovation and create environments conducive to firm formation and growth (Mason & Brown, 2014). The Global Start-up Ecosystem Ranking (Compass, 2015) indexes start-up ecosystems around the world by focusing on these major components: performance, funding, talent, market reach, and start-up experience. The top 10 start-up ecosystems in 2015—excluding China, Taiwan, Japan and South Korea due to incompletion of the data—included: 1) Silicon Valley, 2) New York City, 3) Los Angeles, 4) Boston, 5) Tel Aviv, 6) London, 7), Chicago, 8) Seattle, 9) Berlin, and, 10) Singapore. The majority of the ecosystems located predominantly in North America and Europe. More recently, the ranking reported the following as per 2020: 1) Silicon Valley, 2) and 3) (tie) New York City and London, 4) Beijing, 5) Boston, 6) and 7) (tie) Tel Aviv and Los Angeles, 8) Shanghai, 9) Seattle, and, 10) Stockholm. It can be seen that while North America still counts with a strong presence, Asian and European countries are finding their way up the ranks (Start-up Genome, 2020).

Organisations such as Start-up Genome, concerned with depicting entrepreneurial ecosystems' performance and development, suggest that ecosystems should focus on start-up sub-sectors related to traditional strengths associated with global competition (Start-up Genome, 2018). The organisation signals that core competencies of start-up ecosystems are business clusters of related traditional industries, research centres and higher education institutions, intellectual property, and successful firms generated within the sub-sector. Although in the recent past internet-focused (web and mobile) businesses and the ICT sector were the main attractions for entrepreneurs and technology companies, other sectors are now being relevant. Growing and potential sub-sectors include Artificial Intelligence, Blockchain (Bitcoin), Advanced Manufacturing and Robotics, AgTech (e.g. agricultural bioscience, data-enabled agriculture, automation and robotics, FoodTech), FinTech, Health and Life Sciences, Cybersecurity, CleanTech (technologies optimising the use of natural resources), EdTech (e.g. digitalisation of education services, technology solutions and emerging models for better and smarter learning), Gaming (electronic and video games), AdTech (Advertisement Technology), and Consumer Electronics (Start-up Genome, 2018).

2.3.2.13 Transnational and immigrant entrepreneurship

The concepts of transnational and immigrant entrepreneurship are relevant due to their significance in current times and within the Australian context.

Statistics show a significant increase in immigration globally in recent years, from around 244 million migrants in 2015 (OECD, 2015) to around 272 million migrants in 2019 (UN, 2020). Some of the countries with the highest permanent inflows of foreigners (registered in 2015) include the United States, Germany, United Kingdom, Canada, France, Australia and Spain (OECD, 2017). Among the challenges of adjusting to the host nation, is that of establishing a career. Immigrants pursue different forms of career (entrepreneurship versus employment) within different market segments (ethnic versus mainstream) (Dheer & Lenartowicz, 2018).

The concept of transnationalism has gained interest in migration research in the last two decades (Sommer & Gamper, 2017). *Transnationalism* is 'the process by which immigrants build social fields that link together their country of origin and their country of settlement' (Glick Schiller et al. 1992, p.1). Its related term *transnational entrepreneurship* focuses on immigrants' participation in border-crossing entrepreneurial activities, operating between the host country and either the home country and/or a third country. In recent transnationalism research, the prefix 'trans' refers to social, economic, political and cultural cross-border relations (Sommer & Gamper, 2017). Transnationalism involves a two-way process, in which immigrants are immersed in the host culture and society, but they also possess their own cultural heritage. Knowing the culture, language and market from the home country then becomes a source of competitive advantage in transnational practices (Chen & Tan, 2009).

The concept overlaps with that of international entrepreneurship, as many international entrepreneurs are immigrants (Chen & Tan, 2009). *International entrepreneurship* refers to the process of discovering and exploiting opportunities outside a firm's domestic markets in pursuit of competitive advantage (Zahra & George, 2002). However, although both international and transnational entrepreneurship are interested in how entrepreneurial firms get involved in activities outside their domestic market, the international entrepreneurship literature does not focus on whether the entrepreneur is an immigrant or not.

Immigrant entrepreneurship relates to individuals building a venture in a foreign nation (Aldrich & Waldinger, 1990). Both home and host country's institutions shape immigrant entrepreneurship. The interactions between the home country and the host country during the venture creation process, derive in a combination of social cognitions (from the home country) and social norms and regulatory institutions (from the host country), leading to particular idiosyncratic interpretations and consequently the type of actions entrepreneurs take; for instance, the formation of new relations and resources to transcend embedded social norms or boundaries (Griffin-EL et al. 2018). Related to the concept of immigrant entrepreneurship is that of the *immigrant entrepreneurial community*, which has to do with micro and small-scale production or distribution entities aiming co-ethnic markets attempting to diminish their economic vulnerability (Moyo, 2014), presenting characteristics such as kinship ties, common language, solidarity and cultural identity (Portes & Sensenbrenner, 1993).

Aspects of the institutional context that influence immigrant entrepreneurship and transnationalism include 1) globalisation, 2) socio-political ties between countries, 3) aspects specific to the host countries (e.g. market conditions, the rise of ethnic pluralism, immigration policies), 4) aspects specific to the home countries (e.g. pre-immigration context, development strategies) (Chen & Tan, 2009), 5) immigrants' awareness of exclusion (Griffin-EL et al. 2018), and 6) immigrants establishing a career in the host country (Dheer & Lenartowicz, 2018).

2.3.2.14 Australian context

Regarding findings of the systematic literature review, this last section describes a brief overview concerning innovation, entrepreneurship and entrepreneurial ecosystem within the Australian context.

<u>*Innovation in Australia*</u>

Innovation is associated with productivity and growth (Acs et al. 2014). In Australia, collaboration through innovation portrayed an estimated impact of 4% in annual productivity growth (Australian Government, 2017). Innovation also benefits society. In the case of Australia, innovations in healthcare, communication, education, services, infrastructure and environmental sustainability, have impacted positively living standards (Australian Government, 2017).

According to the Australian Innovation System report, 48% of firms in Australia practised innovation activities in the period 2015-2016, being manufacturing, retail trade, and arts and recreation services, the most innovation-active industries (Australian Government, 2017). Challenges faced by firms include the introduction of new-to-market innovations, being the country ranked at this category number 23rd of 31 OECD countries in 2015. However, the level of entrepreneurial activity ranked amongst the highest in developed economies, with 14.6% (or 2.2 million early-stage entrepreneurs) of the Australian adult population (18-64 years) being involved in start-ups in 2016. More recently, in 2017-2018, Australian firms practising innovation activities increased to 49.8%. Moving towards more digitally-enabled, service-oriented industries, the majority of innovations tend to occur within established businesses, and main barriers comprise lack of skilled persons and lack of access to funds (Australian Government, 2019a).

Organisations such as the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Innovation and Science Australia (ISA) and the Commonwealth Science Council provide strategic advice to government in science, research and innovation. However, according to Barrett (2016), although Australia's National Innovation and Science Agenda emphasises that innovation and science are critical for growth, in Australia, there is a lack of leadership for innovation, the country presents low levels of network and collaborative innovation compared with other OECD countries, and the majority of Australian mid-sized businesses do not invest significantly in innovation.

Universities and Entrepreneurship education in Australia

Australia counts with a world-class higher education system comprised of 41 universities, with 39 universities being part of the Universities Australia group. In recent years Australian universities have diversified their sources of income, incorporating activities such as consultancy and contract research (4%), and investment income (4%). However, principal sources of income include Australian government grants (36%), international student fees (23%), and HELP payments loan scheme (17%). Figures that manifest through the generation of world-class research and international students representing Australia's 4th largest export (after iron ore, coal and natural gas)—with a majority of students coming from Asia (Universities Australia, 2020). According to the QS World Universities Australia Ranking, top Australian universities include: 1) Australian National University, 2) University of Melbourne, 3) University of Sydney, 4)

University of New South Wales, 4) University of Queensland, 5) University of Queensland, 6) Monash University, 7) University of Western Australia, 8) University of Adelaide, 9) University of Technology Sydney, and 10) University of Newcastle (QS, 2019).

Concerning entrepreneurship education in Australia, although in the past, producing and educating entrepreneurs was not seen as a priority for most universities, some of them are introducing promising entrepreneurship initiatives (Australia's Chief Scientist, 2015). By the early 1990s, only 17 Australian universities offered entrepreneurship courses (Crispin et al. 2013). More recently, entrepreneurship courses are present in almost all established universities, with curricular offerings including a significant number of courses related to entrepreneurship (584), predominantly at the undergraduate level, and only a few full programs (13) being offered (Maritz et al. 2015a). A recent follow-up study found that Higher Education Institutions (HEIs) in Australia are undergoing a moderate entrepreneurship education boom, although somewhat below global initiatives. Courses related to entrepreneurship (462) and full programs (9) decreased, in comparison with the first study. The authors point out that HEIs strategic intentions and delivery of entrepreneurship education should be examined, as in Australia only 28% of HEIs portrayed high levels of support, indicating the lack of appropriate financial and institutional resources allocated towards this matter (Maritz et al. 2019).

The presence of outreach activities and services such as entrepreneurship and innovation-related activities, research, forums, business incubators and accelerators, as well as developing more entrepreneurial universities, bring support to the delivery of entrepreneurship education (and vice versa) (Maritz et al. 2015a). In Australia, it is relevant to mention that accelerators are particularly on the rise, with nearly a 40% increase per year for the last ten years (Bliemel, 2019), and acknowledge the excellence of research being conducted at universities, such as the Australian Centre for Entrepreneurship at Queensland University of Technology (QUT), global leaders in entrepreneurship research (Maritz et al. 2019).

Entrepreneurial activity in Australia

The GEM report utilised while conducting the systematic review was the 2017 report. However, to present more recent information, the data is compared to the 2020 report. GEM analyses entrepreneurial activity across countries, explores differences in national

levels—connecting these to job creation and economic growth—and assesses attitudes societies have towards entrepreneurship (GEM, 2017a).

In 2017, the 64 assessed economies were categorised according to economies' development phases: factor-driven (principally relying on unskilled labour and natural resources); efficiency-driven (focusing on more efficient production processes and increased product quality); and innovation-driven economies (businesses being more knowledge-intensive, production processes more sophisticated and an increased service sector) (WEF, 2017). Australia, along with countries such as the United Kingdom, Netherlands, Israel, United States and Canada is included in the innovation-driven economies; where entrepreneurs are considerably more innovative than entrepreneurs from factor-driven and efficiency-driven economies (GEM, 2017a). In 2020, the 50 assessed economies were categorised as low-income, middle-income and high-income economies, where Australia is placed within the high-income economies (GEM, 2020).

Evaluated aspects include self-perceptions about entrepreneurship, entrepreneurial activity and societal values about entrepreneurship (Table 2.5).

- Self-perceptions about entrepreneurship

As presented in Table 2.5 values that have increased in the 2020 report (in comparison to 2017), include perceived capabilities to start a business (56%), fear of failure (47.4%) and entrepreneurial intentions (13.0%). It can be seen that although intentions and perceived capabilities have increased, so has the fear of failure—percentage of the population who see opportunities but do not start a business for fear that it might fail (GEM, 2020).

- Entrepreneurial activity

In 2017, Australia's Total Early-stage Entrepreneurial Activity (TEA) (14.6%) obtained position 15 out of 64, locating Australia amongst the highest of the innovation-driven economies; and number 11 regarding the established business ownership rate. However, in 2020, these two indicators have decreased. Interestingly, Australia reported high levels of Entrepreneurial Employee Activity (EEA) at both reports, ranking as number 1. This type of activity involves developing or launching new products, a new business unit or subsidiary for their employer (GEM, 2017a).

Table 2.5 Entrepreneurial Perceptions, Activity and Associated Values in Australia

Evaluated Aspects	2016-2017		2019-2020	
	%	Rank/64	%	Rank/50
Self-perceptions about entrepreneurship				
Perceived opportunities	49.3	20	45.7	36
Perceived capabilities	52.3	26	56.0	30
Fear of failure	42.9	14	47.4	13
Entrepreneurial intentions	12.3	45	13.0	34
Easy to start a business	N/A	N/A	66.8	10
Activity				
TEA	14.6	15	10.5	27
Established business ownership rate	11.3	11	6.5	29
EEA	9.0	1	8.3	1
Societal values about entrepreneurship				
High-status to successful entrepreneurs	71.5	25*	N/A	N/A
Good career choice	54.2	46*	N/A	N/A
Motivational				
Make a difference	N/A	N/A	51.7	16
Build great wealth	N/A	N/A	64.5	16
Continue family tradition	N/A	N/A	22.7	40
Earn a living	N/A	N/A	41.4	40

Source: GEM (2020; 2017a); * Rank/61

- Societal values about entrepreneurship

Regarding societal values about entrepreneurship, in 2017, perceptions were not at their best; with entrepreneurship as a good career ranking 46 out of 61 and attributing high status to entrepreneurs 25 out of 61(GEM, 2017a).

- Motivations and aspirations

Although these values were not available in the 2017 report, the more recent report assesses different motivations of the population as reasons for starting their business. While 'building great wealth' and 'making a difference' both rank in position 16 out of 50, 'continuing with family tradition' and 'to earn a living because jobs are scarce' both occupy position 40 out of 50.

Entrepreneurial financing in Australia

Regarding entrepreneurial financing, informal investment prevails in Australia, with business angels being the dominant option for raising capital. Approximately 0.6 million informal investors finance ventures in Australia (GEM, 2017b). However, venture capital investment is on the rise. The Australian Private Equity and Venture Capital Association Limited (AVCAL) is the national association representing most of the active private

equity and venture capital firms in Australia. Besides its prominent role of supporting equity investment into Australian businesses, AVCAL plays a key advisory role with the federal government's National Innovation and Science Agenda (NISA), towards building a more entrepreneurial economy and investing capital into start-ups and high-growth businesses. Tax incentives and changes to early-stage venture capital limited partnerships are some of AVCAL's efforts towards improving the industry's capability to build better businesses. Such incentives allowed venture capital fundraising for FY2016 of over $1 billion, representing three times the amount raised in FY2015 and more than eight times the amount raised in FY2014 (AVCAL, 2016).

Australia's entrepreneurship characteristics

Concerning the distribution of entrepreneurial activity across key economic sectors, Australia presents a similar profile to other developed economies. New Australian businesses are primarily professional services, information communications and technology (ICT) or finance (34%), retail-wholesale-transport (31%) or consumer-oriented (17%). Other relevant industries include new primary production businesses (12%) since Australia is rich in natural resources and agriculture. Australia lags slightly behind (5.5%) other developed economies (7.1%) in terms of generating start-ups. However, producing start-ups in relation to the size of the adult population, presents a similar rate with the average for developed economies (0.67 vs 0.65%) because of a relatively high TEA rate (GEM, 2019).

Regarding inclusiveness and access to entrepreneurial opportunities within Australia, female participation in setting new businesses occupies position seven (9.2%) among the developed economies, behind the Netherlands (9.4%) and South Korea (10.3%), the USA and Israel (10.7%), Estonia (14.4%) and Canada (15.0%). However, in Australia, there is a significant gender gap with males (approximately 15%); a situation that can be commonly observed around the world (GEM, 2019).

Concerning age distribution, Australia follows a similar pattern across the world, with early-stage entrepreneurship being more common in the mid-career ages of 25-54 years than in younger or older age groups. However, Australia's start-up activity (TEA) is particularly strong in the older age groups when compared to other developed economies, occupying the third position, with 9.3% of 55-64-year-olds engaged in this activity. The growing population of healthy older people engaging in senior entrepreneurship in

Australia utilise their unique set of skills and resources (e.g. developed networks, industry/business experience, technical and managerial skills, and often, financial resources), for starting and managing new ventures (Maritz et al. 2015b). However, in the youngest age range (18-24) at 7.6%, Australia's entrepreneurial participation is notably lower than many other countries (GEM, 2019).

Australian entrepreneurial ecosystem

As discussed earlier, different conditions can make an impact on the quantity and quality of entrepreneurial activity in each country. GEM's entrepreneurial framework conditions (EFCs) assess the environment for enterprise for each participating economy (GEM, 2020). The 2017 report uses a scale where 1 = highly insufficient, 9 = highly sufficient. The 2020 report uses a scale where 0 = very inadequate insufficient status, 10 = very adequate sufficient status. While the scales of both reports vary slightly, Table 2.6 allows identifying higher and lower framework conditions, within these two years.

Table 2.6 Australia's Entrepreneurial Framework Conditions

Entrepreneurial Framework Conditions	2017	2020
Entrepreneurial finance	4.56	5.11
Government policies (support and relevance)	4.46	4.02
Government policies (taxes and bureaucracy)	4.40	4.27
Government entrepreneurship programs	4.23	4.54
Entrepreneurship education (school)	3.50	3.75
Entrepreneurship education (post-school)	3.74	4.46
R&D transfer	3.71	3.93
Commercial and professional infrastructure	5.08	5.21
Ease of entry- Market dynamics	4.87	4.32
Ease of entry- Market burdens and regulations	5.02	4.72
Physical infrastructure	6.72	6.27
Cultural and social norms	4.45	5.20

Source: GEM (2020; 2017a);

Findings of national experts portray that in 2017, physical infrastructure (6.72), commercial and professional infrastructure (5.08) and ease of entry concerning market burdens and regulations (5.02), were the highest-ranked conditions. In contrast, the lowest-ranked conditions included entrepreneurship education at school level (3.50), R&D transfer (3.71) and entrepreneurship education at post-school level (3.74) (GEM,

2017a). More recently, among the highest-ranked conditions were physical infrastructure (6.27), commercial and professional infrastructure (5.21) and cultural and social norms (5.20). Whilst the lowest-ranked conditions comprised entrepreneurship education at school level (3.75), R&D transfer (3.93) and government policies, concerning support and relevance (4.02) (GEM, 2020).

Regarding Melbourne, the Global Start-up Ecosystem Report 2020 classified Melbourne in the early globalisation stage. Sub-sector strengths include the Life Sciences and FinTech, with an overall ecosystem value of $4.8 billion (global average $10.5 billion). Concerning inclusion, the report states that one in three founders are women, one in three are born overseas, and 2% represent indigenous peoples (Start-up Genome, 2020).

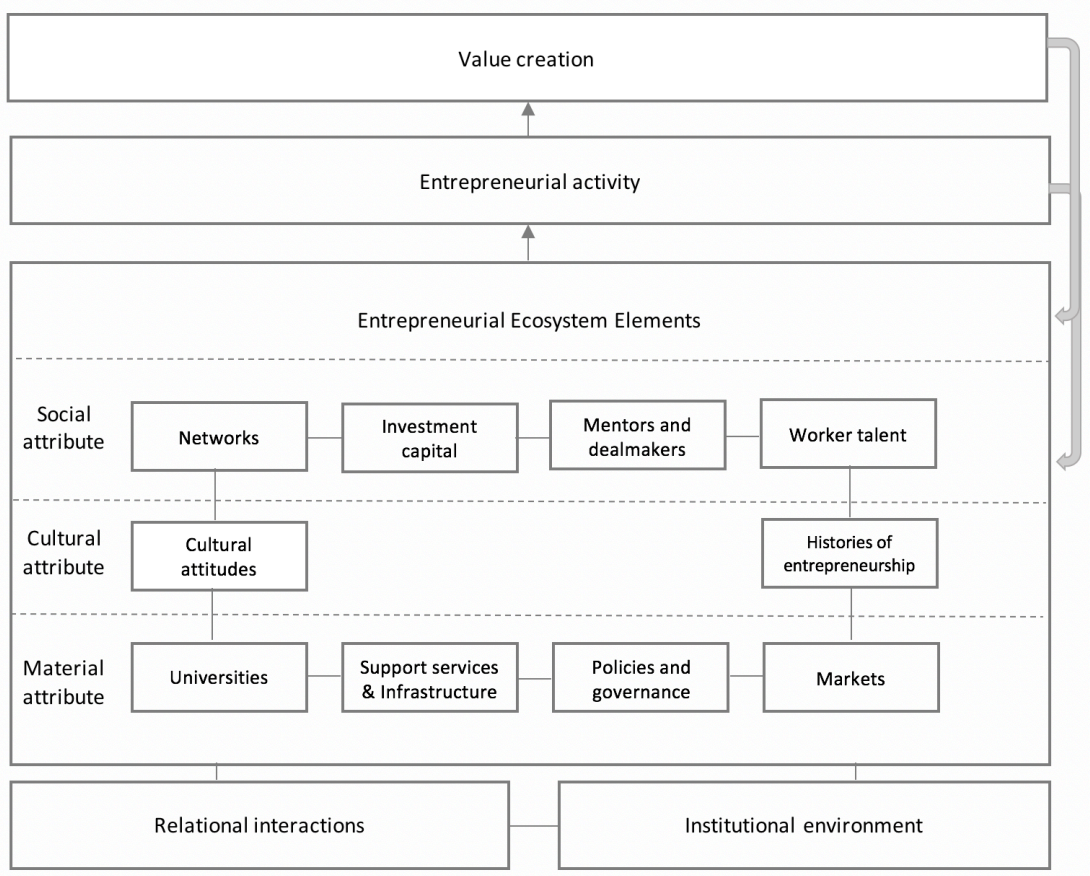
In respect to the current circumstances derived from Covid-19, Australia is facing challenging times. With and an increase of the unemployment rate from 5.5% in 2017 to 7.4% in 2020 (ABS, 2020a, 2017), and a decrease of the influx of international students, Australia's 4th largest export (Universities Australia, 2020), the scenario is challenging. This situation is also affecting the entrepreneurial arena. The crisis and generated uncertainty have impacted the availability of finance for start-ups (Brown & Rocha, 2020). In the case of Melbourne, in an attempt to support start-ups, the Federal and State Governments have implemented new policies. Some of these incentives include 2019/2020 payroll tax waiver to businesses with annual taxable wages of up to $3 million and the $130 billion JobKeeper program that assists eligible start-ups to help maintain the link with valuable skilled employees (Start-up Genome, 2020). However, the prevailing circumstances and ramifications of this crisis will potentially represent significant challenges for the ecosystem.

In sum, the systematic review allowed insights about topics concerning entrepreneurial ecosystems as well as crucial aspects the literature is engaged with, to further understand and advance research in this area. After presenting the main findings of the systematic review, the next section introduces the conceptual framework guiding this investigation.

2.4 Conceptual Framework

The framework builds on previous conceptual and empirical research on entrepreneurial ecosystems and incorporates established theoretical constructs (institutional and network perspectives) as analytical lenses. The framework considers the importance of

entrepreneurs as central actors within an entrepreneurial ecosystem (Brown & Mason, 2017). It derives from integrating aspects of entrepreneurial activity, value creation and interactions (Stam, 2015); attributes of the entrepreneurial ecosystem (Spigel, 2017); complemented with institutional and network perspectives (Alvedalen & Boschma, 2017). The initial conceptual framework is presented in Figure 2.2.



Source: Adapted from Spigel (2017) and Stam (2015)

Figure 2.2 Composition and Interactions of the Entrepreneurial Ecosystem

Entrepreneurial action involves behaviours conducive to entrepreneurship activity derived from the critical element of entrepreneurial thinking (Krueger, 2007). Entrepreneurial behaviour comprises a range of activities such as start-up, scale-up, entrepreneurial employees, opportunity recognition, market development, economic development (Audretsch et al. 2018), emphasising that the entrepreneurial ecosystem approach stretches to a variety of entrepreneurial activities, rather than a focus only on start-up processes (Brown & Mason, 2017).

Cumulative entrepreneurial activity, driven by innovative and entrepreneurial initiatives, generates prosperity; ultimately leading to value creation (Stam, 2015). In turn, the generated value is re-incorporated into the system. Value is shaped by the regional or local economic ecosystem, the nature of the opportunities, the industry and market conditions, and the environment with its institutions, norms, and rules (Cantner et al. 2020). Through value creation, entrepreneurship becomes an engine to create economic, social and personal value (Neck & Greene, 2011). These aspects, in conjunction with the interdependent actors and factors involved, generate the entrepreneurial ecosystem and depict the variety of interactions and relations occurring in these systems (Stam, 2015).

The framework depicts the ten attributes (social, cultural and material) defined by Spigel (2017): cultural attitudes, histories of entrepreneurship, networks, investment capital, mentors and dealmakers, worker talent, universities, support services and physical infrastructure, policies and governance, and markets. These attributes provide benefits and resources to entrepreneurs, whilst the relationships between the elements reproduce the entrepreneurial ecosystem, varying in their configurations.

Spigel (2017) emphasises that the study of entrepreneurial ecosystems should consider inputs such as the localised culture, social and material attributes that support entrepreneurial activity, as well as the interactions occurring between them, rather than focusing only on the outcomes (rates of entrepreneurship). Stam (2015) emphasises on systemic and framework conditions and the interdependencies and interactions between them contributing to entrepreneurial activity. The author considers a more inclusive notion of entrepreneurial activity (e.g. high-growth start-ups, innovative start-ups, entrepreneurial employees), and the aggregated value created as an outcome by the entrepreneurs and other ecosystem actors within a specific institutional context. Both authors pointing out the significance of context, the variety of elements involved and the relevance of the interactions between them influencing entrepreneurial activity.

The network and institutions perspectives are incorporated into the framework, adding a layer aiming greater depth and understanding about the composition and interactions within the ecosystem. The *network perspective* is utilised with a focus on interactions, this is, establishing the type of relationships and how the proposed elements are connected in the entrepreneurial ecosystem (Alvedalen & Boschma, 2017; Motoyama & Knowlton, 2017). The *institutional perspective* focuses on formal and informal

institutions (North, 1990) shaping entrepreneurial activity, influencing the decision to become an entrepreneur, and ultimately impacting the birth and the development of new ventures (Fuentelsaz et al. 2018). Formal institutions relate to laws and procedures, while informal institutions refer to a specific community's values, beliefs, and culture (Table 2.7).

Table 2.7 Formal and Informal Institutions

Institutional theory	Elements	Reference
Formal institutions	Incubators	Isenberg et al. 2016; Neck et al. 2004
	Mentoring programs	Isenberg et al. 2016
	Angel investor networks	Isenberg et al. 2016
	Spin-offs	Neck et al. 2004
	Physical infrastructure	Neck et al. 2004
	IP protection, political stability, accountability, control over corruption	Drover et al. 2017
	Venture capitalists	Drover et al. 2017
	Laws, regulations and enforcement	Ahlstrom et al. 2006
Informal institutions	Informal networks	Neck et al. 2004
	Culture	Neck et al. 2004
	Values and norms	Drover et al. 2017
	Attitudes of society	Welter, 2011
	National environment	Hayton et al. 2002
	Customs, traditions and religious norms	Williamson, 2000

Source: Self-made

Both formal and informal institutions play important roles. While formal institutions influence economic outcomes and entrepreneurial activity (Autio et al. 2014), identifying activities, beliefs and attitudes that are being taken for granted or acquired a 'rule status'—and the ones that have not—can also help towards understanding what enables or hinders entrepreneurship; and contribute to the development of more convincing conceptualisations on the interactions among institutional context, culture and behaviours (Bruton et al. 2010). Furthermore, institutions, same as laws, norms and cultural attitudes, facilitate or hinder interactions across individuals, firms and organisations (Huggins et al. 2012), making of institutions significant elements for entrepreneurial networks (Alvedalen & Boschma, 2017). Through their mechanisms and inputs, institutions should enhance the number of firms in a region (Audretsch, 2004). For instance, through policies and incentives that facilitate start-ups' commercialisation processes, such as accelerators and university technology transfer offices.

This framework provides grounding for analysing the composition and interactions between ecosystem's elements and progress further understanding of the complexities involved. The presence of these elements and the relations between them could largely determine relevant aspects of the composition and interactions of an entrepreneurial ecosystem.

2.5 Research Gaps and Research Questions

This section presents the identified research gaps within the entrepreneurship and entrepreneurial ecosystems literatures, outlines the generated research questions and lists the propositions obtained as an output of the systematic review.

2.5.1 Research Gaps

The literature review identified the following research gaps. It could be identified that considering the variety of contexts not only draws attention to the diversity of entrepreneurship but also can help to the understanding of its nature, richness and dynamics (Zahra, 2007). Despite previous research in this area, scholars still stress a need to understand entrepreneurship in broader contexts (Zahra et al. 2014; Welter, 2011; Zahra & Wright, 2011), such as their regional, temporal and social settings (Autio et al. 2014). Incorporating a contextualised view of entrepreneurship moves away from the focus on the individual and the firm (Autio & Acs, 2010) and contributes to our comprehension of the phenomenon and dynamics of entrepreneurial activity (Mason & Brown, 2014; Welter, 2011).

The entrepreneurial ecosystem approach allows a more interactive and systemic view, integrating the process of entrepreneurship to the broader group of entrepreneurial actors involved. It considers behavioural patterns of individuals, institutions and businesses (Belitski & Heron, 2017), in which agents act upon new opportunities they recognise and mobilise resources from their environment to exploit them (Acs et al. 2014). Such holistic and dynamic approach considers not only the variety of elements involved but also their interrelated aspects (Cavallo et al. 2019; Alvedalen & Boschma, 2017; Motoyama & Knowlton, 2017) from a systemic and interdisciplinary perspective (Acs et al. 2014). However, due to the common focus within the entrepreneurship literature on characteristics and behaviours of individuals and firms, initial conceptualisations of

entrepreneurial ecosystems lack the incorporation of the complexities of the socio-spatial context (Brown & Mason, 2017).

Furthermore, although past research has investigated the link between networks and entrepreneurship (Kenney & Patton, 2005; Thornton & Flynn, 2003; O'Donnell et al. 2001), there is recent consensus that the systemic nature of entrepreneurial activity and systemic policy instruments are still underdeveloped (Brown & Mason, 2017; Acs et al. 2014; Szerb et al. 2012). Moreover, scholars indicate that an entrepreneurial ecosystem stretches far more than only concerning aspects of the business start-up process (Brown & Mason, 2017).

This research responds to these calls by adopting an interactive and systemic perspective to the study of entrepreneurship and entrepreneurial activity through the entrepreneurial ecosystem approach. The contemporary concept of entrepreneurial ecosystems offers both a systemic view of entrepreneurship (Cavallo et al. 2019) and also considers the influence of context in the entrepreneurship process and entrepreneurial activity (Mack & Mayer, 2016). The concept of entrepreneurial ecosystems acknowledges the social, political, economic and cultural elements within a region influencing the development and growth of new ventures, as well as the relevance of the supportive mechanisms involved in encouraging entrepreneurs and other actors to engage with the process of entrepreneurship (Spigel, 2017).

Within this recent line of investigation, research has been conducted towards distinguishing features of the entrepreneurial ecosystem and identifying entrepreneurial ecosystem components (Acs et al. 2017; Brown & Mason, 2017; Mason & Brown, 2014; Isenberg, 2011). However, a limitation of past studies is a lack of analysis between those components (Motoyama & Knowlton, 2017). To gain further understanding, scholars point out a new direction of research concerning entrepreneurial ecosystem dynamics (Audretsch et al. 2018), involving the interdependencies and interactions between entrepreneurial ecosystems components (Motoyama & Knowlton, 2017; Mack & Mayer, 2016; Motoyama & Watkins, 2014), the structure and connections of internal attributes (Spigel, 2017), resource mobilisation (Audretsch & Belitski, 2017; Björklund & Krueger, 2016) and how the different elements enhance or hinder entrepreneurship (Alvedalen & Boschma, 2017).

Additionally, scholars indicate that the institutional and network approach, in both theoretical and analytical terms, can be useful for the study of entrepreneurial ecosystems (Alvedalen & Boschma, 2017). Recent research in this area has investigated the institutional (Fuentelsaz et al. 2018) and network (Motoyama & Knowlton, 2017) perspectives applied to the specific study of entrepreneurial ecosystems; however, this application is yet limited. Concerning institutions, it remains unclear which institutions, and at what spatial scale, have an impact on the ecosystem's structure and performance; specifically, the influence that formal and informal institutions have on the entrepreneurial ecosystem (Alvedalen & Boschma, 2017).

Concerning networks, little research has been conducted regarding the study of the configuration of networks in entrepreneurial ecosystems (Motoyama & Knowlton, 2017; Motoyama & Watkins, 2014), and network analysis has hardly been exploited as a tool that could, for instance, help investigate the types of links that enhance entrepreneurship (Alvedalen & Boschma, 2017). Social networks play an important role contributing to the dynamics, interactions, patterns and influential entities involved in the entrepreneurship process and activities, with possibilities of studying social networks through the use of social network analysis (Alvedalen & Boschma, 2017; Motoyama & Knowlton, 2017).

In sum, research is needed concerning contextual interactions, institutional characteristics and dynamics of entrepreneurial ecosystems (Autio et al. 2014). The systematic literature review resulted in the identification of the following gaps: 1) the incorporation of a contextualised view of entrepreneurship through the entrepreneurial ecosystem approach; 2) composition, interactions and associated resources within an entrepreneurial ecosystem; 3) how these elements and relations change at the stages of emergence and growth of the venture creation process; and 4) identification of elements that enhance or hinder entrepreneurship and the dynamics of entrepreneurial activities. Institutional and network perspectives are embraced to help inform our understanding of entrepreneurial ecosystem composition and dynamics.

2.5.2 Research Objectives

In order to address the identified gaps, the following are the established objectives guiding this research:

1. To analyse the influence of context on entrepreneurship and entrepreneurial activity
2. To analyse the conformation and ways in which different actors of the entrepreneurial ecosystem interact with each other at the specific stages of start-up and growth
3. To identify the resources attached to those interactions
4. To identify key actors within the ecosystem (locally)
5. To determine elements that enhance or hinder entrepreneurship and the dynamics of entrepreneurial activities

2.5.3 Research Questions

Accordingly, the main research questions and sub-questions addressed by this research are:

1) **How does the *context* influence entrepreneurial activity and its outcomes within an entrepreneurial ecosystem?**
   1.1 How is the specific context in Melbourne influencing entrepreneurial ecosystem dynamics?
   1.2 What are the characteristics of the local environment?

2) **How do the *composition* (configuration) *and interactions* within an entrepreneurial ecosystem influence entrepreneurs and entrepreneurial activity dynamics at the stages of start-up and growth?**
   2.1 How do the attributes, formal and informal institutions influence the entrepreneurial ecosystem?
   2.2 How do the different elements enhance or hinder entrepreneurial activity?
   2.3 How are the different elements of the entrepreneurial ecosystem interacting?
   2.4 What are the associated resources involved between entrepreneurs and other ecosystem actors' interactions?

2.5.4 Propositions

The findings of this systematic review led to the rationalisation of five propositions (Table 2.8) identified throughout the body of this chapter.

The resulting propositions aim to guide the research in the appropriate direction, help identify the relevant information to be collected and direct attention to the issues to be examined within the scope of the study (Yin, 2018).

Table 2.8 Guiding Propositions Obtained as Output of the Systematic Literature Review

	Developed propositions
Proposition 1	The entrepreneurial ecosystem approach adopts a comprehensive view of entrepreneurial activity, comprising the entrepreneur, the interrelations with the environment and diversity of entrepreneurial actors.
Proposition 2	A dynamic entrepreneurial environment can influence actors' perceptions and entrepreneurial efforts to engage in entrepreneurial activities.
Proposition 3	Examining the composition and interactions of entrepreneurial ecosystems contribute to determining the elements that conform it and how these enhance or hinder entrepreneurship and the dynamics of entrepreneurial activities.
Proposition 4	The study of entrepreneurial ecosystems can contribute to understanding how context influences entrepreneurship and entrepreneurial activity.
Proposition 5	Network and institutional perspectives provide a framework for analysing the composition and interactions among institutions, individuals and organisations within an entrepreneurial ecosystem.

The last section of this chapter presents current entrepreneurial ecosystem research. Since the systematic literature review comprised information mainly between the years 1997-2017, the next section aims to provide more recent literature on the topic.

2.6 Current Entrepreneurial Ecosystem Research

Since the systematic literature review was conducted, increased efforts have been allocated by researchers in the field to keep advancing the understanding and conceptualisation of entrepreneurial ecosystems. Albeit the progress made, research on the topic is still reported to be in its infancy (Chen et al. 2020) and scholars signal that further examination is needed to build and deepen understanding. The following section describes some of the current topics being addressed within entrepreneurial ecosystem research.

2.6.1 Conceptual Demarcation and Entrepreneurial Ecosystem Features

Concerning efforts towards a better conceptualisation of the entrepreneurial ecosystem construct, one aspect relates to comparing and differentiating the entrepreneurial ecosystem concept from related constructs, determining necessary elements, and investigating main features characterising these systems—aspects also provided in the present research. Autio et al. (2018) distinguish the entrepreneurial ecosystem concept from related theoretical constructs such as the ones in economic geography, innovation and management literature. Cavallo et al. (2019) outline and describe precursory related concepts such as industrial districts, clusters, innovation systems, business ecosystems, entrepreneurial infrastructure and entrepreneurial environment; highlighting that entrepreneurial ecosystem frameworks present a predominant characteristic, the importance of an entrepreneurial culture.

Chen et al. (2020) examine over 85 articles and find that themes dominating entrepreneurial ecosystems research include topics about their *nature* (definition, components, geographic location); *networks* with a focus on the relationship between the network connection and innovation/performance, and aspects of interactions among participants; *institutions* and the specific role of government; and *dynamics* with an emphasis on structural factors and coopetition strategies. Furthermore, the authors mention 12 elements commonly found necessary to sustain and support regional entrepreneurship: government policy (e.g. policy support, tax incentives), culture, human capital, financial capital, entrepreneurship organisations, education, infrastructure, economic clusters, networks, support services, early customers, and leadership. Furthermore, they found that several articles have largely highlighted the role of supportive entrepreneurial culture as the catalyst for the creation and development of an entrepreneurial ecosystem. While analysing ecosystem elements, Stam & Van de Ven (2019) state that utilising a systems approach should consider the macro context of entrepreneurship; that entrepreneurship is not limited to the for-profit sector, for diverse actors in the public and not-for-profit sectors also play important roles in the ecosystem; and, that individual entrepreneurial firms should make strategic choices and transactions (evolving over time) while interacting within the ecosystem to achieve both self-interest and collective objectives.

Features of entrepreneurial ecosystems include being not specific to a given (set) of industry sector(s) or technology domain(s), the predominance of business model innovation (as opposed to product, process, and linear "technology-push" innovation), the prevalence of voluntary horizontal knowledge spillovers (as opposed to vertical spillovers in user-producer arrangements) (Autio et al. 2018). Spatial boundedness with varied geographical unit of analysis (e.g. city, region, state), consisting of multiple enterprises, organisations, institutions and individuals, interacting to elevate their performance as well as the performance of the place (Audretsch & Link, 2019). Knowledge exchanges deriving in interdependencies among actors (Colombelli et al. 2019); entrepreneurial entities and environments coexist and reciprocally co-evolve (Erina et al. 2017). Systems characterised by cooperation and network externalities (and less by rivalry and competition) (Audretsch et al. 2019) offering both social and economic resources to entrepreneurs and fostering a sense of cooperation (e.g. between government and businesses) (Muldoon et al. 2018).

Other topics involve aspects of ecosystems' impacts, the role of trust and the aspect of quantity versus quality. Audretsch et al. (2019) describe the economic, technological and societal dimensions of entrepreneurial ecosystems. Economic impacts relate to the increased locational capital and prosperity and how entrepreneurial ecosystems create value. Technological impacts relate to regional innovation mechanisms and how innovation is pursued and realised; also associated with the ecosystem value creation. Social impacts relate to the networks among the variety of actors within the ecosystem and relate to not only monetary but also non-monetary outcomes through products and services that are beneficial for society.

Concerning the role of trust within the entrepreneurial ecosystem, it is an essential component that strengthens relationships for both new ventures and resource providers within risky environments, facilitating parties to engage in economic and cooperative activities (e.g. reciprocity and social exchanges). Whilst distrust (e.g. among groups, towards the government or society) can derive in certain behaviours (e.g. opportunism, blind faith, lack of acceptance of new ideas), jeopardising a healthy social network and undermining entrepreneurial endeavour (Muldoon et al. 2018).

Szerb et al. (2019) address the aspect of quantity versus quality. The authors investigate the impact of entrepreneurship and the entrepreneurial ecosystem on regional

performance across 121 European Union regions. The authors find that the quantity of entrepreneurship negatively impacts regional performance, while quality entrepreneurship, mainly consisting of highly innovative businesses (regulated by the institutional context), improves it.

2.6.2 Entrepreneurial Ecosystem and Institutions

The significance of institutions and their association with entrepreneurship and the entrepreneurial ecosystem is another prevailing line of research. As Bosma et al. (2018) state, 'institutions have a decisive impact on the prevalence and nature of entrepreneurship' (p. 483). Linking entrepreneurship, institutions and economic growth, the authors use institutional variables related to Scott's (1995) *regulatory* (e.g. government intervention, regulatory burdens, labour market regulations), *cognitive* (e.g. education support, cognitive skills) and *normative* (e.g. socially supportive culture, social networks, trust, individualism) dimensions. Their research suggests that institutional quality, financial stability, small government (intervention) and perceived start-up skills are important predictors of productive entrepreneurship (i.e. entrepreneurial activity contributing to the net output of the economy), which in turn contribute to economic growth. The authors found that the regulation of credit, labour and business is positively related to entrepreneurial activity; and that nurturing a culture of entrepreneurship stimulates awareness and perceived capabilities, being conducive to entrepreneurial activity.

Adams (2020) also illustrates the impact that institutions can have on entrepreneurship and ultimately on economic growth. The author delves into the creation and evolution of Silicon Valley, emphasising the institutions and factors that significantly contributed to its development. These include *know-how from previous industrial activity* (agriculture, extractive, and transportation industries); *geographical location* with proximity to a main financial centre and one of the world's top universities (Stanford University); and, *prevailing geopolitical circumstances* concerning wars and conflicts that derived in a flow of resources from government contracts (e.g. defence) aiming to meet technological needs. Additionally, institutions playing a vital role in the development of Silicon Valley's ecosystem included *federal agencies* and *laws* providing revenue and risk reduction; *banks* providing financing (coupled with policy, allowing commercial banks to use government contracts as collateral for loans), followed at a later stage by *venture capitalists* and *angel investors*; *specialised law firms* assisting with organisational

agreements and protection of intellectual property; and, *universities* providing 'brainpower' and research source for building technological capabilities. Such circumstances and institutions contributed to the ecosystem to grow, being sustained not only by entrepreneurs but also by the variety of supporting organisations and industries involved.

2.6.3 Entrepreneurial Ecosystem Dynamics

Roundy & Fayard (2019) build on dynamic capabilities theory to identify ecosystem's forces influencing entrepreneurial activity. *Dynamic capabilities* 'represent a firm's ability to sense, pursue and reconfigure opportunities and resources in response to quickly shifting environmental conditions' (Teece et al. 1997 as cited in Roundy & Fayard 2019, p. 98). The authors propose that entrepreneurs are more able to 'sense, seize and reconfigure resources and opportunities' (p. 95) within a vibrant entrepreneurial ecosystem, and suggest ecosystem mechanisms influencing entrepreneurs' dynamic capabilities. The authors elaborate that their proposed framework addresses limitations of current entrepreneurial ecosystem research in that it provides linkages between ecosystem components and entrepreneur and venture-level effects; identifies how entrepreneurial ecosystems influence entrepreneurial activities through the dynamic capabilities approach, addressing aspects at the micro-level (entrepreneur-venture) within entrepreneurial ecosystems.

Another stream of research investigates digital and spatial aspects within ecosystems. Autio et al. (2018) study digital and spatial affordances and their implications for entrepreneurial ecosystems (e.g. business knowledge and business model innovation, horizontal knowledge sharing and spillovers), in which digital technologies and infrastructure combined with proximity-related characteristics, support entrepreneurial ecosystem dynamics. Due to the rapid global diffusion of evolving digital infrastructures, the authors suggest that viewing entrepreneurial ecosystems through a digitalisation lens can help uncover insights into their operation, such as gaining understanding about the mechanisms by which digitalisation shapes value creation, delivery and capture processes. Additionally, spatial affordances support the cultivation and dissemination of cluster-level knowledge on generic business processes (i.e. effective business model innovation and entrepreneurial start-up and scale-up).

Regarding the dynamics of ecosystem formation, Roundy et al. (2018) mention that entrepreneurial ecosystems emerge over time through numerous components and micro-level processes, such as entrepreneurs' intentions; meso-level processes, such as resources from support organisations; and macro-level processes, such as the prevailing ecosystem culture. The authors propose three related forces influencing an entrepreneurial ecosystem's emergence: the intentionality and adaptive tensions of entrepreneurs, the coherence of entrepreneurial activities, and injections of resources into the ecosystem. Additionally, bringing attention to the configuration of individual, organisational and societal forces required to promote and support entrepreneurial activities. The authors embrace the complexity of the phenomenon (e.g. complex interactions among actors, organisations, economic, political and socio-cultural forces), suggesting that a systems analytical approach based on complex adaptive systems (CAS)—in which macro-level behaviours emerge from and influence in return the micro-level interactions within the system—can be a fruitful analytical approach to study entrepreneurial ecosystems.

Scheidgen (2020) embraces a different perspective to advance the concept of entrepreneurial ecosystems. Based on Giddens' structuration theory and using a case study of Berlin, the author focuses on how entrepreneurs acquire resources from the ecosystem. The author finds that different degrees of integration of entrepreneurial ecosystems (highly integrated, fragmented, or in between) derive in different resources trajectories for different types of entrepreneurs (start-up entrepreneurs, university spin-off entrepreneurs, funded entrepreneurs) and that these practices reproduce and result in different subsystems. Entailing that different levels of fragmentation within the entrepreneurial ecosystem impact both resourcing practices of entrepreneurs and how an entrepreneurial ecosystem reproduces and promotes different types of entrepreneurs. For instance, influencing the level of access to resources and resourcing practices, hindering resource acquisition from other subsystems when heterogenous resourcing trajectories are strong, or promoting more fragmentation when political initiatives are not well integrated with the entrepreneurial community, lacking to address entrepreneurs' needs adequately.

2.6.4 Governance

Colombo et al. (2019) explain that theoretical and conceptual development is needed regarding entrepreneurial ecosystems' governance models and their evolutionary paths

once they become established. That there is a need for developing entrepreneurial ecosystem frameworks of governance processes, mechanisms, relationships and practices. The authors elaborate that previous ecosystems' notions, such as Isenberg's (2010) involving self-regulating mechanisms, motivating actors in the entrepreneurial ecosystem through an 'invisible hand', represent significant challenges for policy implications. They suggest that linking entrepreneurial ecosystems with other ecosystems such as digital, innovation and business ecosystems could contribute to define formal and informal entrepreneurial ecosystem's structures and study the role that bottom-up and top-down forces can have on their governance.

In this respect, Roundy et al. (2018) support the notion that ecosystems exhibit self-organisation principles and emerge without a global controller. Following Isenberg's (2010) line of thought, the authors state that a single leader or organisation does not govern ecosystems. They explain that entrepreneurial ecosystems mainly emerge from the 'un-coordinated, semi-autonomous actions of individual agents' (Roundy et al. 2018, p. 3). The authors elaborate that whilst successful entrepreneurs, investors, philanthropists or relevant organisations may play essential roles in an ecosystem, no single agent or entity controls the ecosystem, its actors, nor the activities occurring within. It implies that the behaviours and structure of the system emerge through individual actors' micro-interactions, in self-organising patterns, rather than from top-down control. Notion aligned with Feld (2012), who suggests that when one ecosystem actor or organisation targets overwhelming efforts to direct the ecosystem, this could undermine its cohesiveness and functioning.

Colombelli et al. (2019) explore different governance designs. After analysing Turin's entrepreneurial ecosystem evolution, the authors argue that central actors fuel the emergence of an ecosystem and initially govern the dynamics of collaboration, in which a collection of diverse actors and interactions are involved. Government and private institutions, interested in supporting entrepreneurship, tend to gather around the catalyst institution to provide support. For instance, governmental bodies providing publicly funded support programs, the investment of public funds, tax incentives, and improvements of bureaucratic barriers; and private institutions such as financial investors and other support services and organisations become critical for fostering and supporting entrepreneurial activity. Thus, deriving in a *hierarchical* governance design, that in later consolidation stages of an entrepreneurial ecosystem transforms into a *relational*

governance design. The latter related to governance being embedded in increasingly interconnected actors; where central actors are players along with the other actors, jointly creating the necessary conditions conducive to new venture creation and entrepreneurial dynamism. However, the authors mention that such systemic and participative approach is unlikely to appear unless it is underpinned by complementary cultural and social attributes, deriving in cooperative norms and practices, ultimately giving place to complex relational forms of governance to occur.

Audretsch et al. (2019b) analyse the specific governance mechanism concerning the research joint venture (RJV), consisting of numerous units (e.g. for-profit and non-profit firms, research institutions, universities) that formally and informally cooperate to facilitate research and enhance firm performance and profitability. The authors explain that when there is a governance structure in which an RJV's leader or research director can control the activities of the other members, universities are less likely to be invited to participate, to exclude the potential of opportunistic behaviour compromising a venture's interests. They state that while such a decision might be a rational one, it could presumably influence entrepreneurial firms within the entrepreneurial ecosystem.

2.6.5 Support Infrastructure

Support infrastructure is an essential element within entrepreneurial ecosystems. Bliemel et al. (2019) state that infrastructure is positively associated with start-up activity. By infrastructure, the authors refer to 'a set of facilities that play a critical role in facilitating activities by individuals and organisations' (p. 133). These usually are publicly funded and enable access to key resources and diverse activities. Universities, research institutions and telecommunication technologies are part of the infrastructure facilitating entrepreneurial activities. For instance, they enable access to markets and the development of ideas, contributing to the process of start-up emergence. Accelerators are also considered part of the start-up infrastructure, aiding start-up formation and ultimately helping the economy to develop and grow. The authors state that ‘accelerators can foster a virtuous cycle of developing human, financial, entrepreneurial, political, cultural and built community capitals’ (p. 146), being one of the most important accelerator outcomes increasing participants’ networks and learning from them.

Hausberg & Korreck (2020) focus on business incubators and accelerators. Through their review, the authors find that private independent or corporate for-profit incubators have

been emerging, providing direct access to capital and specialised services for start-ups. Large established organisations facing challenges to foster innovation attempt to overcome difficulties by establishing their own corporate incubators and accelerators to collaborate with start-ups or to create new business units or spin-offs. Accelerators tend to provide education, monitoring, mentoring, connect start-ups with experienced entrepreneurs, financial investors and corporate executives, and prepare participants for public pitch events. Incubation provides business support (e.g. sales, accounting, contracts, patent strategies, presentation techniques, advertising, negotiation); and mediation aspects (e.g. external business connections to firms, government agencies), and interrelations with like-minded people, facilitating networking and cooperative activities.

2.6.6 Measurement Approaches

Although measuring entrepreneurial ecosystems represent many challenges, efforts are being allocated towards this task. Approaches in use include the GEM and the Panel Study of Entrepreneurial Dynamics (PSED), primarily focused at the national level, addressing the process of entrepreneurship and environmental aspects impacting entrepreneurship. However, Liguori et al. (2019) state that these approaches do not facilitate other levels of analysis, nor consider the perspectives of the different components; proposing a Multidimensional Entrepreneurial Ecosystem Scale (MEES). The measurement involves Isenberg's (2010) six domains of the entrepreneurial ecosystem (policy, finance, culture, supports, human capital and markets) as a framework; assesses individuals' perceptions regarding these domains; and follows two guiding principles, applicability and attitudes affecting behaviour. The measurement includes indicators (43) of a strong entrepreneurial ecosystem to help capture and assess areas of strengths and weaknesses within an ecosystem, from the perception of the community. While not designed to investigate the domains in great detail, further investigation would then be needed to explore specific areas in more depth (e.g. a weak domain).

Another approach concerns that of Stam and Van de Ven (2019). Whilst studying 12 Netherlands regions, the authors develop an index to capture the systemic nature of entrepreneurial ecosystems and complement qualitative approaches. Their study is based on empirical indicators derived from their developed entrepreneurial ecosystem framework, comprising institutional arrangements (formal institutions, culture and

networks), resource endowments (physical infrastructure, demand, intermediaries, talent, knowledge, leadership and finance), and outputs (productive entrepreneurship). Their index aims to facilitate assessments between different spatial units (e.g. regions or countries) in terms of multiple features, allowing to compare the quality of different entrepreneurial ecosystems, taking into account the interaction among its elements. The authors suggest the index can assist to potentially identify what proportion or combination of factors is in place or to trace causal relations regarding ecosystems' evolution.

2.7 Chapter Summary

The systematic literature review allowed the retrieval of rich information from diverse sources and the management of an extensive amount of information, facilitating the synthesis and deriving insights. Findings of the review portray a shift away from standpoints that take entrepreneurship as an isolated phenomenon, opting for more comprehensive views of entrepreneurial activity, encompassing the interrelations with the broader entrepreneurial ecosystem. Being an emerging area, conceptual studies addressing the topic of entrepreneurial ecosystems prevail over empirical studies. Qualitative approaches predominate empirical research, with many utilising case studies design. However, recent research has started allocating efforts for the development of measurement approaches able to capture the complex dynamics involved.

This investigation address calls to pursue further research towards the integration of entrepreneurship to the more recent concept of entrepreneurial ecosystems, to advance research on entrepreneurship processes from this broader approach, considering the derived propositions and pathways for further research. The investigation addresses the study of entrepreneurial ecosystems through the examination of their 1) composition; 2) interactions; and 3) context in which they are embedded, to determine the influence that these components have on the entrepreneurial ecosystem and explicate elements, interrelationships and supportive mechanisms involved in the dynamics of entrepreneurial activity; ultimately contributing to the contextualisation of entrepreneurship, enhancing the understanding of the topic and aspects occurring in practice.

The following chapter introduces the methodological foundations guiding this investigation.

Chapter 3. Methodology

3.1 Chapter Introduction

This research employs a multi-method approach, founded in qualitative inquiry, to address the identified gaps, the research objectives, and advance the propositions obtained as an output of the systematic literature review. Please refer to Chapter 2 at section 2.5.2 for a review of the research objectives.

The chapter is structured as follows. First, the overall methodological approach is described, followed by the research strategy and choices. Then the structure of the research design is presented, followed by the description of the techniques and procedures. Next, the time horizon for conducting the study is depicted, and the trustworthiness of the research is addressed. Finally, ethical considerations are presented. The structure of the chapter is summarised in Figure 3.1.

3.2 Methodological Approach

Previous methods used in entrepreneurial ecosystems research predominantly have consisted of qualitative approaches, as briefly mentioned in Chapter 1, with case study methodology being one of the commonly selected strategies to explore the phenomenon. Case study methodology has proved to be appropriate to analyse entrepreneurial ecosystems, as per the following studies. Spigel (2017) utilises this research strategy to analyse ecosystem attributes and relationships through the cases of Waterloo and Calgary. Motoyama and Knowlton (2017) study interactions and connections with the case of St. Louis, Missouri. Fraiberg (2017) studies transnational entrepreneurial practices in Israel's start-up ecosystem. Björklund and Krueger (2016) analyse the interactions between opportunity construction and resources in Aalto Entrepreneurship Society in Finland. Mack and Mayer (2016) study the evolutionary dynamics of entrepreneurial ecosystems using the case of Phoenix, Arizona.

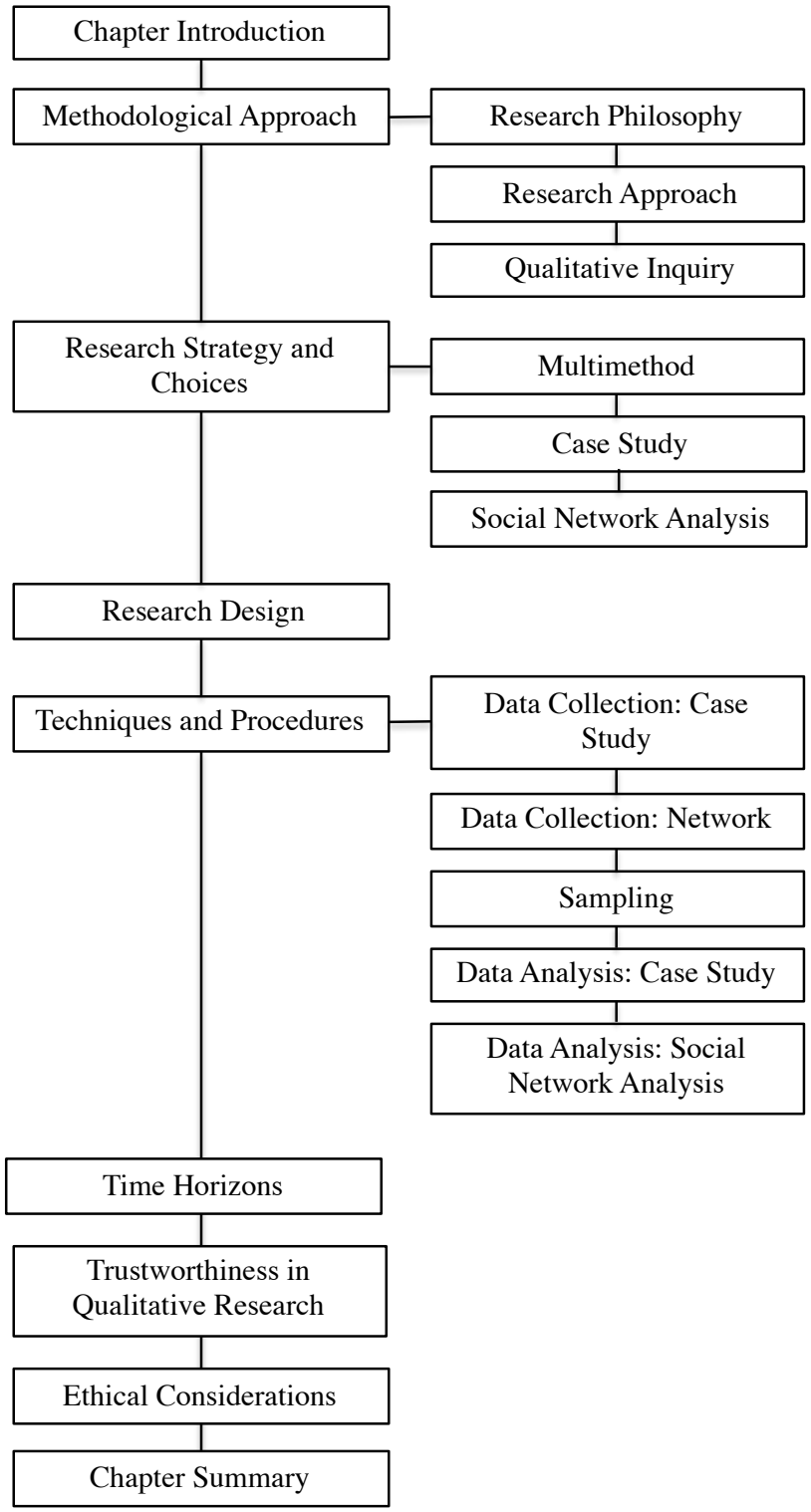


Figure 3.1 Chapter Three Overview

More recently, studies concerned with advancing understanding about the nature of entrepreneurial ecosystems utilise conceptual studies (Adams, 2020; Cantner et al. 2020; Audretsch et al. 2019a; Roundy & Fayard, 2019; Colombo et al. 2019; Muldoon et al. 2018; Autio et al. 2018) and the use of case studies continues (Scheidgen, 2020;

Colombelli et al. 2019; Pugh et al. 2019). As research on entrepreneurial ecosystems evolves, quantitative methods are rising (Chen et al. 2020). One of the topics being addressed by quantitative research is the development of measures to assess entrepreneurial ecosystems (Content et al. 2020; Liguori et al. 2019; Stam & Van de Ven, 2019).

For instance, Stam and Van de Ven (2019) utilise ten key elements (middle-level constructs) of an entrepreneurial ecosystem (Stam, 2015) and operationalise these constructs into variables. Using data accessible in the European Union (e.g. European Commission, GEM) and empirical indicators available for regions within the Netherlands, the authors measure the ten elements, perform principal component analyses to uncover dimensions underlying the ten elements, and develop an entrepreneurial ecosystem index to examine the quality of entrepreneurial ecosystems in the twelve Netherlands regions. The authors employ a systems perspective and a quantitative approach to empirically define and measure how these elements are statistically related. Such studies contribute to the complex task of developing instruments to measure entrepreneurial ecosystems. However, as the authors state, while some elements can be generalisable to other ecosystems, availability of data and empirical indicators may necessitate context-specific measurements, requiring studies to adopt indigenous indicators of ecosystem elements and constructs.

The current investigation followed a case study strategy comprised of diverse techniques and procedures. The section presented next delves into describing the overarching adopted philosophical stands and the research approach guiding this investigation.

3.2.1 Research Philosophy

The research philosophy encompasses the philosophical assumptions and interpretive frameworks informing the study. Philosophical assumptions are abstract ideas and beliefs that researchers bring into the research. Providing direction to the study, these views influence the types of problems studied, research questions, data collection procedures, and also inform the theories guiding the research. The interpretive frameworks (paradigm perspectives and theoretical orientations) enact these beliefs, creating a connection between the researcher's views and the utilised framework supporting the research (Creswell & Poth, 2018). The next sections describe the philosophical assumptions and interpretive frameworks founded in qualitative inquiry.

3.2.1.1 Philosophical assumptions

The philosophical assumptions underlying qualitative research comprise beliefs about ontology, epistemology, axiology and methodology. *Ontology* deals with the nature of reality. In qualitative research, researchers embrace multiple realities as the ontological assumption, report these multiple realities when studying individuals, and present different perspectives as themes develop in the findings. *Epistemology* is 'what counts as knowledge'. The qualitative researcher gathers subjective evidence from participants and utilises quotes as a form of evidence, in conjunction with observations and on occasions participating in the field. *Axiology* involves the role of values within the research. Qualitative researchers acknowledge that the research is value-laden and that biases are present; as such, values shaping the narrative are openly discussed, including both the participants' perspectives and the researcher's interpretation. *Methodology* involves the process of the research. Qualitative research utilises an inductive logic and an emerging design shaped by the researcher's experience in collecting and analysing the data. The researcher describes in detail the context of the study and constantly revises questions from experiences in the field, analysing and developing an increasingly detailed knowledge of the topic being studied (Creswell & Poth, 2018).

Accordingly, this study gathers perspectives from different actors within the entrepreneurial ecosystem. Their insights, coming from different angles, provide a comprehensive picture of the phenomenon under study. As sources of evidence, it utilises quotes from participants, observations and documents. It is worth to mention that the researcher conducted the study in the place of residence, providing access to where the participants live and work and allowing the possibility for observations. Important aspects of understanding the context in which participants are embedded and reducing the distance between the researcher and those being researched (Creswell & Poth, 2018).

3.2.1.1 Interpretive frameworks

The interpretive frameworks comprise paradigm perspectives and theoretical orientations. Paradigms, beliefs guiding action or 'worldviews' are also brought into the research by the investigator. Paradigm interpretive frameworks include Positivism and Postpositivism, Social constructivism, Transformative frameworks, Postmodernism, Pragmatism, Feminist theories, Critical theory, Critical race theory, among others (Creswell & Plano Clark, 2011).

Entrepreneurship research is dominated by a positivist approach, in which its scientific rigour is assessed through reliability and validity procedures, and quantitative and mixed methodologies prevail (Coviello & Jones, 2004; McDonald et al. 2004; Davidsson, 2003). Positivist researchers state that a world exists independent of human consciousness, that it is driven by universal natural laws (Guba & Lincoln, 1998), and that reality can be observed objectively (Dana & Dana, 2005). Positivist approaches within the field of entrepreneurship are particularly present within the North American community (Aldrich, 2000).

However, this has been gradually changing, for the heterogeneous field of entrepreneurship can benefit from the adoption of in-depth approaches and the combination of strengths provided by both qualitative and quantitative inquiry (Davidsson, 2003). A review by Hlady-Rispal and Jouison-Laffitte (2014) analyse 111 papers between 2007 and 2012, finding that qualitative entrepreneurship researchers tend to follow Weber's (2004) perspective, which relies on a Positivist paradigm, also known as traditional scientific research.

The worldview guiding this research is that of *pragmatism*. Pragmatism takes the position that there are multiple routes to knowledge (Johnson & Gray, 2010) and chooses 'the combination or mixture of methods and procedures that work best for answering the research questions' (Biesta, 2010, p.17). An interpretive framework based on pragmatism focuses on the outcomes of the study, in the applications ('what works') and solutions to problems (Patton, 1990). Rather than emphasising methods, the importance relies on the problem under study and the questions addressing this problem. According to Creswell & Plano Clark (2011), characteristics include:

- Looking into the 'what' and 'how' of research
- Not being committed to exclusively one philosophy or reality
- Recognising that research occurs in social, historical, political and other contexts
- Freedom on choosing methods, techniques and procedures that best meet the needs and purposes of the research
- Not viewing the world as a 'whole'
- Many approaches to collecting and analysing data

As such, researchers tend to use multiple methods of data collection in the attempt of best answering the research question(s), utilise multiple sources of data collection, focus on practical implications of the research, and emphasise the importance of conducting research that best addresses the research problem (Creswell & Plano Clark, 2011).

The characteristics mentioned above infiltrate and shape the research design of the present study, as described in the subsequent sections.

3.2.2 Research Approach

The use of an inductive or a deductive approach influences the research design. The next sections describe characteristics pertaining to these distinct approaches.

3.2.2.1 Inductive research

An inductive approach is characterised by the collection of data and subsequent theory development as a result of the data analysis. A deductive approach is characterised by the development of theory and hypotheses, followed by the design of a research strategy to test the hypotheses (Saunders et al. 2009). Traditionally, inductive modes of inference are *subjective* and deductive modes are *objective* (Hlady-Rispal & Jouison-Laffitte, 2014). Main characteristics of an inductive approach include (Saunders et al. 2009):

- Less structured research design that allows changes as the research progresses
- Realisation that the researcher is part of the research process
- Concerned with the context in which events take place
- Small samples of subjects can be considered appropriate
- Researchers tend to use a variety of methods to collect data to establish different perspectives of phenomena

Inductive approaches focus on understanding the nature of a problem or phenomena, rather than focusing on cause-effect relationships. This approach allows an understanding of the diverse interpretations and alternative explanations of the social world.

3.4.1.2 Deductive research

Deductive approaches involve the development of a theory subjected to rigorous tests. Sequential stages of deductive research are 1) deducing a hypothesis (or hypotheses)

from the theory; 2) expressing the hypothesis in operational terms that proposes a relationship between concepts or variables; 3) testing the hypothesis; 4) examining the outcome; and 5) if required, modifying the theory according to the findings (Robson, 2002). Main characteristics of a deductive approach include (Saunders et al. 2009):

- Explanation of causal relationships between variables
- Application of controls to allow the testing of hypotheses
- Highly structured methodology to facilitate replication
- The researcher remains independent of what is being observed
- Concepts are operationalised to allow quantitative measurements
- Utilises typically large samples
- Allows for generalisations

Within entrepreneurship, although several researchers find value in qualitative approaches (Zahra, 2007; Dana & Dana, 2005; Gartner & Birley, 2002), the field of entrepreneurship predominantly follows deductive and quantitative empirical research (McDonald et al. 2004). However, considering that entrepreneurial ecosystems research is still in its infancy (Chen et al. 2020), inductive, explorative qualitative approaches are also deemed appropriate (Edmondson & McManus, 2007).

The present research utilised both approaches. Combining induction and deduction within the same investigation is feasible and sometimes valuable to undertake (Saunders et al. 2009). Aspects of deduction were mainly used through the utilisation of the initial adapted framework from Spigel (2017) and Stam (2015) guiding the study. By utilising this framework, it was possible to develop the interviews' guiding questions. Also, a set of propositions were advanced throughout the research; however, the deductive stand was not aimed at hypothesis testing. Aspects of induction comprised changes as the research progressed, a focus on the context, and varied data collection methods employed—being diversity on the information gathered, one of the reasons for this. Furthermore, at a later stage of the research, a hybrid coding method was used (Saldaña, 2016). When developing the coding scheme to conduct the thematic analysis, firstly, an initial inductive approach was taken, allowing for flexibility and the possibility to identify new themes. Subsequently, the coding scheme was complemented with aspects of the pre-established framework.

3.2.3 Qualitative Inquiry

The present research is founded in qualitative inquiry. The next section describes main aspects of this approach as well as the rationale for its implementation.

3.2.3.1 Qualitative research

Qualitative research is an inquiry process of understanding that uses a distinct methodological approach to explore a social or human problem. In this approach, the researcher builds a complex, holistic picture and reports detailed views of participants while conducting the study in a natural setting (Creswell & Poth, 2018). This form of inquiry is typically used to explore new, previously unconceptualised or adequately understood phenomena. It is usually conducted in a naturalistic setting rather than in a controlled, laboratory situation. Hypotheses and theories emerge from data, during the data collection process or the data analysis. Qualitative research tends to utilise a small data set and investigate it in-depth (Morse & Mitcham, 2002).

Qualitative research involves an interpretive approach where researchers attempt to make sense of or interpret, phenomena through the meanings people bring to them (Denzin & Lincoln, 2011). Creswell (2013, p. 44) describes this process as follows:

1. Begins with assumptions and the use of interpretive/theoretical frameworks that inform the study of research problems
2. Researchers adopt an emerging qualitative approach to inquiry
3. The data collection takes place in natural settings, sensitive to the people and places under study
4. The data analysis is both inductive and deductive and establishes patterns or themes
5. The final written report includes the voices of participants, the reflexivity of the researcher, a complex description and interpretation of the problem and its contribution to the literature or a call for change

Qualitative driven approaches have the purpose of understanding 'what', 'how' and 'why' research questions (Hesse-Biber et al. 2015). Elements characterising qualitative studies include exploring the subjective meanings people give to experiences and interventions; the research is context-sensitive and is designed to enable changes

occurring during the study; sampling strategies tend to be selected purposefully, either shaped by theory and/or addressing the diverse contexts and meanings the study explores; utilises different sources of knowledge to gain an understanding of the issues being explored; makes explicit the theoretical process by which the researcher moves from data to interpretation; and, when generalisability claims are made, these follow logically and/or theoretically from the data (Tranfield et al. 2003), offering insight into complex social processes that quantitative data cannot easily reveal (Eisenhardt & Graebner, 2007).

In contrast, quantitative research is a form of inquiry that approaches phenomena that has been either investigated further or well-defined phenomena, in search of causal relations. Quantitative research does not commonly begin with an exploration of phenomena or data collection. Instead, it begins with the formulation of hypotheses about causal relations in the phenomena under study, to then establish experimental controls for either confirm or falsify the hypotheses under investigation, utilising larger data sets analysed statistically (Table 3.1) (Morse & Mitcham, 2002).

Table 3.1 Characteristics of Qualitative and Quantitative Research

Characteristics of Qualitative and Quantitative Research	
Qualitative Research	*Quantitative Research*
Used to conceptualise and explore new phenomena	Used to determine causal relations among phenomena
Hypotheses emerge in the process of data collection	Hypotheses are formulated prior to data collection
Small number of samples studied in-depth	Large statistically determined sample of subjects studied only in relation to predetermined hypotheses

Source: Morse & Mitcham (2002)

As mentioned earlier, entrepreneurship research is dominated by quantitative approaches, with a prevalence of the survey method for data collection. However, this scenario has been gradually changing. There has been a rise in conceptual papers, and qualitative methodologies continue to grow, with case studies, interviews and other qualitative methods more frequently being utilised as the selected primary method (McDonald et al. 2015). While quantitative methods have helped the field to gain legitimacy (Cornelius et

al. 2006), qualitative or combined methods are also valued, for instance, by capturing the richness and diversity of contexts in entrepreneurship (Welter, 2011).

Albeit the quantitative prevalence, the need for qualitative research in the field is well documented (e.g. Short et al. 2010; Bygrave, 2007; Dana & Dana, 2005; Steyaert & Katz, 2004; Hindle, 2004; Gartner & Birley, 2002), due to its ability to perform in-depth studies of phenomena, allow creative ways for generating and analysing empirical data, learn directly from the research subject, capture context richness and diversity. Characteristics that make qualitative research deemed appropriate for the advancement of entrepreneurship research (Hindle, 2004), resulting in deeper holistic understanding (Dana & Dana, 2005).

Qualitative methods utilised within entrepreneurship include grounded theory (Zahra, 2007), narrative research (Gartner, 2007), and phenomenon driven approaches that aid to obtain results with implications for policymakers, educators and practitioners (Hoy, 1997). Studies promoting the use of qualitative research on areas of entrepreneurship related to the present investigation include research on entrepreneurial networks (Jack, 2010) and specifically on entrepreneurial ecosystems (Spigel, 2017; Motoyama & Knowlton, 2017).

Qualitative research offers strengths when conducting studies in emerging fields and is deemed appropriate for studying phenomena that are not well understood (Eisenhardt, 1989). For instance, it may lead to filling a gap in existing literature, establish a new line of thinking or tackle an issue with an understudied group or population (Creswell & Poth, 2018). As discussed in Chapter 2, the phenomenon of entrepreneurial ecosystems is underdeveloped (Chen et al. 2020; Cantner et al. 2020; Spigel, 2017; Alvedalen & Boschma, 2017; Motoyama & Knowlton, 2017), with qualitative research dominating, in comparison to quantitative approaches.

The review portrayed predominant characteristics as those found at nascent theory development stages of a field, such as research questions leading to explorative approaches, qualitative data as the primary method of data collection, as well as efforts towards conceptualisation and suggestive models (Edmondson & McManus, 2007). Hence, the rationale for utilising a qualitative approach in this study, to gain further understanding of the phenomenon and allocate efforts towards the further

conceptualisation of this emergent field. Qualitative research aids towards advancing this task, for although sometimes misconceived, qualitative data are useful for theory generation, elaboration, and even testing (Edmondson & McManus, 2007).

Within entrepreneurial ecosystems research, qualitative approaches have been applied, for instance, to contextual studies focused on the interchange between entrepreneurs and the ecosystem (Björklund & Krueger, 2016), interaction-based analysis (Motoyama & Knowlton, 2017) and to study different configurations of ecosystems (Spigel, 2017). Qualitative methods are well-suited for understanding interactions between the entrepreneurs and their environment (Dana & Dana, 2005), and also become relevant when standardised metrics to analyse entrepreneurial ecosystems are scant or in developmental stages (Spigel, 2017).

The characteristics mentioned above lay the ground for considering qualitative inquiry as a suitable approach for this investigation.

3.3 Research Strategy and Choices

This section provides additional foundational aspects of the research design. It commences addressing the nature of the multi-method approach, followed by a description of the case study methodology and network approach utilised in this study.

3.3.1 Multi-method

The research adopted a qualitative driven multi-method design. A qualitative driven study might incur on a second method to complement the primary qualitative method, serving as a supplementary element to answer a different question or provide other types of information, ultimately supporting the main qualitatively driven approach (Hesse-Biber et al. 2015; Morse, 2015). This study employed case study research as the main method complemented with a social network perspective.

A multi-method design refers to combinations where more than one data collection technique and/or more than one analysis technique are used (Saunders et al. 2009). Accordingly, the research utilised several data collection techniques (semi-structured interviews, observations and documents) and several analysis procedures (thematic analysis and social network analysis). Aligned with a pragmatic stand embracing

multiple routes to knowledge (Johnson & Gray, 2010) and choosing 'the combination or mixture of methods and procedures that works best for answering the research questions' (Biesta, 2010, p.17), this study employs several data collection methods and procedures to address diverse aspects of the proposed research questions.

3.3.2 Case Study

Research strategies include experiment, survey, case study, action research, grounded theory, ethnography, archival research (Saunders et al. 2009). This study utilised case study as the main research strategy. The following section comprises definitional aspects, types, characteristics, strengths and challenges.

3.3.2.1 Defining case study

Eisenhardt (1989) defines case study as 'a research strategy which focuses on understanding the dynamics present within single settings' (p. 534), allowing for rich, empirical descriptions of particular instances of a phenomenon, usually employing a variety of data sources (Eisenhardt & Graebner, 2007).

Yin (2018) provides a more comprehensive definition. The author defines case study through its *scope* and *features*. This twofold definition depicts that case study research is a comprehensive mode of inquiry with its own logic of design, data collection techniques and analysis procedures. Case studies are not limited to be a data collection technique or design feature on its own. Regarding *scope*, a case study is 'an empirical method that investigates a contemporary phenomenon (the case) in depth and within its real-world context' (p. 14). That is, a researcher would pursue case study research to understand a real-world case, with the assumption that such an understanding involves important contextual conditions. In contrast, other modes of inquiry such as experimental research, deliberately separate the phenomenon from its context, focusing on the phenomenon under study, usually representing it with a few variables. Survey research can deal with phenomenon and context; however, investigating context through a survey is limited.

Because the boundary between a case and its context is not a sharp one, other characteristics or features become relevant. This is because real-world perspectives do not tend to fall into clear-cut categories and because it recognises that contextual

conditions can lead to the understanding of a case. The *features* aspect of the definition involves methodological characteristics to consider, including:

- A case study deals with many variables
- Pre-established theoretical propositions can be used to guide the design, data collection and analysis
- It relies on multiple sources of evidence that converge in a triangulating manner

Conditions leading to a large number of variables in any given case study include 1) the depth of its inquiry (myriad of aspects involved); 2) its coverage of conditions over time (analysis of patterns, even when studies do not cover long periods of time); and 3) its inclusion of contextual conditions—one of the strengths of case study research (e.g. cultural, economic, social and political conditions) (Yin, 2018).

Thus, case study research can be considered suitable for selection among other qualitative forms of inquiry, because it helps examine 1) contemporary or ongoing phenomena not divorced from its real-life context; 2) phenomena that are systemic in nature, with several forces acting upon the system simultaneously; and 3) research questions involving 'how' or 'why' (Yin, 2003). Conducting such qualitative driven approach can help understand a phenomenon and advance its conceptualisation (Eisenhardt & Graebner, 2007). Hence, considering it appropriate to advance understanding of the underdeveloped field of entrepreneurial ecosystems, and contribute to its development.

Although case study research allows for generalisations, Yin (2018) recommends these must be made with precaution because case studies are generalisable to theoretical propositions but not to populations or universes. Accordingly, case study research can expand and generalise theories (analytic generalisations) but not extrapolate probabilities (statistical generalisations). For example, while studying the ecosystem configuration of Waterloo and Calgary, Spigel (2017) states that while the findings should not be generalised because each region is influenced by its own historical and economic processes, the author does signal two more generalisable and relevant findings 1) the structure within different ecosystems can vary between regions, and 2) gaining an understanding of the connections occurring between their internal attributes can help to reproduce the overall system and offer benefits to entrepreneurs.

3.3.2.2 Characteristics and types

Typically, case studies are current, real-life cases that are in progress of occurring (Creswell & Poth, 2018). Case studies are bounded systems, defined within parameters such as the place where the case is located and an approximate timeframe in which the case is studied; helping not only to define the case but also determine the scope of the data collection. That is, to make a distinction between the subject of the case or *the phenomenon* and data external to the case or *the context*, while maintaining a connection between the case, the research questions and the propositions (Creswell & Poth, 2018). Entrepreneurial ecosystems are bounded and locally embedded systems (Fraiberg, 2017), characteristic consistent with case study research strategy.

Case studies rely significantly on two sources of evidence: observation of events under study and interviews of people involved in those events; however, they can also include other types of evidence (e.g. documents, artifacts) (Yin, 2018).

Stake (1995) identifies different types of case studies according to the intention of conducting the research. *Intrinsic cases* illustrate a unique case of unusual interest. *Instrumental cases* try to understand specific issues or problems through a case or cases. Single instrumental case studies focus on an issue and select one bounded case to illustrate it. Multiple case studies focus on an issue, but the researcher selects multiple case studies to illustrate the issue.

Yin (2018) classifies them into explanatory, descriptive and exploratory types. *Explanatory* cases address 'how' and 'why' questions and deal with tracing operational processes over time (rather than frequencies). *Descriptive* cases deal mainly with the 'how' of a situation, describe and discover key phenomena, and trace the sequence of events over time; however, these are not strong cases for analytic generalisations and theory-building. *Exploratory* cases answer some types of 'what' questions to develop hypotheses and propositions for further enquiry; however, one should be mindful that some 'what' questions are, in fact, a form of 'how many', 'how much' or 'to what extent' where survey method is more suitable.

This research uses an exploratory case approach intended to gain further understanding of entrepreneurial ecosystems, expand previous work, and contribute to the efforts of contextualising entrepreneurship.

3.3.2.3 Strengths and challenges

Although case study research 'remains one of the most challenging of all social science endeavours' (Yin, 2018, p. 3), it presents advantages worth of its perusal. These include 1) aiding towards the understanding of complex social phenomena; 2) allowing in-depth focus on a case whilst maintaining a holistic, real-world perspective; 3) dealing with a variety of evidence; 4) able to offer important insights, in comparison for instance with experimental methods; 5) the possibility to generate novel theory through creative insights, as well as through contrast and association of contradictory evidence (Yin, 2018; Eisenhardt, 1989).

Although the present research involved only one case study, it incorporated several, knowledgeable informants perceiving the phenomenon from diverse perspectives, an approach that aids to mitigate biased data regarding impression management and retrospective sensemaking (Eisenhardt & Graebner, 2007).

Challenges of utilising case study research include 1) case selection, deciding on a case worthy of study, establishing the rationale for its selection, gathering information about the case; 2) having enough information to present a complete and in-depth picture; 3) establishing clear boundaries; 4) concerns with rigour; 5) occasionally being confused with non-research case studies (e.g. teaching-practice case studies and popular case studies) that do not follow a research method; 6) considering case studies as the exploratory stage of another type of research method (Creswell & Poth, 2018; Yin, 2018).

Although a challenging endeavour, the case study strategy has important strengths relevant to the aims of this study.

3.3.2.4 Case selection rationale

Embracing the notion that entrepreneurial ecosystems are locally embedded systems (Fraiberg, 2017; Spigel, 2017), this investigation utilised a single case to study this

phenomenon. It focused on the thriving entrepreneurial ecosystem of Melbourne, Australia.

Melbourne presents unique characteristics. Ranked by the Economist Intelligence Unit as the world's most liveable city for seven years in a role (2011-2017), the city has been able to attract and retain individuals and start-ups, while providing a vibrant environment of global reputation. Accordingly, the entrepreneurial ecosystem has been growing. Co-working spaces have raised by over 900%, adding up to 170. Accelerators have had a sixfold increase, and approximately $300 million of VC has been invested locally (Startup Genome, 2018). The state of Victoria and Melbourne—Australia's second-largest city—are both dedicated to fostering a vibrant start-up ecosystem, with the state government supporting this initiative through LaunchVic; contributing to the creation of around 1,100 tech start-ups, produced five technology exits worth over US$100 million in the last five years, placing Melbourne start-up ecosystem within the world's top 5 for strongest growth (Startup Genome, 2017). All this making it an interesting case to study.

As the current research intended to expand previous work and develop theoretical assertions, rather than testing theory, theoretical sampling for the case study is appropriate. Theoretical sampling relates to cases being selected due to their suitability to illuminate and extend relationships and logic among constructs (Eisenhardt & Graebner, 2007). As described above, Melbourne is a thriving and active entrepreneurial ecosystem, able to provide the necessary setting for the purposes of the study at hand.

3.3.3 Networks and Social Network Analysis

Social network analysis (SNA) was utilised as a complementary approach within the research design focused on studying interactions occurring within the ecosystem. The next section addresses definitional aspects and relevant characteristics.

3.3.3.1 Defining social network analysis

Social network analysis takes as its starting point the premise that social life is created primarily and most importantly by relations and the patterns formed by these relations. *Social networks* are defined as a set of nodes (or network members) that are tied by one or more types of relations (Wasserman & Faust, 1994). More specifically, a social network is 'a set of socially relevant nodes connected by one or more relations. Nodes, or

network members, are the units that are connected by the relations whose patterns we study. These units are most commonly persons or organisations, but in principle, any units that can be connected to other units can be studied as nodes' (Marin & Wellman, 2014, p. 11).

Social network analysis theorising comprises two analytically distinct domains, network theory and theory of networks. *Network theory* refers to 'the mechanisms and processes that interact with network structures to yield certain outcomes for individuals and groups' (Borgatti & Halgin, 2011, p. 1168). The *theory of networks* refers to processes that determine why networks have the structures they do, that is, the antecedents of network properties; including models of who forms what kind of tie with whom, who becomes central, and what characteristics the network as a whole will have (Brass, 2002).

With origins from both graph theory (Moreno, 1934) and ethnography (Mitchell, 1969), the majority of social network research has been quantitatively focused. However, it can also be used in qualitative approaches. Areas suitable for qualitative research include the exploration of networks (e.g. integration patterns of networks, networking activities), network practices (e.g. acts, practices, interactions, communication patterns), network orientations and assessments (e.g. actor's perceptions, integration, sense of belonging) (Hollstein, 2014).

Primary data collection typically involves surveys, snowball sampling or roster recall (Coviello, 2005). Research on networks spans all of the social sciences and is being increasingly used also in physics, epidemiology and biology (Borgatti & Halgin, 2011). Within management research, social networks have been used to understand performance (Sparrowe et al. 2001), innovation (Obstfeld, 2005), creativity (Burt, 2004) and management consulting (Baker, 2000). Within organisational research, researchers utilise the network approach to examine network structures and relationships, intending to gain further understanding of outcomes relevant to individuals, teams, groups, and organisations (Borgatti et al. 2013).

In the present research, the social network perspective is used as a complement to the primary case study strategy and qualitative design, with the purpose of understanding aspects of the interactions occurring within the entrepreneurial ecosystem, rather than testing the process. Interpretive approaches in data analysis consider that context and

actor strategies play an important role in determining network impact, network composition and network dynamics (Hollstein, 2014).

3.3.3.2 Network characteristics

A *network* consists of a set of actors or nodes along with a set of ties of a specified type (such as friendship) that link them. The ties interconnect to form paths that indirectly link nodes that are not directly tied. The pattern of ties in a network produces a particular structure, and nodes occupy positions within this structure. Much of the theoretical richness of network analysis consists of characterising network structures (e.g. small-worldness) and node positions (e.g. centrality) and relating these to group and node outcomes (Borgatti & Halgin, 2011).

According to Borgatti et al. (2018), different research questions may lead to examine distinct types of ties. However, regardless the type of tie(s) the research focuses on, measuring that type of tie among all pairs of nodes in the sample defines a network, with each network having its structure and implications for the rest of the nodes involved. The authors categorise ties in two basic types: states and events (Table 3.2). States have continuity over time and can be dimensionalised in terms of strength, intensity and duration. Event ties have a discrete nature and can be counted over periods of time (e.g. e-mail exchange, phone conversations). These can be dimensionalised in terms of frequency of occurrence and can lead to defining networks as recurrent patterns of ties. Both types of ties can be seen as roads or pipes that enable or constrain flows between nodes. Flows are what is exchanged between nodes as they interact, such as ideas or goods.

Table 3.2 Taxonomy of Types of Relations

Relational states							**Relational events**	
Similarities			**Relational roles**		**Relational cognition**			
Location	**Participation**	**Attribute**	**Kinship**	**Other role**	**Affective**	**Perceptual**	**Interactions**	**Flows**
Same spatial and temporal space	Same clubs, same events	Same gender, same attitude	Mother of, sibling of	Friend of, boss of, student of, compe-titor	Likes, hates	Knows, knows of, sees as happy	Sold to, talked to, helped, fought with	Infor-mation, beliefs, money

Source: Borgatti et al. (2018)

Regarding kinds of outcomes within networks, Borgatti & Halgin (2011) combine two generic outcomes with two explanatory models, obtaining a simple typology of network theorising (Table 3.3), presented with greater detail in Borgatti and Foster (2003). Capitalisation involves flow-based explanations of achievement, where the social position in a network provides access to resources (Granovetter, 1973; Lin, 1988; Burt, 1992). Cooperation relates to bond-based explanations of achievement, such as experimental exchange networks (Markovsky et al. 1988).

Table 3.3 Network Functions (Mechanisms) by Model and Research Tradition

	Research tradition	
Model	Social capital	Social homogeneity
Network flow model (ties as pipes)	Capitalisation	Contagion
Network coordination model (ties as bonds)	Cooperation	Convergence

Source: Borgatti & Halgin (2011)

Social and business ties have also been studied as part of network research as contributors to social capital and performance within firms. Boso et al. (2013) studied social processes outside the borders of the firm—in the form of social network ties and business network ties—finding that such ties benefit entrepreneurial orientation, market orientation, and consequently firm performance, by increasing the impact of complementary strategic orientations on firm performance among entrepreneurial organisations. Social relations constitute the social structure supporting social network ties. *Social network ties* constitute the pattern of resources and information available to a firm as a result of its location within a social network structure (Lin, 1999). *Business network ties* refer to 'linkages among parties involved in a business transaction, for example, suppliers and buyers, in formal or informal ways' (Yiu et al. 2007). The study of economic (business-related) and social ties contribute to the study of interactions and nature of network relationships.

Studies of network evolution have found that in emergent stages of the firm, networks are cohesive and composed of primarily socially embedded ties. As the firm moves into the growth stage, the network changes attempting a balance between embedded and economic ties, intentionally managed to explore growth (Hite & Hesterly, 2001). Coviello (2006) investigates social and economic ties, along with other dimensions of

firm networks, through a combination of UCINET (SNA software) with qualitative analysis. Focusing on the dynamics of early-stage international new ventures, the researcher studies the nature of network relationships within the interactional and structural dimensions of networks. *Interactional* dimensions include content and durability. *Content* refers to the nature of the relationship, be social (e.g. family, friend) or economic (business-related). *Duration* refers to the stability of the network through time (e.g. short term (one-off), medium, longer (ongoing)). *Structural* dimensions of networks include range, density and constraint. *Range* refers to the size of the network (number of ties). *Density* refers to the proportion of ties that are connected given the number of pairs of potential ties. *Constraint* refers to ties involving only a single actor.

3.4 Research Design

After the analysis and selection of the diverse elements involved in the present research, the overall research design is depicted in Figure 3.2, based on the research methods classification provided by (Saunders et al. 2009).

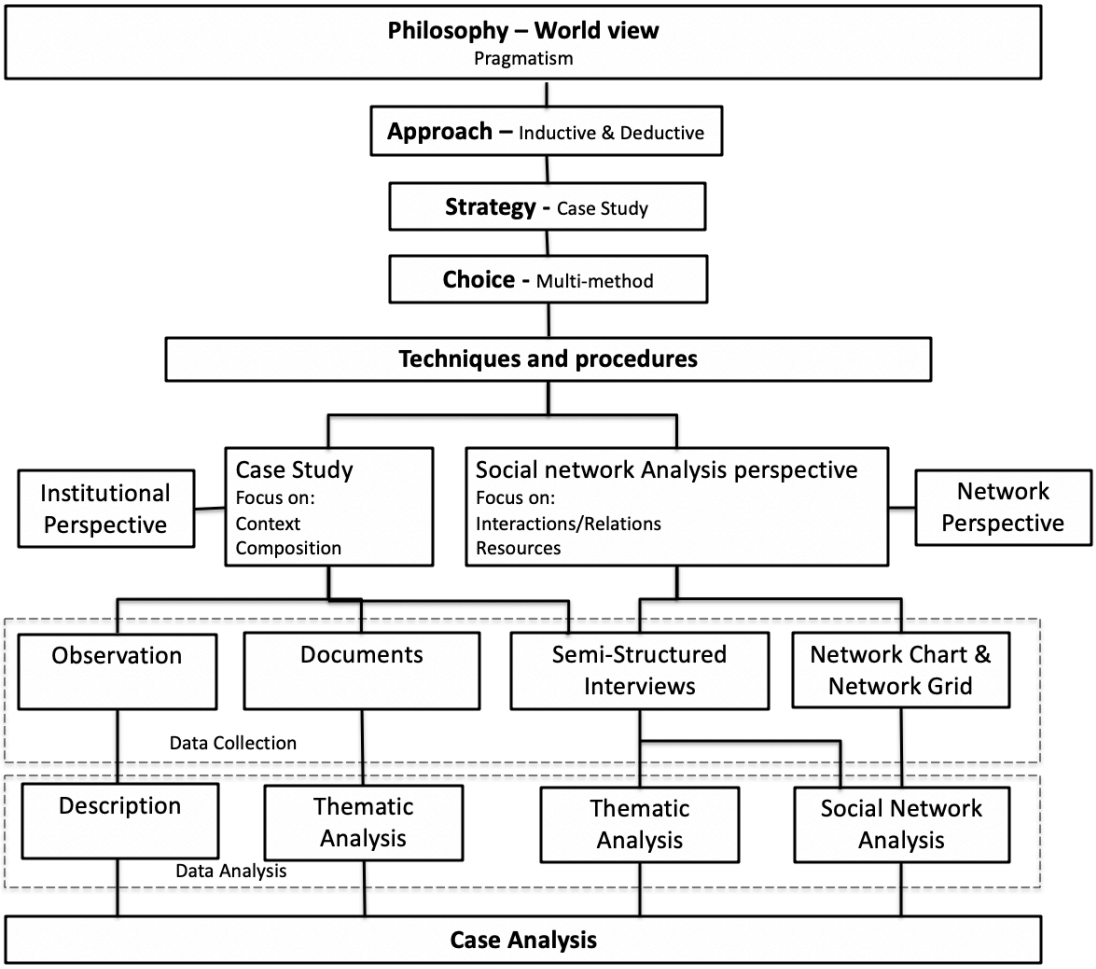


Figure 3.2 Research Design

The following sections proceed to describe aspects concerning the different techniques and procedures within the research design.

3.5 Techniques and Procedures

This section describes the relevant techniques and procedures associated with the case study and network perspective.

3.5.1 Data Collection: Case Study

Semi-structured interviews, observation and documents were the selected sources of evidence for the case.

3.5.1.1 Semi-structured interviews

This research utilised in-depth, semi-structured interviews. Interviews are one of the most important sources of case study evidence, assisting to explain particularly the 'hows' and 'whys' of that being studied, as well as the participants' insights and perspectives (Yin, 2018). Less structured than questionnaires, interviews allow spontaneous discussion of problems and solutions, and within a new area of research, in-depth interviews provide the benefit of developing theoretical understanding (Eisenhardt, 1989).

In-depth interviews are characterised to be inductive or open-ended. They range from unstructured to semi-structured and occur between the researcher and one participant at a time (Leavy, 2017). Semi-structured interviews serve as a guide while at the same time allow flexibility, varying from interview to interview if required (Saunders et al. 2009).

The present research pursued face-to-face semi-structured interviews with entrepreneurs at the start-up phase, entrepreneurs at the growth phase, and diverse entrepreneurial ecosystem actors. Audio-recording was used to record the discussion. As recommended by Creswell & Poth (2018), interview protocols were designed to assist during the interviews' interactions. One protocol to assist with the introduction of the interview (Appendix D), one listing the main areas addressed (Appendix E), and one containing the discussion guides (Appendix F). The discussion guides were developed based on the conducted review of the literature and finding support on the pre-established

Entrepreneurial Ecosystem Elements Framework, adapted from Spigel (2017), Stam (2015) and complementing aspects from Isenberg (2010).

The discussion guides included some rating questions regarding interviewees' perceived relative importance on specific items. Rating questions frequently use the Likert-style rating scale using four-, five-, six- or seven-point rating scale typically (Saunders et al. 2009). According to Dawes (2008), studies have generally agreed that reliability and validity are improved using 5- to 7- point scales rather than those with fewer scale points. However, the author explains that while conducting an interview, the utilisation of 5-point scales allows the interviewer to read out the complete list of scale descriptors (i.e. 1 equals not at all important, 2 equals …), without providing lengthier clarifications. Therefore, this study utilised a 5-point Likert scale ranging from 1 (not at all important) to 5 (very important).

3.5.1.2 Observation

Since case studies take place in real-world settings, observation is a source of evidence readily available to perceive social or environmental conditions. Such observations offer immediacy (covering actions in real-time) and contextual findings (aiding to inform the case's context) (Yin, 2018), useful in providing additional information about the topic under study. This data collection method allows the researcher to start analysing, as an overlap of data collection and analysis starts to take place (Eisenhardt, 1989).

Specifically, participant observation was used to gain information on the context and better understand what participants are saying (Creswell & Poth, 2018). As Saunders et al. 2009 explain, in participant observation the researcher interacts with the group, organisation or community and gains rich insights of the context while attempting to understand what is occurring in a particular social setting. It implies an immersion by the researcher in the research setting, sharing people's lives while uncovering the meaning underlying social actors' behaviours. The authors present the following classification (Figure 3.3) of the distinct roles within participant observation:

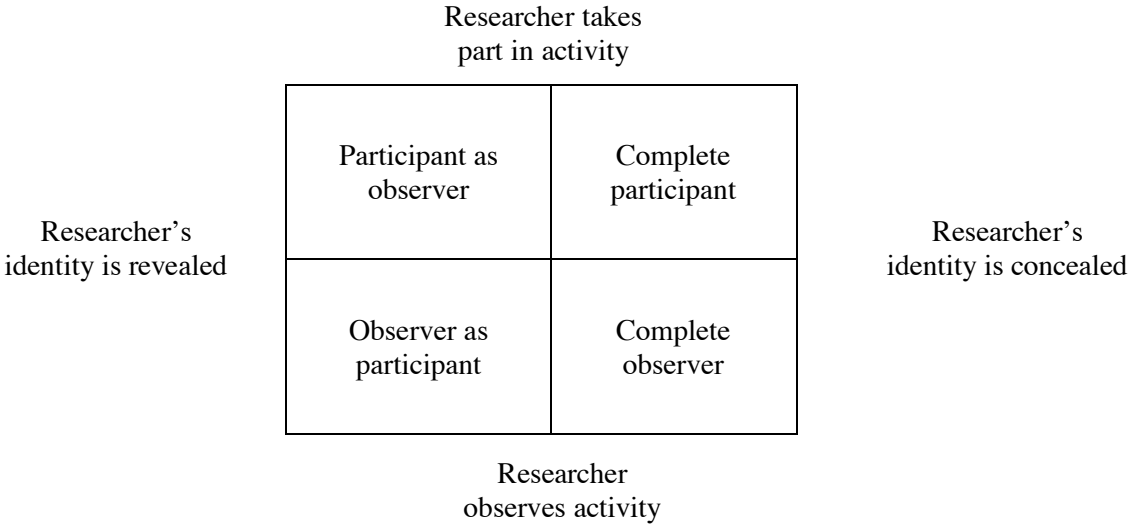


Figure 3.3 Typology of Participant Observation Researcher Roles

This research utilised the role of the participant as an observer, in which the researcher's identity was revealed, and interaction with participants occurred while activities were taking place. This approach helps to perceive reality from the viewpoint of someone inside the situation being observed, rather than external to it (Yin, 2018), valuable in attempting to gain natural results and depth to insights (Saunders, 2009). Establishing a fieldwork relationship, where subjects are aware of the researcher's identity, can lead to the advantage of key informants adopting a perspective of analytic reflection on the processes in which they are involved (Robson, 2002).

The observation process used in this study, followed the eight steps of procedures for preparing and conducting observations, recommended by Creswell and Poth (2018):

1. *Site to be observed*. Select a site and obtain permissions to gain access.
2. *At the site*. Identify who or what to observe, when and for how long.
3. *Type of observation*. Role to be assumed as an observer (ranging from complete observer-initially an outsider) to complete participant (going native).
4. *Observational protocol*. Design and use an observational protocol as a method for recording notes in the field. Include descriptive and reflective notes (experiences, hunches, learnings). Include date, place and time of observation.
5. *Record*. Record aspects such as participants, physical setting, particular events and activities, interactions, topics/conversations, own reactions. Describe what

happened and reflect on these aspects, including personal reflections, insights, ideas, confusions, initial interpretations and breakthroughs.

6. *Build initial rapport*. By having someone introduce you if you are an outsider. Use early observations to take only a few notes (limited objectives) and simply observe.
7. *Follow good observational procedures*. Thank participants and inform them of the use of the data and their accessibility to the study.
8. *Prepare timely notes*. Generate notes that are thick and rich in the narrative description after observation. Give a full description of the people and events under observation.

Field notes were taken to record observations. Field notes refer to 'ongoing stream of consciousness commentary about what is happening in the research, involving both observation and analysis—preferably separated from one another' (Van Maanen, 1988 as cited in Eisenhardt, 1989, p. 538). Field notes were transcribed into an observational protocol in a subsequent step, to allow clarity of the data, further commentary and analysis. Items observed included:

- Aspects of the physical setting
- Participants involved
- Activities and interactions
- Topics being addressed
- Researcher's reflections and insights

3.5.1.3 Documentation

Documentation assists to corroborate and augment evidence from other sources. However, inferences should only be clues for further investigation rather than definitive findings (Yin, 2018). Documents utilised in this study included reports relevant to the case. For instance, the 'Melbourne Startup Ecosystem Report, Leading Australia into a New Economic Future' (Startup Genome 2017) and LaunchVic's Impact Report (LaunchVic, 2019).

3.5.2 Data Collection: Network

Initial stands of this research include the study of entrepreneurship through a contextualised view. Such approach asks for an interdisciplinary perspective and the

utilisation of tools and concepts needed to explore the variety, depth and richness of contexts (Welter, 2011). As such, in addition to the semi-structured interviews, network collection tools were sought for the data collection process, such as the network chart and network grid.

3.5.2.1 Semi-structured interviews

In-depth interviews, narrative interviews, thematic or problem-centred interviews, are most commonly the first choice in studying actors' networking strategies, orientations and assessments, i.e. the individual significance attached to and the perception of relationships and networks. These qualitative approaches to data collection and analysis, are powerful tools that can enhance the study of social networks in significant ways, such as studying aspects related to the constitution and dynamics of social networks (Hollstein, 2014).

Thus, aspects of networks were also covered within the developed semi-structured interviews, aiming to unveil participants' perceptions of networks within Melbourne, actors' participation in them, enablers and inhibitors of local networks and other aspects comprised within the *social* attribute of the entrepreneurial ecosystem guiding framework.

3.5.2.2 Network data

Network data can be gathered through whole-network or personal-network designs. Whole-network or 'complete' network designs enable the possibility to utilise the full set of network concepts and techniques, which tend to assume that the entire network is available. However, collecting whole-network data represent a challenge for both the researcher and the respondent. Since networks can be extensive, and associated costs may increase, the richness of the process might decrease as the researcher tends to reduce the number of questions that he or she can address (Borgatti et al. 2018).

Personal-network designs help improve this aspect, allowing to gather richer and more detailed data, but with the disadvantage of not being able to capture broader patterns of connections. Personal-network designs also help with the aspects of anonymity and confidentiality as the process does not require the alters' real names, improving the quality of the data as the respondents feel more comfortable with this (Borgatti et al. 2018). This research followed a personal-network design or 'ego-network' study, in

which ‘egos’ represent entrepreneurs; and their ties with others, called ‘alters’, represent other actors within the ecosystem with whom they interact.

3.5.2.3 Network graphs

Network graphs or network charts are a useful tool for collecting qualitative data, for instance, on egocentric networks (cf. McCarty et al. 2007). The instrument has a semi-standardised design, supporting the comparability of cases. The graphical representation of networks functions as a cognitive aid in describing relationships while keeping track of the relationships discussed in the interview. In qualitative interviews, network charts help approach the systems of relevance and action orientations of interviewees. Mapping networks facilitate the discussion of relationships and provide a strong stimulus for the production of narratives (Hollstein, 2014).

The present study utilised an adapted version of the hierarchical mapping procedure employed successfully in social psychology (Antonucci, 1986). It can be used as a mixed data collection tool conceived to gain in-depth information to be analysed qualitatively and quantitatively. It provides both rich descriptions of the ongoing social influence within the network, and it also records the structural characteristics of the ego-centred networks (e.g. density, size, closeness, and tie strength).

The technique is described next (adapted from Antonucci, 1986; Bernardi et al. 2007):

1. Respondents are asked to use a diagram of graded concentric circles, with the smallest circle in the centre representing Ego (in this case, the entrepreneur). Each of the circles represents different levels of the perceived relevance of the network partner (other entrepreneurial actors). Circles are rated numerically from outside of the chart, labelled 1 (of little importance), to the inside of the chart, labelled 6 (highly important) (Appendix G).
2. The respondents are asked to write in the chart the initials of relevant actors/players (for them and their venture) with whom they interact, at the particular stage they are at (start-up or growth). Respondents are free to define ‘a relevant relationship’, as a first step to explore the variety of the different dimensions of relevance.
3. Whilst the respondents fill in the chart, they locate each actor according to:
    a. nature of the relationship (Family/friend, Business, or both)

b. perceived relevance of network partner (according to the graded concentric circles)
c. duration of the relationship (ST- Short term (one-off/few), M- Medium-term (months), L- Long term (ongoing)).

4. The respondents are then asked to provide information about the actors (e.g. position, area, the purpose of the interaction) and discuss key material and non-material resources or support obtained through the interactions. This information is registered in a network grid (Appendix H). Refer to Appendix I for the complete instructions and guiding questions utilised for this section.

This process aimed to identify relevant actors within entrepreneurs' networks to assess aspects of their structural and interactional dimensions. Acknowledging that network data collection can be a rather tiresome process for participants (McCarty et al. 2007), the process did not attempt to capture entrepreneurs' complete network; thus entrepreneurs were asked to mention relevant or 'top of mind' actors within their networks.

3.5.3 Sampling

The sampling techniques for this study consisted of purposeful sampling and snowball sampling. These are described below.

3.5.3.1 Sampling techniques

Purposeful sampling is a technique, in which cases are selected by the researcher to enable research aims and objectives (Saunders et al. 2009). A limitation of this technique is the lack of statistical representativeness of a larger population. However, the current research design is not intended to draw generalisations across a population.

Concerning entrepreneurs, the emphasis was placed on gathering participants from diverse industry sectors, in addition to fulfilling the established definition for business stage (start-up and growth). Additional aspects considered were the inclusion of female entrepreneurs and entrepreneurs being at least 18 years old or older. Concerning other ecosystem actors, the emphasis was on recruiting participants based on the area of expertise to access information on the diverse ecosystem areas. All participants were required to be working/operating in Melbourne.

The researcher attended networking events and forums directed to the start-up community to identify potential participants for the study. Initial cases were selected from interactions at these networking events and the researcher's contacts. Once identified, potential participants were contacted via email or phone and the study was explained (either in writing or verbally). Participants were then asked if they would be interested in participating. If the participants expressed interest, they were provided with an invitation to participate (Appendices K and L) and a Participant Information Statement and Consent Form (PISCF) (Appendix M) that outlined the study.

Snowball sampling is a technique in which initial cases are asked to identify further cases creating a 'snowball' effect (Saunders et al. 2009). This method helps with the task of identifying participants aligned with the purposes of the study. After the completion of an interview, participants were asked if they knew any person who could be relevant for the study, and that could be interested in participating. When a potential participant was suggested, the current participant was asked by the researcher to provide the researcher's details to the potential case. The current participant would then tend to proceed with a referral to his/her contact through an email introduction. The researcher would then reply with a brief explanation of the research, and individuals would only be contacted again if they showed interest in participating in the study. If the participants expressed interest, they were provided with the invitation to participate and the PISCF outlining the study.

The guiding criteria for participants of this study are as follows:

Participant Group	**Criteria**
1. Entrepreneurs (start-up)	• Ventures under 3-years old, comprising also early-stage or nascent entrepreneurs • All sizes considered • Diversity of sectors
2. Entrepreneurs (growth)	• Ventures more established, intentionally growing beyond survival, operating for 3 years or longer • All sizes considered • Diversity of sectors
3. Ecosystem actors	• Area of expertise • Universities, government, financial organisations and support services (e.g. accelerators, incubators, start-up communities, co-working spaces, mentors)

3.5.3.2 Sampling size

The literature review showed that sample sizes utilised in qualitative research involving entrepreneurial ecosystems vary, with a predominance of small sample sizes. For instance, some studies comprising 10 interviews (e.g. Björklund & Krueger, 2016), 14 interviews (e.g. Fraiberg, 2017), and others 21 (e.g. Motoyama & Knowlton, 2017).

Creswell (2007) suggests that for a general study, between 25 and 30 interviews should be conducted. As such, initially, a target sample of 25 interviews was deemed appropriate. As above-mentioned, the followed sampling techniques aimed to enable the research's aims and objectives, and identify participants aligned with the purposes of the study. Being aware that the study does not statistically represent the larger population. However, as results were not intended to draw generalisations across the population (Saunders et al. 2009) but to provide analytic generalisations (Yin, 2018), this criterion was deemed appropriate.

Notwithstanding, after conducting 25 interviews, additional interviews were required to be closer to data saturation (Table 3.4). Mostly due to the variety of actors involved in the study; especially, at the support services category (accelerators, incubators, start-up communities, co-working spaces, mentors). Thus, supplementary interviews were conducted until data collected provided few new insights (Saunders et al. 2009).

Table 3.4 Sample Size

Ecosystem actors		**Initial Target**	**Conducted Interviews**
Entrepreneurs	Start-up	7	11
	Growth	7	10
University		3	3
Government		2	2
Support services		4	7
Finance		2	3
Total		25	36

3.5.4 Data Analysis: Case Study

This section presents the proposed methodology to analyse the data. It encompasses the case analysis and network analysis.

3.5.4.1 Case analysis

The case analysis comprises two sections 1) a case description, based on details from diverse sources, including aspects such as the history of the case and chronology of events; and 2) case themes or issues, not for generalising beyond the case but for understanding its complexity. Case themes can be organised into chronology, analysed across cases for similarities and differences or presented as a theoretical model (Creswell & Poth, 2018). The study at hand is a single case or within-site study (Creswell & Poth, 2018); thus, no cross-case analysis or cross-case pattern search was performed.

The case analysis followed a similar approach to the reporting structure suggested by Cresswell & Poth (2018) which involves a reflective process and comprises the following 1) entry vignette, inviting introduction to the feel of the context of the case; 2) introduction, central features including rationale and research procedures; 3) extensive narrative description of the case and its context, issue description from the diverse data sources, integrated with the researcher's interpretations; 4) overall case assertions (lessons learned), 5) closing vignette, experiential note to remind the reader that the report is just one person's encounter with a complex case.

The interpretive phase and conclusions constitute the lessons learned from the case (Lincoln & Guba, 1985). This relates to the interpretation of the meaning of the case whether coming from learning about the issue of the case (instrumental case) or learning about an unusual situation (intrinsic case) (Creswell, 2013). This overall meaning derived from the case or cases has different names. Stake (1995) identify them as *assertions*, Yin (2018) as *building patterns* or *explanations,* and Creswell & Poth (2018) identify them as *general lessons learned*.

As previously stated, case study research allows the process of theory-building (Edmonson & McManus, 2007; Eisenhardt & Graebner, 2007). The final product of building theory from case studies can be 1) concepts; 2) a conceptual framework; or 3) propositions or mid-range theory (Eisenhardt, 1989). The study at hand builds from

previous work by Spigel (2017) and Stam (2015), by integrating aspects of their work and applying an institutional and network perspectives, to propose an entrepreneurial ecosystem framework, ultimately aiming to expand previous efforts on the topic.

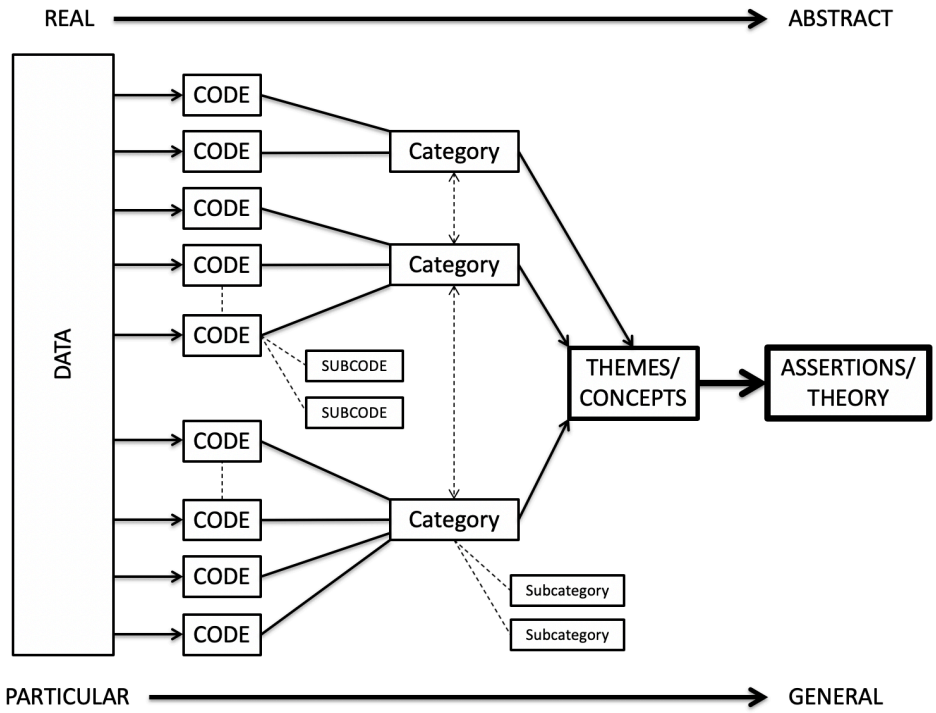
3.5.4.2 Coding process

Coding and thematic analysis were employed to reveal findings from the conducted interviews and selected documents. *Coding* can be described as the 'critical link' between data collection and their explanation of meaning (Charmaz, 2001), in which a code represents and captures the main content and essence of the data under study. With this process, the researcher aims to attribute meaning through the interpretation of participants' narratives (Saldaña, 2016).

A *code* is defined as 'a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data' (Saldaña, 2016, p. 4). Data can include interview transcripts, documents, participant observation field notes, journals, photographs, video, among others. This researcher-generated process aims to 'translate' the gathered data into interpreted meaning for pattern detection, categorisation, proposition development, theory building, and other analytic procedures. Qualitative codes are essence-capturing and essential elements of the research story that, when clustered together according to similarity and regularity (i.e., a pattern), actively facilitate the development of categories and thus the analysis of their connections (Saldaña, 2016).

<u>*Coding model*</u>

The coding process followed by the research is based on the following adapted model (Figure 3.4). According to Erickson (1986), a key assertion is a statement that proposes a summative, interpretive observation of the local contexts of a study. This key assertion, like a theory, attempts to progress from the particular to the general by inferring *transfer*—what was observed at one particular site may also be observed in comparable locations. Assertions also develop from the particular to the general by *predicting patterns* of what may be observed and what may occur in similar present and future contexts (Saldaña, 2016).



Source: Saldaña (2016)

Figure 3.4 Coding Model for Qualitative Inquiry

Unit of analysis

There is a lack of consensus on the amount of data corpus (i.e. total body of data) to be coded. While some researchers consider fundamental to consider every detail to generate insights (e.g. Lofland et al. 2006; Strauss, 1987), others only consider the most relevant sections of the corpus that are related to the research questions (e.g. Seidman, 2013; Morse, 2007). As recommended for novice qualitative researchers (Saldaña, 2016), in the study at hand, full-length transcripts were coded, where the portion of data being coded ranged from a single word to a full paragraph.

Coding decisions

Following Saldaña's (2016) recommendations, to minimise code proliferation, transcripts were coded in 'lumper' rather than 'splitter' method. Thus, attempting to capture and represent the essence of an excerpt, rather than coding line-by-line. Lumping coding, however, still allows future detailed subcoding where needed. As above mentioned, full-length transcripts were coded, however, mindfully excluding sections if these were completely out of topic. The detailed analytic work of coding was reserved for portions of the corpus that were deemed "relevant text" to the study. The interviewer's (i.e. researcher) questions, prompts and comments were not coded for they are more

functional rather than substantive. Participants' data were prioritised since it is their perceptions, and not the researcher's, the ones under study.

3.5.4.3 Thematic analysis

Thematic analyses help reveal themes, in which theoretical categories emerge from the evidence through an iterative process. This process of analysis involves organising the data into coherent stories of experience and sensemaking processes that become critical analytic activities (Edmondson & McManus, 2007). To conduct the thematic analysis, the process recommended by Braun and Clarke (2006) was followed (Table 3.5).

Table 3.5 Phases of Thematic Analysis

Phase	Description
1. Familiarising yourself with your data	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme.
6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of analysis.

Source: Braun & Clarke (2006, p. 87)

Through an iterative process, the thematic analysis helped reveal themes and issues, that were then categorised, constituting part of the evidence. The software package NVivo 12, commonly used for analysing unstructured data, was employed for the analysis.

3.5.5 Data Analysis: Social Network Analysis

As previously stated, although typically quantitatively focused and frequently used in mixed methods designs (Williams & Shepherd, 2017), social network analysis can also be applied to qualitative approaches (Hollstein, 2014). Recent research on entrepreneurial ecosystems utilises a network analysis perspective to complement findings in

understanding entrepreneurial ecosystems as networked structures, employing it mostly for mapping or network visualisation of findings (Motoyama & Knowlton, 2017). This research utilises a different approach based on qualitative research, yet complemented with formal aspects of SNA to enrich the level of understanding. A similar approach pursued by Coviello (2006) for studying the dynamics of early-stage international new ventures, but novel for entrepreneurial ecosystems research.

Major SNA software includes SONIS, SONET, GRADAP, STRUCTURE, SNAP, UCINET, and KrackPlot. According to several reviews that assess these packages (Loscalzo & Yu, 2008 as cited in Huisman & van Duijn, 2014; Scott, 2002; Wasserman & Faust, 1994; Freeman, 1988), within the last 20 years, from these programs, only UCINET is present in all reviews, is still regularly updated, and can be considered the most prominent package. Thus, becoming the selected software package utilised in this research.

UCINET software is a social network analysis tool developed by Borgatti et al. (2002). The required network data were collected through the aforementioned Network chart—mixed data collection tool conceived to gain in-depth information to be analysed qualitatively and quantitatively. As recommended by Hanneman (2001), each generated matrix comprised actors for the relevant stage (i.e. start-up and growth), with ties coded as absent (0) or present (1), resulting in binary matrices. The matrices were simplex in nature, that is, that they describe only one type of tie. The data collected through the Network chart helped to analyse the following aspects:

- Map entrepreneurs' network
- Actors' relevance through their position within the chart
- Dynamics of entrepreneurs' networks through structural and interactional dimensions

3.6 Time Horizons

Interviews were conducted over a relatively short period of time (six months), therefore employing a cross-sectional time horizon (Saunders et al. 2009). Although the study analysed two stages of venture development (start-up and growth), entrepreneurs at the start-up phase were not the same as entrepreneurs at the growth phase, for the study was not intended to study change and development of the same venture over time, aspects relevant for a longitudinal design.

Observations were registered within a period of four months. This time assisted in developing a rich and deep understanding (Saunders, 2009) at one location relevant to Melbourne's entrepreneurial ecosystem—only one location due to resources constraints. This time helped the researcher to immerse herself in one of the areas relevant to the phenomenon under study, rather than searching for patterns of change over time.

3.7 Trustworthiness in Qualitative Research

It was Guba and Lincoln who transformed the nature of qualitative inquiry through the establishment of criteria to ensure rigour and trustworthiness and evaluate the credibility, transferability, dependability and confirmability of the research (Guba, 1981; Guba & Lincoln, 1985). These criteria have been used for decades to ensure rigour while conducting qualitative research (Morse, 2015).

Tracy (2010) proposes another approach through eight *universal* hallmarks for high-quality qualitative methods, comprising the following.

- *Worthy topic:* the topic of research is relevant, timely, significant and interesting.
- *Rich rigour:* the study employs sufficient, appropriate and complex theoretical constructs, data and time in the field, sample(s), context(s), and data collection and analysis procedures.
- *Sincerity:* the study presents self-reflexivity about subjective values, biases, and inclinations of the researcher as well as transparency about the methods and challenges.
- *Credibility:* the study is characterised by thick description, concrete detail and tacit knowledge, triangulation, multivocality, and presents members' reflections.
- *Resonance:* the research influences or moves certain readers or a variety of audiences through appealing and evocative representations, naturalistic generalisations and transferable findings.
- *Significant contribution:* conducting research that is significant conceptually/ theoretically, practically, morally, methodologically and heuristically.
- *Ethical:* considering procedural, situational and culturally specific, relational and exiting ethics.
- *Meaningful coherence:* achieving what it proposes to be about, employing methods and procedures consistent with the goals and meaningfully

interconnecting the literature with the research questions, findings and interpretations.

Morse (2015) recommends the strategies that follow to achieve rigour, reliability, validity and generalisability:

- *Prolonged engagement, persistent observation, and thick, rich description,* which are interdependent strategies. Thick and rich data refers to obtaining good data from the entire data set and the number of interviews and/or participants.
- *Inter-rater reliability* relates to the comparison of the results of a first coder and a second coder.
- *Negative case analysis*—similar to outliers in quantitative research—are not discarded and are also analysed carefully, providing critical insights to understanding the overall process.
- *Peer-review or debriefing,* intended to prevent bias and to help towards the development of the study.
- *Clarifying researcher bias,* tendency for the researcher to see what is anticipated, value-laden research and sample characteristics.
- *Member checking,* giving the transcribed interview—not the completed analysis—back to the participant to correct data.
- *External audits,* although not frequent, audits could occur when the researcher's findings are doubtful.
- *Triangulation*, referring to the use of two or more sets of data or methods to answer the research questions.

The study at hand considered Tracy's (2010) and Morse's (2015) recommendations closely, to generate sound and reliable research by:

1. Addressing a current and interesting topic within entrepreneurship research (i.e. entrepreneurial ecosystems)
2. Pursuing rigorous methods and procedures (i.e. systematic rather than a traditional literature review, constructs, data collection and analysis procedures utilised)
3. Utilising rich descriptions aiming credibility and transparency along the process
4. Attempting to provide a significant contribution to the field
5. Following ethical procedures

6. Aiming consistency through the research
7. Implementing the process of inter-rater reliability
8. Performing member checks—when in doubt of the collected information

3.8 Ethical Considerations

Ethical considerations are a fundamental component when studying social realities; most often involving morality, integrity, fairness, and truthfulness. 'Morality is about knowing what is right and wrong, and integrity is acting on that knowledge' (Leavy, 2017, p. 23). For conducting this research, ethical approval was obtained from La Trobe University (Appendix J). The university has established the University Human Ethics Committee (UHEC) as a registered Human Research Ethics Committee (HREC). The UHEC is responsible for the ethical review and monitoring of human research conducted by La Trobe staff and students, following the National Statement on Ethical Conduct in Human Research. In accordance with the conditions of approval, potential participants received an invitation to participate in the study (Appendices K and L) and a Participant Information Statement and Consent Form (PISCF) (Appendices M and N), which outlines details of the study as well as aspects of confidentiality and participants' expectations. Participants willing to take part in the study were asked to read and sign the Consent Form and return it to the researcher before the interview. In some instances, participants signed the PISCF and returned it via email before the interview took place, and in other instances, it occurred right before conducting the interview. In all instances, participants received a copy of the signed document.

Participants were informed in advance the approximate duration of the interview. In the case of entrepreneurs, consisting of about two hours (first part on perceptions about the ecosystem, second part about entrepreneurs' network interactions); and in the case of ecosystem actors consisting of approximately one hour. Regarding entrepreneurs, in recognition that two hours could potentially be tiresome for participants when asked to participate, the researcher would offer to conduct the interview either in two different sessions (one hour each; scheduled close to the date of the first interview), or both sections together in one session. Only one participant preferred to proceed with the interview in two different sessions.

At the beginning of each interview, the researcher explained to participants main points from the PISCF and reminded them that the interview was going to be recorded for

analysis purposes. A brief description of the research was provided, along with an explanation of how the interview would be carried out. During the transcription process and analysis, data was de-identified. For instance, participants' companies or organisations were replaced with a generic indicator such as 'Company A'. Participants' names were replaced with codes as follows. The letters 'PG' standing for participant group, the numbers 1, 2 or 3 according to each of the three participant groups (entrepreneurs-start-up, entrepreneurs-growth and other ecosystem actors, respectively), followed by sequential numbering according to the order in which the participants were interviewed (e.g. PG1-1, PG3-2, PG2-3… PG1-36). De-identified data was consequently used for the analysis process.

Hard copies of the signed PISCF were kept safely, and electronic data was stored on a password-protected computer. Backups of the electronic data were also stored on a password-protected storage device.

3.9 Chapter Summary

Institutional and network perspectives were embraced throughout the methodology herein presented to help inform our understanding of entrepreneurial ecosystems composition and dynamics. The institutional characteristics studied through the Entrepreneurial Ecosystem Framework attempt to help determine locally embedded key ecosystem features, and the influence that the context can have on entrepreneurial activity. The network perspective is used to study aspects concerning entrepreneurial ecosystem dynamics through investigating and analysing the actors and interactions between the entrepreneurial ecosystem elements (macro-level), in addition to analysing entrepreneurs' networks through structural and interactional dimensions (micro-level).

The presented research methodology intends to uncover underlying mechanisms governing entrepreneurial ecosystems at a specific context, through the perceptions of key individuals constituting these systems, the lens of the theoretical framework and analysis procedures. This, in the light of greater conceptualisation, attending to the calls for further research concerning contextual interactions, institutional characteristics and dynamics of entrepreneurial ecosystems (Audretsch et al. 2018; Motoyama & Knowlton, 2017; Alvedalen & Boschma, 2017; Autio et al. 2014). The following chapter presents the analysis of the data and the findings of the investigation.

Chapter 4. Data Analysis and Results

4.1 Chapter Introduction

This chapter contains two sections. The first section presents an overview of the aims and data analysis, followed by a description regarding triangulation. Thematic analysis was used for the selected documents and semi-structured interviews. Description was used as analysis and representation for the process of participant observation. Lastly, network analysis was used to study the interactions between entrepreneurs and the ecosystem's actors.

The second section presents a brief overview of the results, followed by a narrative providing the background of the case under study, Melbourne's entrepreneurial ecosystem. It continues by reporting the findings obtained through the different sources of evidence, integrating them with the researcher's interpretations to address the overall research objectives, reiterated in the next section. The contents of this chapter are summarised in Figure 4.1.

4.2 Overview of the Aims and Data Analysis

The overall research aim of this research is to shed light, in-depth and breadth, on the effects that the context, composition of ecosystem actors and interactions have on entrepreneurial activity. As earlier outlined in Chapter 2, the following research objectives were established:

1. To analyse the influence of context on entrepreneurship and entrepreneurial activity
2. To analyse the conformation and ways in which different actors of the entrepreneurial ecosystem interact with each other at the specific stages of start-up and growth
3. To identify the resources attached to those interactions
4. To identify key actors within the ecosystem (locally)
5. To determine elements that enhance or hinder entrepreneurship and the dynamics of entrepreneurial activities

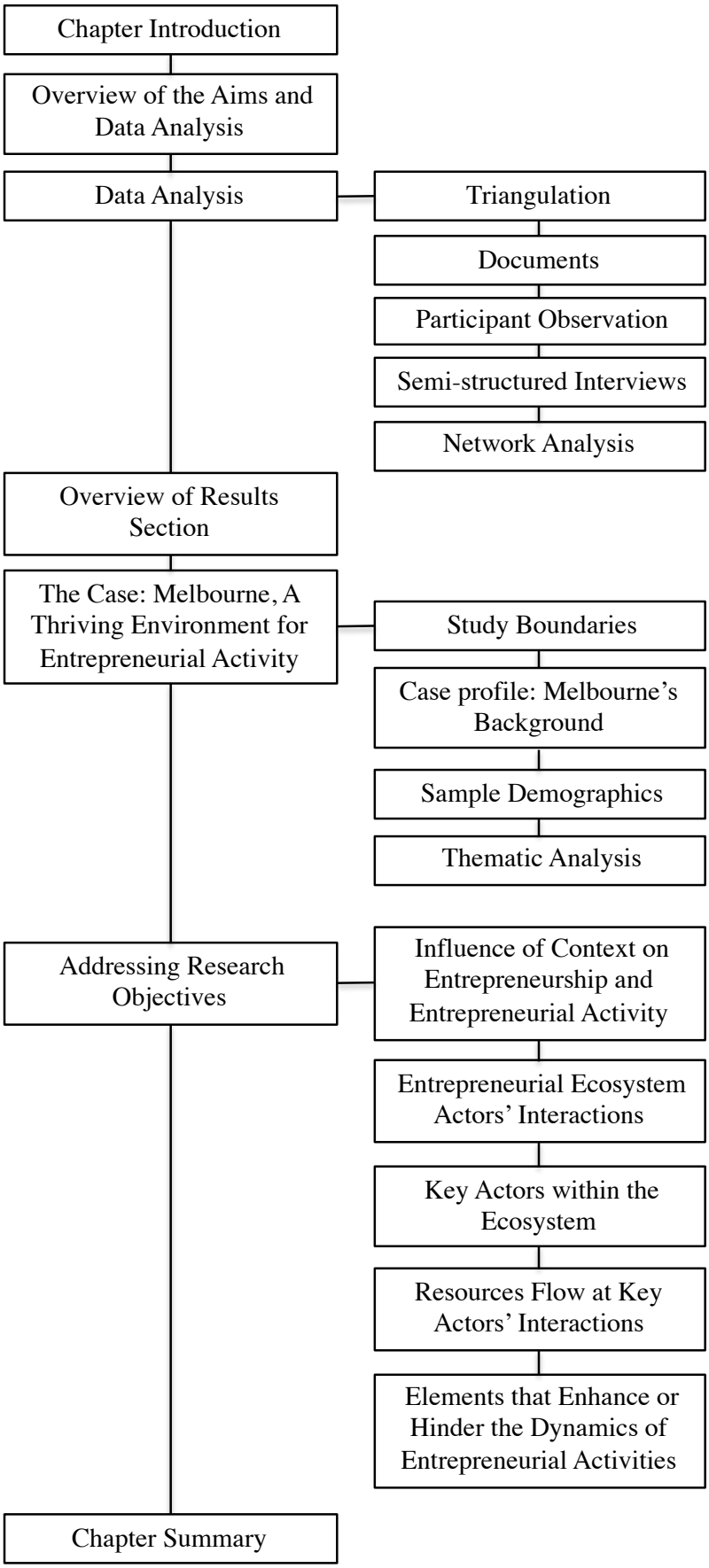


Figure 4.1 Chapter Four Overview

The use of the novel entrepreneurial ecosystem approach to investigate the research objectives was twofold. First, as an overarching framework to guide and inform this research. The entrepreneurial ecosystem approach addresses aspects closely related to entrepreneurial activity, the relevance of context, the diversity of ecosystem actors involved and stresses the importance of interactions between different actors (Spigel, 2017; Stam, 2015). Second, to address identified gaps within this area of research, and attempt moving the concept of entrepreneurial ecosystem forward, since this recent stream of research calls for efforts to develop it further (Spigel, 2017; Motoyama & Knowlton, 2017).

The investigation at hand utilised case study methodology to explore the influence of the context on entrepreneurial activity and the ecosystem's composition and interactions occurring at the stages of start-up and growth. Additionally, to identify key actors and resources attached to those interactions, and, to determine elements that enhance or hinder the dynamics of entrepreneurial activities.

The overarching strategy comprised the entrepreneurial ecosystem approach complemented with institutional and network perspectives; considering formal and informal institutions relevant for the study, as well as the relations between ecosystem actors. Evidence informing this research included documents, participant observation, semi-structured interviews and network data—to study closely the interactions occurring within the ecosystem. Table 4.1 presents the different sources of evidence used, features about their strengths and their intended alignment with the objectives of the research.

4.3 Data Analysis

The following section presents the data analysis starting with considerations about the data triangulation. Subsequently, the diverse sources of evidence are presented, and the performed analysis is described.

4.3.1 Triangulation

One of the strengths of case study research relies on the opportunity to use many sources of evidence to address the research questions. Essentially, the need to use multiple sources of evidence exceeds that of other research methods, such as experiments or surveys. Different sources of information following a similar convergence enhance

conclusions, strengthen the construct validity of the case study (Yin, 2018), and allow for complementary understanding (Creswell, 2003) of the phenomenon under study.

Table 4.1 Evidence Sources and Purpose in the Research

Evidence Source	Strengths	Purpose within Research	Research Objective
Documents	Unobtrusive	Formal studies or evaluations related to the case	1
	Specific- contains exact names, details and references	Augment and corroborate evidence	
Participant observation	Immediacy	Access real practice at an environment conducive to entrepreneurial activity	1
	Contextual	Information about the context; Gain direct exposure for better understanding and insights	
Semi-structured interviews	Targeted- can focus on study topics	Address research topics, allowing for flexibility	1, 2, 3, 4, 5
	Insightful- provides explanations and personal views	In-depth insights from experienced participants and experts' perceptions	
Network analysis	Network composition and network dynamics	Network characteristics at start-up and growth	2, 5
	Captures individuals' positions/ roles in the network	Key actors and resources within interactions	2, 3, 4, 5

Source: Creswell & Poth (2018); Yin (2018); Borgatti et al. (2018); Saunders et al. (2009)

This research pursued such aspects of convergence and complementary understanding through the collection of diverse sources of evidence (Table 4.1). Additionally, by collecting different perspectives (interviews) of numerous and knowledgeable informants to study the same phenomenon; aiding to diminish biased data regarding impression management and retrospective sensemaking (Eisenhardt & Graebner, 2007).

The five developed discussion guides, deriving from the theoretical framework, helped to achieve this. These guides were designed and targeted to the following different actors of the entrepreneurial ecosystem:

1) Entrepreneurs
2) University
3) Government
4) Financial organisations
5) Support services

All ecosystem actors were asked for their perspectives regarding entrepreneurial activity and the entrepreneurial ecosystem, avoiding an over-reliance on a single view as source of information.

4.3.2 Documents

Three relevant reports were selected to augment and corroborate evidence from different sources (Yin, 2018), allowing gathering information from key ecosystem stakeholders.

- Startup Action Plan 2017-21 (City of Melbourne, 2017)
- Melbourne Startup Ecosystem Report (Startup Genome, 2018)
- LaunchVic Impact Report (LaunchVic, 2019)

The Startup Action Plan (City of Melbourne, 2017) comprises the City of Melbourne's strategy to continue to support the entrepreneurial community and help drive local, national and global opportunities. The report presents strengths and needs identified through a start-up community consultation, involving hundreds of community stakeholders. The plan outlines measures to support and promote the start-up community (e.g. Small Business Grants Program, Knowledge Week), and to connect the community with industry, international connections, State Government, Local Councils and diversity of training options.

Melbourne Startup Ecosystem Report (Startup Genome, 2018) involves evidence-based strategy frameworks for start-up ecosystems. Through primary research conducted with over 300 organisations around the world, millions of companies and thousands of start-ups globally, it identifies strengths and gaps through four main components 1) the

ecosystem life cycle model, 2) ecosystem success factors and gaps, 3) sub-sector strengths, and 4) recommendations for policy action.

LaunchVic Impact Report (LaunchVic, 2019) portrays the agency's achievements since its creation in 2016. The report addresses the agency's engagement in developing the start-up ecosystem including aspects of its collaboration with other ecosystem actors (e.g. entrepreneurs, investors, corporates and universities), ecosystem metrics (e.g. start-ups supported, jobs created, diversity and inclusion), and support mechanisms in place (e.g. programs, events, support services, strategies), to sustain and grow the entrepreneurial ecosystem.

The documents were systematically analysed, applying 18 codes to obtain information relevant to the research—refer to Appendix O for a list of the codes and their description. The material gathered assisted in corroborating information, obtain ecosystem's facts and help inform the case.

4.3.3 Participant Observation

Observation was used as a tool to gain information about the context where the research was taking place (Creswell & Poth, 2018). It was conducted at an organisation focused on Melbourne's international student community and also offering co-working space. The participant observation process allowed access to one of the elements within the entrepreneurial ecosystem, helping to build links to participants' perspectives and to understand aspects occurring in practice. It allowed the researcher to immerse herself in that particular environment and gain insights into activities and interactions occurring in that space.

Observations took place during a period of four months (May-August 2019). Nine observations were conducted in total, lasting between one to three hours each. Field observations were recorded in a journal, transcribed and organised subsequently into an observational protocol—refer to Appendix P for an example.

Aspects considered during observations included:

- Physical setting
- Participants involved
- Activities
- Interactions

- Topics being addressed
- Researcher's reflections and insights

Co-working spaces are one of the areas in which entrepreneurial activity takes place. The benefits of conducting participant observation were gaining direct exposure to a co-working space environment and gaining sensibility of its connection to the overall entrepreneurial ecosystem. Caveats of conducting participant observation include limitations of note-taking while participating within the environment (Becker, 1958 as cited in Creswell & Poth, 2018). However, the environment was conducive of people working on their projects and teams, allowing time to observe and take notes without representing a significant challenge. Description was used as analysis and representation to describe the setting and provide a social context of what was observed (Marvasti, 2013).

4.3.4 Semi-structured Interviews

Following Rowley's (2012) recommendation for novice researchers, the researcher interviewed two acquainted entrepreneurs to practice the interview process, helping to trial the appropriateness of questions, interview structure and gain confidence in the process. Once this process was conducted, no major changes were made to the questions.

The majority of the interviews occurred face-to-face, except for three participants; one interviewed over the phone, and two over a video call. This since one participant was time constrained and two were overseas when the interview occurred. Interviews took place mainly at three types of locations within Melbourne: universities, participants' premises and co-working spaces such as Outcome Hub, Level 11, RMIT Activator, The Commons and The Goods Shed.

Several stages were followed to analyse the in-depth semi-structured interviews:

- Interview transcriptions
- Development of the coding scheme
- Thematic analysis

4.3.4.1 Interview transcriptions

Thirty-six interviews were conducted in total. Interviews with entrepreneurs lasted approximately 2 hrs each—reduced to 1 hr and 30 min when the participant was time-constrained. Interviews with other ecosystem actors were approximately 70 min each.

The first three interviews were transcribed from audio files into text documents by the researcher to gain an understanding of the transcription process. Each interview took approximately ten hours to transcribe. Given time limitations, the rest of the interviews were transcribed by a third company specialised in the transcription of audio data. Once transcribed, the researcher reviewed each document against the audio file to check for the accuracy of the transcriptions. Punctuation was corrected when required to ensure information was appropriately being conveyed as changes in punctuation can potentially affect the meaning. Formatting choices are considered part of the analysis as they can influence aspects of meaning and intent (Gee et al. 1992).

Where possible, the researcher completed sections within the transcript marked as [inaudible] and left it as such when it was not possible to amend, rather than guessing what the participant was trying to say. In an attempt to maintain the tone of the interview, verbal cues (e.g. laughs) were also added when considered relevant. Data were de-identified, making sure that participants' names or organisations were not included in the transcripts. As mentioned before, in Chapter 3, generic names were used instead. For instance, if the participant's organisation was named at the audio recording, it was changed to 'organisation A' or 'company B' during the transcripts check.

4.3.4.2 Development of the coding scheme

As recommended by Campbell et al. (2013), their suggested three-stage process was followed to code the in-depth semi-structured interviews, with some adaptations tailored to this specific study. The stages include 1) developing the coding scheme and assessing intercoder reliability, 2) establishing intercoder agreement, and 3) deploying the coding scheme. Two coders were required for the first two stages. The third stage required only one knowledgeable coder. The process of intercoder reliability and agreement was conducted to increase the quality and reliability of coding in-depth semi-structured interviews when only one primary researcher performs the coding.

Developing the coding scheme

The first stage involved developing a higher-order coding scheme and testing for intercoder reliability. To start, the primary researcher contacted a qualified researcher to assist with the process of second coding. To reduce bias, it was considered important that the research assistant (RA) had a notion of the area under study but had not been closely related to the project in the past. The RA was provided with information to become familiarised with the research, including the research's description, coding decisions, instructions, and an initial sample of codes. These codes were not exhaustive as the primary researcher perceived value in a second researcher going through the data, allowing flexibility for possible new insights and the adoption of an initial inductive approach to coding. Doubts were discussed and clarified.

The overall coding process consisted of three coding cycles. In every coding round, both researchers used different full-length interview transcripts, had an initial discussion before coding the documents independently, and a discussion after each coding cycle.

The first coding cycle included three full-length transcripts. The primary researcher randomly selected three transcripts, one from each participant group (PG1-3, PG2-6, PG3-25). It is acceptable to assess intercoder reliability on a sample of texts to be analysed, especially when costs do not allow multiple coding of text (Krippendorff, 2004); however, there is little agreement as to how large a sample of texts is appropriate (Campbell et al. 2013). In our case, the process began with three full-length transcripts, with transcripts length averaging of about 25 pages each. Separately and following an inductive approach, the RA and primary investigator coded the transcripts. An initial inductive approach was pursued to allow insights emerging from the data with a less structured approach and being open to the diversity of information within the data. The primary researcher utilised 'initial', 'descriptive' and 'process' coding aiming to apply certain filters to the coding process (Saldaña, 2016) that could help towards the research aims and reduce the likelihood of overlooking certain aspects when applying a general coding method.

The obtained codes were compared and discussed where there were discrepancies and confusion, modifying and adding new insights, to start developing a coding scheme. As codes and sub-codes started to emerge from the data, a process of categorisation naturally occurred, grouping related codes to facilitate the analysis. This process involved re-

organising codes, eliminating similar codes or duplicates and condensing codes into more relevant ones. Categories were restructured, and codes shifted in the attempt of organising the data. This stage also helped to provide a better understanding and align the researchers' coding techniques. Subsequently, on a deductive approach, the primary researcher started to complement this initial coding scheme with other codes and categories relevant to the conceptual framework for this study. At the end of the first cycle, the coding scheme was generated. It comprised a series of descriptive codes, initial codes were reduced to only a few concepts, and process codes regarding the micro-processes involved during start-up and growth.

The second coding cycle included one full-length transcript. Utilising NVivo 12 software, the two researchers coded a new transcript (PG1-9) independently using the coding scheme developed after session 1. At session 2, the researchers compared and discussed the process. It was concluded that the coding scheme needed additional adjustments, and further clarification was needed at codes and codes descriptions. Results from coding were not optimal to obtain intercoder reliability and agreement. The session helped towards refining the coding scheme, bouncing ideas and insights, bringing clarity and a better understanding of the codes and their descriptions.

The third and last coding cycle included one full-length transcript. The two researchers coded a new full transcript (PG3-4) independently, using the coding scheme developed after session 2, employing NVivo 12 software (refer to Appendix Q for a complete list of final codes and their description). Intercoder reliability and agreement were conducted in this last coding cycle. At the end of the process, a total of five transcripts were used before being satisfied with the results, representing roughly 15 per cent of the transcripts.

Intercoder reliability and agreement

Intercoder reliability involves the degree to which the coding of two or more equally qualified coders match when the coding is done independently without negotiation (Campbell et al. 2013). *Intercoder agreement* involves the process by which two or more coders resolve through discussion possible coding discrepancies for the same unit of text, for instance, those that can arise when some coders are more knowledgeable than others about the interview subject matter (Garrison et al. 2006).

Only descriptive codes were considered—without initial and process codes— to reduce complexity during the process because more direct knowledge on the topic was needed to classify these. The two researchers reviewed the entire transcript to compare similarities and differences obtained in the coding process. Out of 132 references coded, 68% of intercoder reliability was reached (90 items similarly coded and 42 differently coded). For establishing intercoder agreement, once differences were noted (42 codes), discussions took place explaining the reasoning behind each disagreement, establishing an agreement when appropriate. An agreement was reached in the majority of cases (88%), with a remaining 12% of cases in which agreement was not established.

Obtaining high intercoder reliability is a desirable outcome. However, it is important to avoid oversimplifying and reducing the number of codes to achieve this, for nuances and meaning in the data can be lost (Hruschka et al. 2004). Accordingly, satisfactory levels of reliability were sought, but avoiding sacrificing meaning in the process, taking into account that the coding scheme needed to allow the identification of important nuanced meanings in the data. Campbell et al. (2013) suggest that an intercoder reliability range of 70 to 94 % can be considered from 'acceptable' to 'exceptional'. Due to the length of the resulting coding scheme, 68% was deemed acceptable to continue with the next stage of the research.

Statistics (e.g. Kappa or Krippendorff coefficient) can also be utilised to measure the outcome. However, these were not deemed suitable for this study due to variations in the units of analysis among both researchers (derived by the initial inductive approach); instances where multiple codes applied for the same unit of text; and due to the complexity of the developed coding scheme (over 100 codes). Although this type of statistics can be valuable to generate variables to be used in statistical analysis, for this study, the objective of using intercoder reliability and agreement follows a similar approach to that of Campbell et al. (2013) used in qualitative analysis: develop a systematic and rule-guided classification and retrieval of text and enhance intercoder reliability and agreement during this process.

Once the second coding process was completed, and acceptable levels of intercoder reliability and agreement were attained, the last stage involved deploying the coding scheme on the full set of thirty-six transcripts.

4.3.4.1 Thematic analysis

As outlined in Chapter 3 at section 3.5.4.3, the study followed the six-step recursive process recommended by Braun and Clarke (2006) for conducting thematic analysis 1) familiarising with the data; 2) generating initial codes; 3) searching for themes; 4) reviewing themes; 5) defining and naming themes; and 6) producing a scholarly report of the analysis. The results of the thematic analysis are presented further at this chapter in section 4.5.4. The next section describes the analysis approach for the network data.

4.3.5 Network Analysis

Networks play a central role in successful venture creation and growth (Leyden et al. 2014; Davidsson & Honig, 2003; Aldrich & Reese, 1993). A firm's network relationships represent important pathways for the acquisition of resources required for both firm survival and growth (Gulati, 1998). Network analysis can assist in describing the structure of the network and capture aspects of individuals' positions in the network (Borgatti et al. 2018).

The present research focused on analysing the composition, interactions and associated resources within an entrepreneurial ecosystem; and how these elements and relations change at the stages of start-up and growth of the venture creation process. To study entrepreneurs' network dynamics within Melbourne's entrepreneurial ecosystem, the present study adopted a similar approach to Coviello (2006), focusing on 1) network structure (composition) and 2) network interactions. The elements studied are described in Table 4.2. It employed a network analysis perspective utilising a predominantly qualitative approach, complemented with formal aspects of SNA (for the structural dimension), to enrich the understanding of entrepreneurial ecosystems as networked structures at the level of the entrepreneur (micro-level).

The number of actors comprising each entrepreneur's network was not defined by a pre-established number; instead, the entrepreneurs were free to define the number of actors in their network, according to relevant (top of mind) key players/actors with which they interact at their particular stage (start-up or growth). Thus, results represented key actors within their networks and not their entire network.

Table 4.2 Entrepreneurs' Network Dynamics: Structural and Interactional Dimensions

Dimension	Measurement	Description	Approach
Structural Dimension	Network Range	Size of network (number of ties)	Determined by a count of no. of ties to other actors
	Network Density	Network level of connectedness	Proportion of ties that are connected given the number of pairs of potential ties
	Effective Size	Structural holes measure, redundancy factor	Measures how many different 'pots' of information ego can access/ Efficiency, similar to effective size except that it is normed by actual size (degree)
	Constraint	Structural holes measure, ties involving only a single actor, opportunities for action	Extent to which ego's ties are connected to alters who are connected to one another
Interactional Dimension	Content	Nature of relationships	Social (Family/friend) Economic (Business) Both
		Purpose of interaction	Resources obtained through the interactions between the entrepreneur (ego) and other ecosystem actors (alters)
	Duration	Stability of the network through time	Short term (one-off/few) Medium Longer (ongoing)
	Multiplexity	Different types of exchanges within the same relationship	Social and relational multiplexity captures the multidimensional nature of business relations

Source: Adapted from Coviello (2006)

The networks were constituted by cognitive ties or acquaintanceship ties (Borgatti et al. 2018)—by the entrepreneur indicating 'who knows whom' within his or her network—and the support and resources flowing through those interactions. Networks were analysed using UCINET 6 software (Borgatti et al. 2002).

The level of analysis used was the entrepreneur's egocentric network or ego network, consisting of a set of undirected dyadic ties, with the entrepreneur at the centre of the network. However, the study of egocentric networks involves a dual level of analysis requiring a simultaneous focus on both the network dyads (i.e. relation between a pair of actors) and the aggregation of the dyads composing the larger network (Hite & Hesterly, 2001).

4.3.5.1 Structural dimension

The structural dimension helps to understand aspects of the network structure and its relation to social capital (Borgatti et al. 1998; Burt, 2000). Based on Borgatti et al. (1998)

the analysis included 1) general network measures, 2) structural holes measures, and 3) measures of actors' position in the network relative to other actors (node's significance).

General network measures

General network measures include range and density. *Network range* refers to the size of the network, determined by a count of the number of ties to other actors. The greater the size of the network, the greater the potential access to information and other resources, leading to increased social capital (Davidsson & Honig, 2003; Borgatti et al. 1998). *Network density* refers to the number of ties that exists as a proportion of the total number of ties possible amongst a set of actors. It is a measure of network cohesion or connectedness (Borgatti et al. 2018), associated with the level of information exchange or coordination. Higher density values tend to indicate greater levels of connectedness in the network, influencing access to information and enabling trust (Coleman, 1988). In a different view, Burt (1992) argues that higher density values, representing greater connectedness levels, are also associated with higher levels of information redundancy, leading to lower social capital. This view relates to the scholar's notion of structural holes and the link of social capital with entrepreneurial opportunities.

Structural holes measures

Structural holes measures include effective size and constraint. A structural hole is the lack of a tie between two alters within an ego network (Burt, 1992). Structural holes are related to the potential for brokerage and non-redundant ties. Individuals located between two or more set of individuals broker the information flowing between alters. If the broker was absent, the alters would be disconnected, thus generating a structural hole. People in structural holes can have more advantages or success. Unconnected alters are more likely to offer ego different points of view or more novel information. When the ego is connected to different pools of information, the ego is likely to receive more non-redundant information, providing the capability of performing better or being perceived as the source of new ideas (Borgatti & Halgin, 2011).

Effective size is defined as 'ego's degree (i.e. the number of alters ego has) minus the average degree of her alters within the ego network (which can be seen as a measure of their redundancy)' (Borgatti et al. 2018, p. 319). That is the number of actors that the entrepreneur is directly connected to, minus a redundancy factor that represents the overlap between the direct ties the entrepreneur holds. It differs from the 'network range'

by accounting for redundant ties. *Efficiency* is the ratio of effective size to the actual size of the ego network. As this ratio is more meaningful for comparison purposes, the value of efficiency is the one used. The greater the value, the greater its growth of non-redundant ties, thus greater potential for information and control benefits.

Constraint measures the extent to which all of the ego's ties directly or indirectly involve only a single actor (Borgatti et al. 2002). As explained by Borgatti et al. (2018), this reflects on the investment of ego's time and energy in alters who invest in each other, in addition to losing freedom rather than gaining it, because egos become more constrained when alters have a higher number of relationships with other alters. The lower the actor's constraint, the greater the opportunities for action. It is an inverse measure of structural holes in that a smaller number, indicates more structural holes.

Node significance

The significance of nodes was analysed through centrality measures. In particular, to identify key actors within entrepreneurs' networks. *Centrality* refers to measures that portray an actor's position in the network relative to other actors. This property relates to the structural importance of a node, considered as the contribution a node is making to the structure of the network. For example, the importance of a node may rely on that the removal of the node could disconnect the network. Or a node could be important for being connected to a large number of ties within that network. When considering things flowing through the network, such as information, the position of a node could influence the access of information and influence the speed in which it is received. Alternatively, it could also relate to a node being able to control the information flow because of its position in the network (Borgatti et al. 2018).

Three measures were utilised for this task: closeness, betweenness and degree. *Closeness centrality* refers to how close a node is to any other node within the network. In a flow context, the normalised measure of closeness centrality can be interpreted as the minimum time until arrival, e.g. information flowing through the network (Borgatti et al. 2018). UCINET 6 uses the sum of geodesic distances (Freeman method) for calculation of normalised closeness centrality. In this method, the software first calculates the 'Farness', which is the sum of the lengths of the shortest paths from the alter to all other nodes. Then closeness is calculated as the reciprocal of farness and is normalised according to the network size (Borgatti et al. 2002). Thus, the inverse of the average

distance to others in the network is used as a measure of closeness centrality. In that case, higher values indicate a more central position (Hansen et al. 2020).

Betweenness centrality captures the node's role as a connector or bridge with other groups of nodes. It measures an actor's level of brokerage within the network. Nodes with a high level of betweenness centrality act as gatekeepers in the network. These nodes are important for connecting different groups and monitoring/helping the flow of information or resources.

Degree centrality measures an actor's ties with other members of the network. That is the level of connectedness of a node to others. Higher values indicate greater connectedness of a node to others but do not portray the role they play in the network. These measures imply aspects such as the capacity of a node to affect other elements in the network, how easy a node can reach others, and a node's capacity to act as a gatekeeper in the network; influencing the connection of different groups within the network or the flow of information or resources (Borgatti et al. 2018).

4.3.5.2 Interactional dimension

To assess the nature of network relationships, network ties were analysed according to content, durability and multiplexity. Tie *content* helps understand the composition and diversity of network ties. The analysis of tie composition focused on 1) social and/or economic, and 2) purpose of the interaction. Concerning diversity, Hoang and Antoncic (2003) indicate that a relationship can have social and economic components. As such, social ties were identified as 'family/friend', economic ties were identified as 'business', and 'family/friend & business' when the relationship included both. Purpose of the interaction was associated in this study with tangible and intangible resources obtained through the interactions between the entrepreneur (ego) and other ecosystem actors (alters).

Tie *durability* allows an understanding of the stability of the network through time (Larson & Starr, 1993). Each tie was assessed for its durability in terms of the length of the relationship and was identified as short term (one-off/few), medium-term (months) or long term (years/ongoing).

Multiplexity was explored to dive further and complement the more common compositional aspect of social and/or economic ties. Multiplexity is defined as 'layering of different types of exchanges within the same relationship' (Hoang and Antoncic 2003, p. 169). Different levels of multiplexity have implications for the value creation process and represent higher interdependence in the relationships in the entrepreneur's network. Social and relational levels are used for this analysis. Social multiplexity refers to the dichotomous layering of 'business' and 'social' relations within a single relationship. It captures the influence of social embeddedness on business transactions but does not comprise the multidimensional nature of business relations. Relational multiplexity refers to multiple interdependent layers of business and social exchanges within a single relationship (Bliemel et al. 2016).

4.4 Overview of Results Section

This section presents the results of the investigation. It initiates with the boundaries and a description of the case. Subsequently, it reports the findings obtained through the different sources of evidence.

4.5 The Case: Melbourne, A Thriving Environment for Entrepreneurial Activity

Embracing the idea that entrepreneurial ecosystems are locally embedded systems (Fraiberg, 2017; Spigel, 2017), this investigation uses a single case to study this phenomenon. The research uses diverse sources of evidence and incorporates several and knowledgeable informants that perceive the phenomenon from diverse perspectives.

4.5.1 Study Boundaries

The research is situated in metropolitan Melbourne. Also known as Greater Melbourne, metropolitan Melbourne is the geographical area that delineates Melbourne as a city and the capital of the state of Victoria. Comprising 31 Councils, Melbourne has a population of approximately 5.1 million people (ABS, 2020b).

4.5.2 Case profile: Melbourne's Background

4.5.2.1 Cultural, economic and social conditions

In the 20th century, Australia's economy was shaped mainly by the export of commodities, particularly agricultural produce and minerals, and a focus on manufacturing activities. During the 1970s and 1980s, partly driven by a growing recognition that SMEs constituted a significant part of business communities, the role of small businesses as job creators and as a solution to unemployment grew globally; reflecting in the formalisation of small business policy and the creation of government agencies dedicated to this area. This trend was present in Australia as well. Although small business policy was already being developed, in the 1980s Australia experienced significant economic reforms and entrepreneurship-oriented policy initiatives started to emerge (e.g. The New Enterprise Incentive Scheme launched in 1986). Businesses continued to emerge, with Business Enterprise Centres being created—aimed at assisting start-ups and established SMEs—and the development of small business policy focused on improving the business environment (Mazzarol & Clark, 2016).

Regarding Australia's business composition, the vast majority of Australian businesses are small businesses, accounting for 33% of Australia's GDP and employing over 40% of Australia's workforce. Three business categories—non-employing or sole traders, micro-businesses and small businesses—ranging from 0-19 employees, account for 97.4% of businesses; medium businesses (20-199 employees) for 2.4%; and large businesses (200 or more employees) only account for 0.2%. Concerning innovation within businesses, some small businesses engage with technology and design; however, only 30% engage in product innovation (Australian Government, 2016). Australia's approach and efforts to develop small business and entrepreneurship centric policy have continued, accompanied with the development of Australia's international competitiveness through science and innovation, with initiatives such as the Department of Innovation, Industry, Science and Research (2007-2011), the Australian Small Business and Family Enterprise Ombudsman and the National Innovation and Science Agenda. By 2016, the importance of entrepreneurship had been recognised at a national level; emerging as a major focus at universities and other education institutions (Mazzarol & Clark, 2016).

Victoria's priority industries and sectors comprise Construction technologies, Creative industries, Defence technologies, Digital technologies, Food and fibre, International

education, Medical technologies and pharmaceuticals, Professional services, Retail, transport distribution and logistics, Space technologies, Visitor economy and Victoria's racing industry (Victoria State Government, 2020a).

Melbourne is Australia's second-largest city. Melbourne's socio-economic make-up had a significant shift within three decades; from a working-class engaged in industries including manufacturing, transport and construction in the 1970s, to primarily managers and professionals by the early 2000s, with an increased amount of people employed in areas such as finance, insurance, property and business services (Dingle & O'Hanlon, 2009). By 2015, the majority of businesses in Melbourne were non-employing businesses and micro-businesses with fewer than five employees (Table 4.3).

Table 4.3 Melbourne's Business Composition (2015)

Business	Description	No.	%
Non-employing businesses	Sole proprietorships and partnerships without employees	258,022	61
Micro-businesses	Between 1 and 4 people	116,138	28
Small businesses	Between 5 and 19 employees	35,619	8
Medium or large businesses	20 or more employees	9,914	2
Total		419,693	100

Source: ABS (2015)

In Melbourne, industry sectors with a greater concentration of businesses include construction; professional, scientific and technical services; rental, hiring and real estate services; financial and insurance services (ABS, 2015). The state and local governments have implemented strategies to attract investment and create jobs. Strategies have included fostering information technology; building a learning society; growing the industries of the future; connecting communities; fostering innovation; shaping Melbourne into a culturally vital, attractive, people-focused and sustainable city; improving infrastructure and access, among other. These efforts have contributed significantly to knowledge creation, economic growth and development, turning Melbourne into a globally recognised, entrepreneurial and competitive knowledge city (Yigitcanlar, 2005).

As such, Melbourne is a vibrant, multicultural, attractive city that embraces cultural diversity, promotes inclusivity and cultural exchange. Some of the attributes contributing to the city's liveability include the arts and sports scenes, high-quality food and coffee, green areas, accessible inner-city transport system (City of Melbourne, 2017), positioning it as the world's Most Liveable City for seven years in a row (2011-2017) by the Global Liveability Index, ranking that assesses factors across categories of Stability, Healthcare, Culture and Environment, Education and Infrastructure (Economist, 2020). The aspect of liveability and cultural facilities (e.g. coffee shops, bars, theatres, museums, libraries, parks and other cultural places) add to the city's captivation, attracting talent from diverse international backgrounds.

Melbourne is represented with one of the most culturally diverse communities, composed of a wide variety of cultures, from Victoria's Indigenous inhabitants to migrants from countries in Europe, Asia and Africa. Four significant waves of migrants brought people to Melbourne; in the 1830s the European settlements, in the 1850s, the gold rush attracted people from all over the world, with a significant number coming from China. After WWII, refugees and displaced people came from Europe, and after the 1970s, the fourth significant wave came with people migrating from Vietnam and Cambodia (City of Melbourne, 2020).

More recent arrivals include those of the international student community. Each year, more than 200,000 international students from over 170 countries enrol in Victoria to study (Study Melbourne, 2020). This contributes importantly to the Australian economy, being the education of international students Australia's 4th largest export—behind iron ore, coal and natural gas (Universities Australia, 2020)—and Victoria's largest service-based export (ABS, 2018). Many of these students choose Melbourne as their destination to visit, live and study (Global Victoria, 2019).

4.5.2.2 Development of Melbourne's entrepreneurial ecosystem

In the late 1990s, Melbourne saw the development of businesses that later became global as a product of the 'dot-com boom', such as Realestate.com.au, Seek.com.au and Carsales.com.au. However, the start-up scene was relatively quiet. In the first decade of the 2000s, there were only a few technology start-ups and the presence of social entrepreneurship was small; alongside a few co-working spaces and small meet-up groups. Access to venture capitalists was difficult, mostly unlocked only through

connections, and feedback was not readily available without the pressure of having to do a formal pitch. A few involved and committed entrepreneurs and investors were the ones pushing the ecosystem forward. Things started to gradually flourish with the creation of different meet-ups, monthly start-up events and pitch competitions. By 2014, founders got together and began a Meet-up group that grew to the formalised Startup Victoria, a not-for-profit organisation now comprising over 19,000 people working towards supporting the start-up ecosystem (Startup Victoria, 2020). The start-up scene increased exponentially, showing there was an appetite for entrepreneurship. Specific verticals started to emerge, with FinTech being one of the first.

In 2016, the government joined the entrepreneurial arena and LaunchVic, Victoria's start-up independent agency, was established. Adopting a model of entrepreneurship support from MIT Sloan School, LaunchVic was created to support the growth of Victoria's start-up ecosystem. This, through programs aimed at building start-up and investor capability and connectedness, research engagement for better understanding of the ecosystem, and events supporting and connecting entrepreneurs and other ecosystem actors. By 2018, Victoria had over 2,770 active start-ups and scale-ups across different stages of development. LaunchVic has invested over $46m in programs to grow the start-up ecosystem. This support includes over 110 programs, 1,145 entrepreneurs supported through Bootcamps and Hackathons, and more than 25,000 people connected through events and meet-ups. The Health start-up sector was one of the key sectors in which resources were allocated ($4.8 million). Other associated outcomes to such support include an increase of accelerator programs—from 3 accelerator programs in Victoria in 2015 to 28 in 2019—the subsequent start-up growth and new jobs created by start-ups; all contributing to the now valued $3.2b start-up ecosystem (LaunchVic, 2019).

The City of Melbourne has also continued to allocate efforts towards the start-up scene, aiming to help start-ups and support entrepreneurial activity. In 2016, it engaged with 240 start-up community stakeholders to gather information on Melbourne's strengths and needs related to starting, growing and going global. Working with more than 400 local stakeholders, a plan (2017-21) was then developed to support start-ups and entrepreneurs, in collaboration with other actors such as LaunchVic, academic institutions and the private sector. The plan supports four main aspects: sustainable growth (support services to attract talent, investment and customers), places for innovation (accessible places for innovation), inclusive and collaborative culture (start-up

community initiatives), and adaptive governance (access to data, resources and business opportunities for start-ups). These initiatives add to numerous services already in place supporting start-ups such as the City of Melbourne's Small Business Grants Program and the annual Knowledge Week which fosters creativity, innovation and promotes start-ups (City of Melbourne, 2017).

More recently, in 2018, the Victorian Innovation Hub was launched with a mix of accelerators in AgTech, MedTech, FinTech and Cybersecurity. After the contribution of diverse actors, the ecosystem has been expanding. The number of events, programs and co-working spaces have significantly grown. University accelerators have developed and improved, with also many other accelerator programs around. There has been an increase of mentoring, entrepreneurship education and training options; while success stories such as Airwallex, Aconex, Envato, Rome2rio, CultureAmp, Red Bubble and 99designs are leading the ecosystem's growth (Startup Genome, 2018). While Victoria's strong specialisations are in Health, Media and Entertainment, Enterprise and Commerce (LaunchVic, 2018), Melbourne performs strongly in three innovation sub-sectors AdTech, BioTech and Life Sciences, and HealthTech (Startup Genome, 2018). All these efforts have contributed to position Melbourne as Australia's most innovative city (and 11th in the Global rank), according to the Innovation Cities Global Index, an index now in its 12th year, ranking 500 cities across the world (Innovation Cities Index, 2019).

The ecosystem is flourishing; however, there is still much to do, as portrayed by LaunchVic's (2019) recent impact report. The report signals that albeit all the progress made, the ecosystems' start-up density is lower than other ecosystems and the investor community is underperforming. A trend similarly depicted by Startup Genome (2017; 2019), reporting that while early-stage funding per start-up in Melbourne was $157k during 2017, it decreased to $155k in 2019—while the Global average was $252k in 2017 and $284k in 2019. Showing that not only there is a significant early-stage funding gap between Melbourne and the global average, but also indicates that during the past few years, early-stage funding has reduced in Melbourne. In short, ecosystem stakeholders' efforts have had fruitful effects developing the ecosystem in significant ways. However, to sustain and grow the ecosystem, improvements of the mechanisms in place are still needed to support and drive the ecosystem forward.

4.5.3 Sample Demographics

The sample consisted of three participant groups as reiterated in Table 4.4. As previously stated, following an entrepreneurial ecosystem approach, it was deemed important to include entrepreneurs not only at start-up but also those at a more established stage and in the process of growth, and other relevant ecosystem actors with which entrepreneurs interact.

Table 4.4 Participant Groups

Participant Group	Ecosystem Actor	Description
PG1	Entrepreneurs at start-up stage	Ventures under 3-years old, also comprising early-stage or nascent entrepreneurs; all sizes considered
PG2	Entrepreneurs at growth stage	Ventures more established, intentionally growing beyond survival, operating for 3 years or longer; all sizes considered
PG3	Other ecosystem actors	Universities, government, financial organisations and support services (e.g. accelerators, incubators, start-up communities, co-working spaces, mentors)

The sample comprised 36 participants in total, 21 entrepreneurs and 15 other ecosystem actors (Table 4.5). Efforts were made to include female entrepreneurs; however, they only represent 19% of the sample. The reason for the gender imbalance may be a reflection of the gender imbalance in entrepreneurship (Obschonka et al. 2014). Although Australia counts with well-positioned levels of female participation among the developed economies, the significant gender gap with males is a situation commonly observed around the world (GEM, 2019).

The entrepreneurs' group included 11 entrepreneurs at the start-up stage and 10 entrepreneurs at the growth stage. The entrepreneurial ecosystem approach is not specific to a given industry sector or technology domain (Autio et al. 2018). Accordingly, no particular industry was targeted. Entrepreneurs' businesses included diverse sectors and areas including Software as a Service (SaaS), Internet of Things (IoT), Automotive, Employment, Beauty, Space Technologies, Education, Chemical Manufacturing, Food and Beverage, Telecommunications, Cybersecurity, Digital Marketing, Financial Services, Healthcare, Hospitality, Recreational Vehicles and Business Consulting.

Table 4.5 Sample Demographics

Demographic Measures	All Participants		Entrepreneurs		Ecosystem Actors	
	No.	%	No.	%	No.	%
Data Sample	36		21		15	
Gender						
Female	9	25.00	4	19.05	5	33.33
Male	27	75.00	17	80.95	10	66.67
Age Groups						
< 25	1	2.78	1	4.76	0	0.00
25 – 29	6	16.67	5	23.81	1	6.67
30 – 34	5	13.89	4	19.05	1	6.67
35 – 39	9	25.00	4	19.05	5	33.33
40 – 44	2	5.56	1	4.76	1	6.67
45 – 49	3	8.33	2	9.52	1	6.67
50 – 54	6	16.67	2	9.52	4	26.67
55 – 59	1	2.78	0	0.00	1	6.67
> 60	3	8.33	2	9.52	1	6.67
Education						
Less than year 12	1	2.78	1	4.76	0	0.00
Bachelor's degree	14	38.89	8	38.10	6	40.00
Postgraduate Diploma	4	11.11	3	14.29	1	6.67
Master's Degree	11	30.56	6	28.57	5	33.33
Doctorate	6	16.67	3	14.29	3	20.00

In Victoria, 34% of founders are born overseas; in Melbourne, one in four entrepreneurs are born overseas (LaunchVic, 2019). In the study at hand, nearly 50% of the sample was born in countries other than Australia, with participants coming from a vast diversity of countries, as portrayed in Figure 4.2.

Ecosystem actors from financial organisations, government, support services and universities helped inform the research from their perspectives, contributing with their experience in different areas of specialisation. Ecosystem actors participating in this study are depicted in Table 4.6. The possibility to access diverse perspectives from different angles and experience is considered a strength of this study.

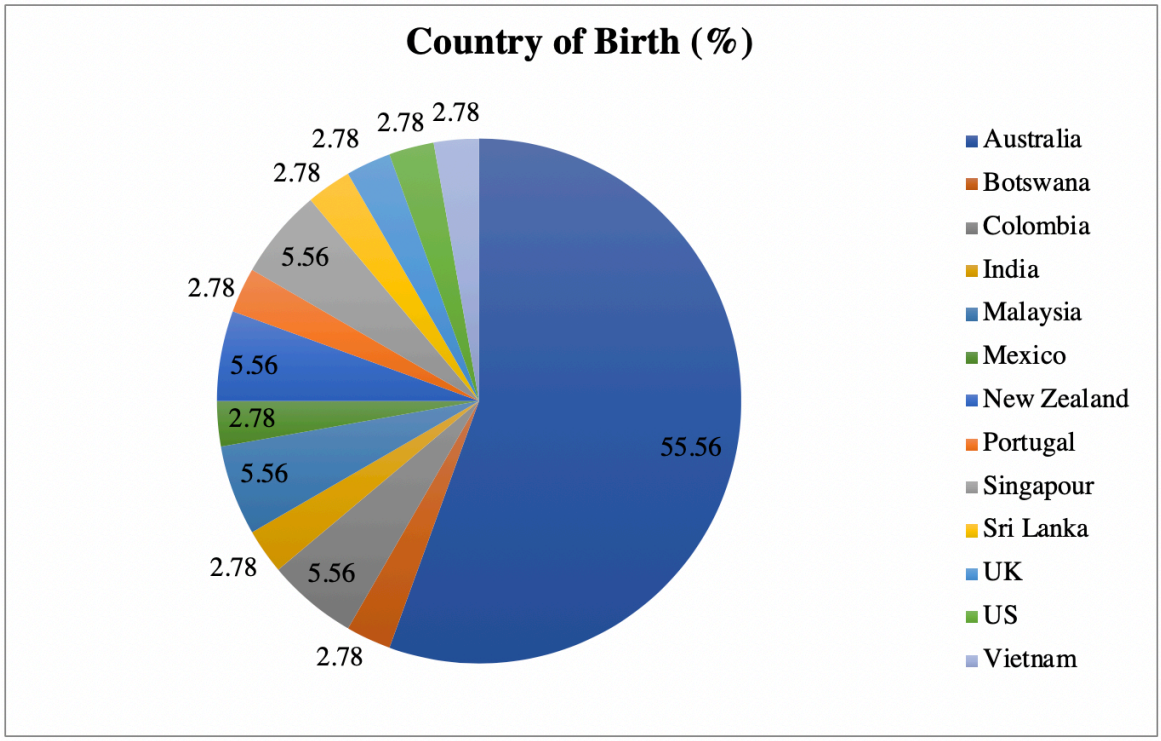


Figure 4.2 Sample's Country of Birth

Table 4.6 Other Ecosystem Actors

Categories	Positions	Roles/Activities
Finance	N/A Co-Founder Consultant	Angel Investor Crowd-funding Financial Educator
Government	Ecosystem Advisor (former) Senior Advisor	Start-up Ecosystem Support Enabling connections between Government and other actors
Support Services	Program Director Executive Director CEO Founder Manager Operations Analyst Director	Start-up Community Support Regional Economic Development Incubation and Co-working Space Mentor and Advisor Accelerator-Research Incubation and Co-working Space Start-up Community Support and Advisor
Universities	Senior Lecturer Manager Director	Education, Mentor, Advisor Research Commercialisation Management and Strategic Planning in Entrepreneurship Education

4.5.4 Thematic Analysis

This section describes the developed themes from the thematic analysis. Following Saldaña's (2016) adapted coding model process for qualitative inquiry, over 100 codes and sub-codes were obtained (Appendix R). Creswell & Poth (2018) recommend that irrespective of the size of the database, final codes should be aggregated into no more than 25 to 30 categories of information. After an immersion period of analysis and synthesis, 10 main categories were derived.

1. Local Characteristics
2. Entrepreneurial Culture
3. Entrepreneurial Activity: Start-up/ Growth
4. Government's role in the ecosystem
5. University's role in the ecosystem
6. Support services' role in the ecosystem
7. Networking
8. Funding
9. Market
10. Ecosystem

Twelve themes were developed among the resulting categories. These are presented and described next.

4.5.4.1 A cosmopolitan, progressive and multicultural society

Concerning local characteristics, numerous participants identified Melbourne as a cosmopolitan, progressive and multicultural society. A cosmopolitan city, rich in culture, arts and creativity. This manifests through a myriad of events, festivals and activities that allow and promote cultural experiences, making of Melbourne a vivid and attractive city.

> *"My sense is that the city of Melbourne, that the business environment is rich in culture and arts and creativity, in a way that is different to other cities in Australia. So I think that that is a real strength… I think Melbourne is a bit of a festival city. So, there's lots of events and public programming and lots a meet-up groups and that kind of stuff. It's quite diverse in that way. So, I think people find that really motivating, really inspiring." (PG3-10)*

"I think Melbourne's very hipster. Like for my product, I think it's a very hipster thing. If we were in another city, say maybe Sydney, I'm not sure it would catch on as well. I think Melbourne is a really good spot." (PG1-18)

Talking about progressive societies, Australia is one of them. Ranking within the top tier positions, the country occupies No. 12 (out of 149) in the Social Progress Index rankings (Social Progress Imperative, 2019), represented by its access to quality education, healthcare, personal safety, personal freedom, and its inclusiveness, among other. This is transmitted not only to Melbourne but is also infused into Melbourne's entrepreneurial ecosystem, as mentioned by the following participants.

"Melbourne is particularly focused on inclusivity and diversity, I find. That could just be because I am inside the bubble. But that language is very pervasive, and I think that Melbourne and Melbourne's leaders would typically not take shit from people who were, you know, pushing non-diverse, non-inclusive cultures. So, I think that's really strong. I think the Melbourne start-up community takes it upon themselves to be leaders in social entrepreneurship and social inclusion. Supporting first generation migrant entrepreneurs, that kind of thing." (PG2-21)

"I've never tried to do it anywhere else, but the culture in Melbourne is quite progressive. When you tell people you're an entrepreneur or you're trying to do this new business thing, most people are impressed, or they're interested in what you're doing. I think because, I guess, the lifestyle here is quite creative so there's a lot of people doing lots of different things." (PG1-14)

In respect to multiculturalism, Melbourne is notably a multicultural society. The last census conducted in 2016, showed that in Greater Melbourne (Greater Capital City Statistical Areas), 60% of people were born in Australia, while 34% were born overseas; with common countries of birth being India 3.6%, China 3.5%, England 3.0%, Vietnam 1.8% and New Zealand 1.8% (ABS, 2016). Melbourne's society has been influenced by its migrants, coming from diverse countries, each characterised by its specific culture.

"I think Melbourne in particular, is a fantastic start-up community mainly because it's constituents are migrants. If you think about the migrants that have come to this country starting just after the second World War, all the Italians and

the Greeks that came from Europe, Southern Europe, they came here without anything and had to start businesses. They started the fruit shops, the takeaway food shops, fish and chips shops, restaurants, everything to do with food because that was the easiest thing for them." (PG1-3)

Melbourne's society has managed to integrate the diverse influx of cultures. Such combination has also amassed different points of views, a diversity of influences manifested through a sense of community and an openness to new ideas.

"Melbourne, in particular because of its cultural diversity, I believe it has got a massive advantage… I get the feeling that Sydney, as a rival, I don't think that they have as much intermingling with the cultural diversity. They're more segregated. Whereas here, we're all working together. Somehow Melbourne's been able to do that… I hear, that in Sydney, a certain culture lives in a certain area. Whereas in Melbourne we're all together. Whatever Melbourne has done, and I think it's through food and cuisine, I think we bring people together. I would not want to have started it [the business] anywhere else but here." (PG1-3)

"I think that the beautiful part of Melbourne is that Melbourne is built on immigration and so everywhere that you look around Melbourne, from big businesses right through to the small corner store, is immigration. And so from that perspective, we're very supportive of different people that are working towards something new." (PG3-12)

"One of the enduring attributes of Melbourne is its sense of community. I think because it's a migrant city, it's had waves of migration from all parts of the world since its establishment, whether they've come from United Kingdom, or Northern Europe, you know, Southern Europe, the Middle East, Asia. We're starting to see from South America, and Africa. It has integrated these people better than other cities. Its sense of community has been quite strong, and I think that's why for many years it was the most liveable city. I think community is important because it's a meta-norm, so people all identify with this." (PG2-6)

Part of the wealth of the cultural diversity derives from the large numbers of international students coming to Melbourne each year. A majority of international students come to Australia from North-East, South-East, Southern and Central Asia. Other students also come from countries in the Americas, Africa and the Middle East and Europe (Universities Australia, 2020). The international student community allows for cultural exchanges to occur, as one participant explains.

> *"I think having a lot of internationals here helps to shape it also, so you've got people from different countries and different ideas. Part of it, when I was studying, I met a friend from India and he was actually teaching me how the businesses in India helped to 'massage the message' of selling it for people. How to make it more palatable for your customer to accept to pay a certain price. So this is a sort of cultural exchange, which I would not have thought of if I was back in Singapore." (PG1-9)*

While some of these international students join the workforce after graduation, some also decide to engage in entrepreneurial activities, either by starting their own business or working at a start-up. These young graduates add to the entrepreneurial ecosystem.

> *"When you spend a lot of time talking to international students, you'll hear them say directly, "I'm here studying a course, that's not what I want to study. My parents had told me they're paying for it, this is what I got to study. When I go home, I've got a husband/partner/wife planned out for me, and my job's all nailed. They know somebody who's going to get me a job in corporate, or I'll work for the family firm and I don't want to do that. I want to do something else completely different. I want to start my own business." (PG3-25)*

Immigrants contribute in diverse ways to the ecosystem. Roundy et al. (2017) state that people's diversity (e.g. demographic characteristics, entrepreneurial intentions) within entrepreneurial ecosystems is associated with having, collectively, a greater breadth of knowledge and increased responses available to the ecosystem. Also pointed out by an entrepreneur.

> *"[In Melbourne] you've got an amazing group of people who you can employ. And I think that's very, very valuable… And really diverse talent, right? So you*

know, I would say diversity is what we always aim for. And you've got that when you've got a mix of lots of international students from different parts of the world with some domestic students, and everyone's across every discipline almost. I think that's really good because it just brings a whole different way of approaching problems, and you can learn a lot from that."(PG2-13)

Melbourne's characteristics (e.g. creativity, inclusivity, diversity) are infused into the entrepreneurial ecosystem, making it an attractive place for individuals and entrepreneurs.

"I think that the city of Melbourne has a really strong brand, globally. So it actually attracts a lot of talent and it attracts a lot of ambition. So I think that people feel like if they want to do something new, or they want to do something innovative, then Melbourne is a good place for it." (PG3-10)

Thus, the city's attractiveness, inclusivity and diversity from a multicultural community shapes not only Melbourne's culture but also the entrepreneurial ecosystem scene. As such, characteristics present in Melbourne's environment (e.g. sense of community, creativity, diversity), also manifest in the entrepreneurial initiatives taking place.

4.5.4.2 Normalising entrepreneurship to increase awareness and cultural acceptance

Ecosystem stakeholders' efforts (e.g. entrepreneurs, investors, support organisations, government, universities), and Melbourne's particular characteristics, have been conducive to improvements in the ecosystem. Also, significant progress has been made in embracing entrepreneurship, as recognised by participants.

"I think we have a lot of support mechanisms. We have a lot of meet ups. We have a lot of co-working spaces. I think the universities are now embracing start-ups as an alternative to corporate employment." (PG1-3)

"I think the things like universities now starting entrepreneurship courses give a credibility that, "Hey this is pretty good because these conservative universities they're teaching it", which is good. And you can get it that way. And once you had to learn it yourself, but now you can go and get the first version of it from a university. I think it feeds on itself and it's one of those things like it's throwing a

rock into a pond. The ripple effect of one person to be successful, makes or encourages or allows someone else to have a go." (PG2-32)

"What I'm seeing is there's a greater level of acceptance of being an entrepreneur. I'm also seeing that the Melbourne community is understanding what entrepreneurship is. So, they are acknowledging the fact that if you consider yourself somebody who's an entrepreneur, then they will be supportive of you because they will recognise a couple of things. And this is just the general population, will look at somebody and say, "Oh, you're an entrepreneur." That means the following, A) you're taking on a lot of risk to try and help the community grow and be a better place, and B) you're more likely to be taking on a lot of risk, but you're also probably in really innovative and creative spaces… So, I think that the Melbourne entrepreneurial community has created that. They've really lifted the profile of what it means to be an entrepreneur. Which I think is a really good thing because I think it means that community accepts and acknowledges that there's a real place for it and it's very important to have it." (PG3-12)

Participants suggest a gradual change towards a better acceptance of entrepreneurship in recent years. However, there are still underlying aspects in need of attention within the entrepreneurial culture. These include the not novel 'Tall poppy syndrome' and the term 'entrepreneur', being to some extent, associated with a pejorative connotation. The 'Tall poppy syndrome' aspect predominated in most of the participants' conversations. Historically present in Australia and embedded in its culture, this issue also permeates into the entrepreneurial culture, undermining entrepreneurship and the celebration of success.

"I think Australia has a funny thing with entrepreneurs, because they want to support them to see them to get off the ground, and it's like, "I'll support my friend or this person, we want to see them succeed". But then they have this thing in Australia, I don't know if you've heard of it, called the Tall poppy syndrome, then there's that at the other end. So, it's almost like we want you to get started and do well, but then if you do too well, then we're going to say, "Oh no, you're doing too well." So, it's a funny thing." (PG1-24)

"Australia has this Tall poppy syndrome, as they call it, where they don't celebrate success. In fact they like to try and rip the people down who are doing well. That works against the entrepreneurial ecosystem. So, if I compared Melbourne directly to some of the other ecosystems I've been to around the world, that's noticeable. It means, it makes a lot harder for people to do well, get supported. And everyone wants you to do well but until you reach a certain point. And when you get beyond that certain point, then it's almost like, things start going backwards for you." (PG1-7)

"I think this kind of idea that Australians kind of do this Tall poppy thing, cut people down and are not tolerant of mistakes, I think is broadly true. And I think even in the start-up community, in the bubble that I'm in, although people say they don't like that and it's not good, I still feel like they do it anyway. When Shoes of Prey went bust, suddenly everybody's saying, "I knew that would happen. Of course, the customisation trend was so three years ago," or the … whatever. And so I don't think we verbally reward people for just giving it a go. We always look at what they should have done on something." (PG3-26)

The Tall poppy syndrome is a recognised element of the Australasian culture, that can negatively affect entrepreneurship, for instance, influencing views on success (Kirkwood, 2007). As another participant describes, while commenting on this same issue:

"Now, they're entrepreneurs, they've cheated to get there". No. They've worked harder than anyone else. What we actually are doing in this country in many areas, but this is diminishing as well, we cheer for mediocrity, we don't cheer for success. When I work overseas, we cheer for success… It's a very English thing. Which means that Australia and New Zealand, and because our friends are New Zealand, we tease each other about it, we're both terrible at that… There's a cultural thing about [success], as well, "don't show off". "Don't blow your own trumpet". And that's okay too, in some cultures. If you go to other cultures, it's expected. "You're a role model. Be loud. Be out there, because I want to aspire to what you want to do". This is the first problem of entrepreneurship in Melbourne. We don't know which model to use." (PG3-4)

Although this does not suggest all entrepreneurs might be equally influenced or affected by the Tall poppy syndrome, it still appeared to be a dominant narrative among the majority of participants in this study; evocative of a cultural barrier that obstructs recognition and celebration of success, ultimately undermining entrepreneurship. Furthermore, although acknowledged that it has been changing, it was observed that the term entrepreneur is still associated with a pejorative connotation.

> *"In Australia, we don't generally think being an entrepreneur is necessarily a good thing. We don't necessarily think being in business or a businessperson is a good thing. I think in the States, if you're an entrepreneur, that's quite respected, but here, I don't know... I don't think we do… We've had some dodgy entrepreneurs and people don't like that, and we don't like people that are boastful, and that's what people think when they think of entrepreneurs. And in all the years ... maybe 30 years, 40 years we've had an Australian of the year, only once has it been an entrepreneur. And that was Dick Smith in the '80s, I think. But we honour scientists and sports people, army people, doctors, but business people not so much." (PG3-26)*

> *"The old days, in fact I've seen it on the news again recently is that, when someone succeeds in business in Melbourne, they're a successful businessperson. When someone's failing, they're always named a failed entrepreneur. A pejorative, a negative, because we think they're risk takers, gamblers, crooks, robbers, criminals, those of the early 70s and 80s, that sort of history. Where people did lots of terrible things with other people's money. But that wouldn't happen today, would it?" (PG3-4)*

> *"When I was starting my career, and when I was younger almost calling someone an entrepreneur was a derogatory term. And I don't think that exists anymore, and I think young people now entering the workforce probably wouldn't be aware of this kind of past derogatory use of the word entrepreneur… I think that's changing. I think there is a lot more respect for people starting businesses, and looking at how things could be done better, and what opportunities exist to create businesses that can change our life." (PG3-28)*

As the social context surrounding individuals is bound to influence the person's motives, cognition, intention and action (Welter, 2011), entrepreneurs' start-up decisions may be influenced by the prevailing values of the social context in which they are embedded (Hayton et al. 2002).

> *"I think normalising entrepreneurship and entrepreneurial behaviours is something we can do, and that's partly why we're doing train the trainer with teachers, because if we can get it into kids earlier, if we can get teachers changing their mindset... teachers are very conservative. If you can change their mindsets around entrepreneurship, then maybe some of those changes can happen more broadly." (PG3-26)*

Culture and, specifically, positive societal norms and attitudes towards entrepreneurship, are important elements of entrepreneurial ecosystems (Isenberg, 2011). As this participant precisely articulates, more work is needed to shift the community's ethos, highlighting positive aspects of entrepreneurship and allocating efforts towards the assimilation of the concept in order to, eventually, shift beliefs and behaviours towards entrepreneurship.

4.5.4.3 Triggers of an entrepreneurial culture

Understanding localised factors that ignite entrepreneurship could help to allocate efforts conducive to normalising and shifting cultural perceptions on entrepreneurship. To uncover conditions that stimulate entrepreneurship within Melbourne's context, participants were questioned on elements that could trigger a culture of entrepreneurship. Many participants referred to the aspect of necessity as one of the main drivers. Necessity entrepreneurs are actors who are forced to start businesses in order to make a living (Acs, 2006). Necessity entrepreneurship partly explains venture creation and self-employment in developing countries (Thurik et al. 2008), where underemployed/unemployed individuals find it necessary to become entrepreneurs, as can also be the case with immigrants (Jaskiewicz et al. 2016). Other elements participants identified within Melbourne's context include:

- Questioning/ challenging the status quo
- Creating change, solving a problem
- Education, access to information

- Exposure, role models, success stories, inspiration
- Support (e.g. family, friends, business community, support infrastructure)
- Establishing a connection to one's personal value system or personal drivers
- Fostering innovation
- Working in a start-up, especially young people
- Social cohesion, building community, consistent engagement
- Spaces with like-minded people to interact
- Openness and collaboration

The following statements exemplify some of these elements. For instance, on questioning the status quo and creating change, aspect particularly observed in younger entrepreneurs.

> *"I think to be an entrepreneur, or to start on with it, you really want to be someone that wants to change the way things are, or find a solution to a problem. Someone that doesn't want to settle for what's currently available. If people were against something or thought it wasn't right and wanted to offer a better solution, then I think that's how it really gets started, is wanting to create change." (PG1-18)*

> *"There are a lot of international students here who are unlikely to be from poor backgrounds, but they sometimes come from poor parts of the world. Where they're naturally entrepreneurial, they want to start a business and often it has a different flavour, is that they want to make social change." (PG3-25)*

A participant points out the importance of education, access to information and the role universities play on encouraging entrepreneurship. Knowledge and technologies developed at universities are sources of entrepreneurial opportunities; additionally, educated students can develop entrepreneurial mindsets and become a source of human capital within a region (Spigel, 2017).

> *"I think universities play a very important role because everyone, they are a student first, majority of people go to university. And that's their first contact to what it is like to be out there… When I was in university, they had all this like*

case competitions. I did not enjoy them, but that helped me to develop this thinking of problem-solving. How do you solve this problem that this company has? And then pitching. Those are all values that is in line with what a good entrepreneur should have." (PG1-15)

Another participant also mentions education as an important trigger; yet, pointing out improvements needed to increase its effectiveness.

"In the case specific of Melbourne, which is your case, I think it starts with the education system. The education system needs to change, because a lot of schools are teaching entrepreneurship as a subject. But it is something which is living and breathing. You need to be in an accelerator. You need to be in an environment where you see actual start-ups also growing. That's where you can actually learn and then cross-pollinate different ideas and all that. You can't learn that in a classroom." (PG1-9)

Entrepreneurship education fosters entrepreneurship and contributes to the efforts to change attitudes towards entrepreneurship (O'Connor, 2013). A study by Davidsson and Honig (2003) found that entrepreneurs during entrepreneurial discovery and exploitation stages, with higher levels of human capital, i.e. tacit knowledge (work and start-up experience) and explicit knowledge (formal education and business education), were more inclined to pursue entrepreneurial actions (primarily during entrepreneurial discovery). Other studies address effects associated with entrepreneurship education implementation (e.g. job creation, societal resilience, economic growth) (Lackéus, 2015), and changes on attitudes and intentions after entrepreneurial training (Krueger, 2007). Although past studies have found these important associations, research has also found that there is a need for bringing closer entrepreneurship education and practice (Fayolle, 2013), a significant aspect to address.

Some participants consider relevant having exposure, role models and success stories, to stimulate entrepreneurial activity. Entrepreneurs can inspire other entrepreneurs, as well as exemplify possibilities of a potential career path (Spigel, 2017). Being exposed to different realities, role models and popular culture can also activate an entrepreneur, as exemplified below.

"He was in a classroom, and he was reading some reports where it said so many millions of children die every year because they don't have proper access to water. So he got exposed to some facts in a different part of the world. And suddenly, he connected the dots, and he saw an opportunity. He went, "Here in Australia we spend millions of dollars on clean water, and how come on the other side of the world, children are dying without access to water?" And suddenly he came up with this idea, "How about we sell water and all the profit be given to them?" And so, that is what I'm trying to convey when I say exposure." (PG3-30)

"I guess creating interest in entrepreneurship. Having television shows like Shark Tank. That to me was the trigger, for me personally. Talking to people like Person A and Person B. That's another trigger for me… I never thought of myself as doing business until I came to Melbourne, until I was exposed to Elon Musk, until I was exposed to Shark Tank. I never thought about doing my own business." (PG1-15)

"Success stories, perhaps. So, the more successes we have, the better." (PG3-8)

"I think it's success. Success is always appealing." (PG3-5)

"This is one of the things I believe that the Master in Entrepreneurship and Innovation of Swinburne did well, is bringing the old students and just showing what they are doing. They were not all successful in the same way, but we could see there was enough cases of success… And I think that's inspiring and we can learn something about." (PG2-1)

Support from family, start-up community and overall support infrastructure were also considered triggers. Positive immediate family support plays an important role in entrepreneurial behaviour and entrepreneurship sustenance (Morrison, 2000). In the case of support services and infrastructure, this concerns specialised assistance so that firms can access diverse capabilities they do not possess, such as specialised professionals (e.g. patent lawyers, accountants), incubation, acceleration, co-working facilities (Spigel, 2017). Furthermore, Entrepreneurs' perceptions of the local context, influence entrepreneurs to pursue opportunities. Views about access to the labour market, finance, demand, infrastructure, societal attitudes, competitive advantage and support, are some of

the aspects creating conditions that enable or constrain entrepreneurial activity, influencing entrepreneurs' judgement (Audretsch & Belitski, 2017).

> *"I think the availability of support is a key one, because entrepreneurs are people who literally have to walk away from a job, walk away from an income to try something else… I haven't done the research honestly, but I would say 90% walk away from a job knowing that there's going to be programs to support them, to set up the business. Without any of that, I think we wouldn't see as much entrepreneurial activity happening, because it's a risk, and for anybody to take that risk, they need to be convinced that there're some measures to soften the blow." (PG1-19)*

> *"I think you need a safe environment… You need the ability to take risks, and you need to feel safe to take risks and know that failure can happen, and you're still going to be all right. So, what actually triggers it, is a big job market with the security around entrepreneurship, where you can move into, if you unfortunately do not succeed." (PG2-13)*

> *"Culture of entrepreneurship ... Ironically, it's all about the infrastructure stuff. Are you supported by the whole infrastructure to be able to attempt something like this? Because when you're not incentivised or if you're not pushed to, you will not have a culture of entrepreneurship." (PG3-29)*

Another identified element was about connecting with one's personal drivers. Value creation through entrepreneurship is not only related to the creation of economic and social value, but also to personal value (Neck & Greene, 2011).

> *"Probably starting to get connected to a personal value system or personal drivers. I think once the individual is switched on to that, inside their own head and heart, it's more likely that they will become entrepreneurial. I mean one of the things we do at our business is really trying to see each individual for what they bring to the table. What's their upbringing, what's their background, what are their passions, their values. Because if you tap into that and realize that they can make some kind of a difference using that unique set of values, I think that*

switches on something in the individual. So, that on mass I think, creates an entrepreneurial culture." (PG2-21)

"We have come a long way as a human race. In the past, there were a lot of things where…weren't as convenient. Now we're living in the age of convenience. A lot of our needs have been met. But at the top now, we're searching for purpose. So, I feel like having that purpose would trigger entrepreneurship and just naturally so." (PG1-15)

Different drivers can trigger a culture of entrepreneurship. While some may be more generalisable, others derive more closely from the particularities of the place. Thus, they can be promoted through a better understanding of the local context; uncovering both aspects that ignite entrepreneurs and characteristics to encourage entrepreneurship. For instance, Morrison (2000) reported that in more egalitarian and democratic societies such as Australia, personal attributes such as leadership, creativity, self-reliance and self-confidence are qualities that are fostered and can stimulate entrepreneurial behaviour.

4.5.4.4 Entrepreneurial success and value creation

Entrepreneurial success and value creation are important elements of entrepreneurial activity. Key elements of entrepreneurial success comprise resources—vital to ventures' success—and elements such as laws, culture, economic incentives and the history of an industry, that can also have an impact on it (Bruton et al. 2010). The development of core competences also plays an important role in a business to be successful. Core competences are abilities, skills, knowledge and expertise that a business has, differentiating it from others and providing a competitive advantage (Tomy & Pardede, 2018). Thus, success can be influenced from many different angles. In this study, identified factors contributing to success include:

- Timing
- Talent and team
- Business model, product-market fit
- Finance
- Networks
- Support mechanisms

According to van Gelderen et al. (2005), start-up efforts vary according to the individual(s)' characteristics who start the venture, the created organisation, the surrounding environment and the start-up process. Being able to identify an opportunity and act upon it at the right time is also essential.

> *"We made it very easy for people to come along and run their own Telcos, because we had already done it before. So, to answer your question, was it easy? Not easy, but we were very successful because it was timely, and it was unique. And people were like "Whoa, I can go and set up my own Telco," and people knew that there was money to be made." (PG1-24)*

> *"We just caught the right wave at the right time." (PG1-18)*

Concerning talent and team, worker talent comprises skilled employees necessary for firm success—and key component for the competitiveness of new ventures—with certain tolerance for risk and to work in a start-up's chaotic environment. Worker talent includes technical workers but also experienced managers that can help firms grow and mature (Spigel, 2017). A team composed of competent and skilled individuals that are aligned to the firm contribute to entrepreneurial success.

> *"…[another really important thing for entrepreneurs] is talent. You should always be looking or thinking about what are your talent needs for the company, 12 months in advance. Does the current team have the capacity to do what is on the product roadmap? If not, where do you find it?" (PG2-6)*

Furthermore, although there are many different aspects to consider within the business model development of a venture, understanding the market and achieving a product-market fit, is considered an important challenge that influences success.

> *"The success really for a start-up should be about getting to product-market fit… I think that what could be happening is that people give something a go, get something started, but it doesn't go anywhere. And that's not necessarily an indication that it hasn't, in terms of the ideation, I think the idea could still have merit, but they haven't gone to market in the right way. Or they haven't spoken to the right people. Or they're just running out of runway… From ideation, into*

commercialisation, into sustainable commercial operation is still a really long road. And nobody understand what the next step should be. So… entrepreneurial education!" (PG3-5)

Concerning capital, the study of van Gelderen et al. (2005) which addresses success and risk factors in pre-start-up phase, found that entrepreneurs intending to use more start-up capital had lower probabilities of getting their business running and that lowering capital requirements increased their possibilities of getting started. Capital availability and accessibility are critical for start-up and necessary for start-up growth. The connection between investors and local entrepreneurial community is fundamental for entrepreneurial firms (Spigel, 2017).

"As an entrepreneur, a really important thing is understanding what your burn rate is, or what your future funding requirements are, and who those potential investors are, or how are you going to get new clients to provide that internal growth." (PG2-6)

The following participant describes the interrelations between funding and team, pointing out the significance of teams within ventures, but also the critical aspect of accessing funding to be able to acquire them.

"Good teams... For example, if I think of one, they have an excellent advisory board, fabulous, fantastic advisory board... It's the founder and the team that they create around them. That's without question the number one. Number two is the funding and access to funding. And then the number three… it's the networks… Well, it's very tricky because they all relate to each other so closely. Without a good team, no one's going to fund you. Without funding, you're not going to get the right advisory board, without the right advisory board, it's questionable whether you know how to get the right team together. It's all so intrinsically linked." (PG3-12)

Networks was another identified aspect contributing to success. Networks can aid the entrepreneur to gather market and technological knowledge, acquire resources, gain access to customers and suppliers and access to knowledge flow and knowledge streams (Spigel, 2017).

"Enablers is access to money, access to networks." (PG3-20)

"Some of the best start-ups that I've seen succeed, are those people who have actually got an amazing network, because they can sell with anything because then it's just like, "Well, I've got this amazing network here." They built their relationships over a long time." (PG1-7)

"Networks. It's almost hand in hand, because of our networks, we were able to go to government. Our existing networks with government has enabled us to exist here today." (PG3-29).

Support mechanisms such as support infrastructure (i.e. accelerators, incubators), services and events, generate an environment conducive to entrepreneurial activity and help encourage entrepreneurs.

"[Co-working spaces are] very useful because you're in an environment that is actually conducive to your thinking and they understand the pain points, so you're all working at that same level and the energy that drives you to the next day. That's important." (PG2-36)

"… [events are] also an environment for you as an entrepreneur, because your normal circle of friends and people, they are not in that mode. They are more in the mode of continuing what they are doing, working or going to party, or things like that. But when you go to these events and there is people that are telling you, "This is amazing, this is great, keep doing it. You are in the good track. This is the delicious." I am happy and proud of seeing that… They are fuel for your internal engine." (PG1-34)

Other aspects helping towards ventures' success can be the presence of enough experienced ecosystem actors, such as mentors, successful entrepreneurs, gurus, wisdom. However, as Melbourne's ecosystem is still a young one, it appears to lack a sufficient amount of such actors.

"There's just not enough founders around who have that experience and can share that experience. I'm lucky to have seen it because I've had the interaction in

the US... Now, that's not to say there isn't all these consultants everywhere trying to sell you something in the US. There is. But there's this critical mass of founders who've had this experience of why founding a start-up is so different, like a tech start-up is so different from other types of businesses and so different from other stages in your business. And I think that that's the biggest challenge we have at the moment." (PG1-31)

"I think that that's still one of the challenges. Is trying to get more people, more experienced entrepreneurs into the community. Which, to my mind, is the number one lever to mature a community more quickly, is to have more experienced and serial entrepreneurs as part of it." (PG3-5)

Regarding value, in an entrepreneurial ecosystem perspective, cumulative entrepreneurial activity generates prosperity, ultimately leading to value creation, in which innovation is key (Stam, 2015). High levels of entrepreneurial activity contribute to innovative activities, competition, economic growth and job creation (Carree & Thurik, 2003). Entrepreneurial activity includes innovative start-ups, high-growth start-ups and entrepreneurial employees; while value creation includes elements such as productivity, income, employment and well-being (Stam, 2014). Failed ventures also have a role to play within this cumulative entrepreneurial activity as they provide experience for subsequent ventures and contribute to the social value (Davidsson, 2005). A salient aspect concerning value creation in this study reveals the importance of shared value through collaboration.

"I'm much more interested in collaborating and through these collaborations we create more value than the individual person." (PG1-14)

"There's *nothing quite like this in the rest of Melbourne. There's a councils group in the West but it's only councils, and similarly in the Southeast. So it's just councils. And you find that if it's just councils it gets wrapped up in local government agendas, whereas if it's the blended view, you get something a lot more powerful." (PG3-16)*

"Is around encouraging a culture of co-opetition more or less, that we create a competitive advantage within the region and through that we can all prosper.

And I think that's a message that's starting to get through in the conversations I'm having with businesses, is that there is value in that we recognise there's value, and that we're part of a larger economic strategy." (PG3-17)

Several participants mentioned that value was no longer oriented only towards profits. Purpose and social impact also play an important role.

"I think it's a mix between wanting to make profits and wanting to have a brand that customers, because it's obviously being driven from customers, customers are saying, "It's no longer good enough for Nestle to produce chocolate that is hurting kids in Africa. We expect you to do more with your brand, and if you don't stand for something that is good, we'll go and buy there." So, I think CEOs of big companies are starting to go, "Okay, well, we need to start doing something about this now." So, I think it's maybe they do want to do something good because they're good people, but I think it's also being driven by customers, by the market." (PG1-24)

"It's a purpose-driven company. So, part of our profits are designated for this cause, but also it is profitable for the owners of the company. Purpose-driven is a classification or is a term referring to these companies or brands, which are not only aimed to do the profit for their own owners. They have a purpose, sometimes, mainly it's social, can be environmental, but it's a border cause, which is outside of the company… In this case, the chocolate that you consume in Melbourne, part of that money travels 14,000 kilometres to Colombia to do a training or to do technical assistance for a farmer who has no idea now that this is going to happen. We believe that these farmers are in a very delicate transition [dropping illegal coca plantations to other solutions] and we are also aware that the government is not good enough now, the government institutions are weak… The cacao that I am producing is used to produce chocolate and that chocolate is traveling to Australia and people are paying for that and they are believing in me. So we believe it's possible to support this process." (PG1-34)

As above-portrayed, attitudes from both entrepreneurs and society shape intentions and aspects deemed important, ultimately influencing perceptions and actions towards value creation.

4.5.4.5 Funding and talent as important barriers for start-ups

Challenges and barriers mentioned by participants included support on the idea validation process, clarity of services available within the ecosystem and issues related to the business operation such as financial planning, marketing and sales. However, more frequently mentioned aspects were access to capital and acquiring talent.

> *"For me, it was a bit of a struggle, and it still is today, is finding the capital, because whatever we make, so far, we [re]invest it... We're considering investors, VC. But I think we're still young. I think to ask for investment or angel funding, you need to be a bit older than that, unless you have a fantastic sales and reach in that amount of time. A lot of them will only invest once you have deals in the pipeline. It's a bit of a vicious circle, because you can't grow unless you have the capital, but the investors won't give you the capital unless you have the deals. So it's sort of like a chicken and egg kind of thing." (PG1-18)*

> *"Right now we can go and raise money. The reason we haven't raised money is, definitely here locally it sucks. If I wanted to raise a seed round in Australia right now, I'll get between $100 and $500,000. They expect the business to be further along than... Where we are now, we would probably get a seed round, but if we go back 12 months ago, they would've gone, "You need to be further along." I can go to the US with an idea and raise $2 million US. Which is about 2.6 million Australian right now." (PG1-7)*

Concerning talent, this was more related to accessing and acquiring it, rather than issues with availability. Aware of the importance of establishing a good team, participants highlighted that competing with a well-payed salary market and attracting qualified worker talent into start-ups was a real challenge.

> *"Talent means that this is a skill that in industry gets paid competitively, and to convince anybody with that skill to be on your team, where one month there might be some money, other months there might not be. You know, that's hard. Because you're essentially asking that individual to take the same risk that you take. As we know, not everyone is as risk averse as entrepreneurs. So, it has been the hardest thing for my business to have somebody that's technical that can just stick around*

and help us. No doubt the biggest problem. And the solution to that problem is funding." (PG1-19)

"The talent is there, but it's expensive. The reason it's expensive is because you're trying to take people out of existing corporate roles, and they may already have a set of lifestyle expectations, or they've locked on a level of lifestyle. Because you can't ask someone to take a 50% pay cut to come join your start-up. Well, you can ask them, but they're probably going to say no. At that point, they're almost being a founder in terms of the level of risk they're taking as well. So, it absolutely is difficult… Your alternative is to get lower quality people at lower prices who are often more junior and the wrong sort of people, and I think that's why this focus that's being made at the moment by the community to try and encourage early-stage people to come across is really important. Because there are a lot of people who want to, but they're making that step. That's true for both, founders and it's also true for early-stage employees. It's hard." (PG1-31)

4.5.4.6 Talent and unbalanced support to certain industries as important barriers for growth

Identified challenges and barriers for growth included aspects about technology adoption, conservative business culture, validation and legitimacy and business operation challenges such as financial planning, sales and management. More frequently mentioned aspects were talent and unbalanced support to certain industries. Talent was identified as an issue also at the growth stage. Some aspects relate to accessibility and barriers related to visa policies, issues that many migrants and international students face.

"Very difficult because the bigger companies have taken the talent away from you or had already hired them. It was key requirement and to find it, it was like finding a needle in a haystack… For me, talent is a person who's going to have at least five to 10 years' experience in a particular area and had their wins and losses. If it's all wins then I'm not interested. How did they take the losses to get this to happen? How do they navigate is very important. Talent was critical." (PG2-36)

"I know a lot of entrepreneurs and a lot of people that work for entrepreneurial businesses that are really valuable, like founding team members of

entrepreneurial businesses, that are constrained. Like negatively affected by the visa situation in Australia." (PG3-10)

Visas supporting innovation could be of great value for encouraging entrepreneurial activity. Such as Supporting Innovation in South Australia (SISA), a visa being piloted in South Australia, that targets foreign entrepreneurs attempting to build innovative start-ups (Australian Government, 2020). Regarding unbalanced support, although ecosystems tend to be more proficient in some areas than others, entrepreneurs attempting to establish businesses in less supported sectors face significant challenges.

"I did see a lot of businesses, tech focused, start up hubs. There was very little support or industry focused support for food and beverage industry. The one facility I had approached that was government funded was then shut down a few months later. And that facility was actually Dairy Innovation Australia, so they were specifically for the dairy industry. There was definitely little opportunity for support or growth in that industry, I was very alone. I was simply trying to figure out how to start a company on my own." (PG2-22)

Although participants appear to have mixed views on innovation, ultimately, they point out a presence of unbalanced support.

"Melbourne as well as the rest of Australia is very risk averse. There's not really much tolerance at all, for risky thinking which I think is going to be a very big challenge for Australia in the future and in Melbourne as well. But so in terms of being supportive for businesses, it's supportive for financial businesses, it's supported for the things that are very easy, the low hanging fruit, the services that people understand, but they're generally not very innovate… I don't see Melbourne or Victoria's ecosystem very innovative at all… We focus on deep tech, solving really big day challenges. We're actually moving our operations or most of our operations to Sydney because Victoria just simply doesn't have, even though we are working on creating these kind of ecosystems, Victoria just doesn't have the support infrastructure there as whole. And actively actually destroys a lot of it to be honest." (PG2-27)

"In my view, Melbourne is a fantastic ecosystem for innovation and entrepreneurship. I think Melbourne's strengths are more in the medical and pharmaceutical areas. So we have plenty of stakeholders and plenty of money around pharma and medical devices… The pharma and medical device is well funded, it's supported, but many other areas of many other industries are not that well supported." (PG3-8)

As Mason and Brown (2014) mention, entrepreneurial ecosystems should not be regarded only as a tool for high-tech industries. Other traditional industries such as food and drink, energy, manufacturing and logistics also provide the platform to create 'dynamic, high-value added entrepreneurial ecosystems' (p. 19).

4.5.4.7 Government: Efforts being made, still long way to go

Government rules, regulations and policies can create support programs and encourage entrepreneurship. This can occur through tax benefits, investment of public funds, reductions in bureaucratic regulation, and support services and support infrastructure (e.g. networking events, incubation programs) (Spigel, 2017). In Melbourne, efforts already in place to support the entrepreneurial ecosystem include start-up, business and industry support; with initiatives at all levels. For example, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), enabling research-business interactions and partnerships (e.g. SME Connect); Chambers of Commerce supporting organisations' growth; LaunchVic and the Victorian Innovation Hub, supporting the entrepreneurial ecosystem; the Industry Capability Network and Invest Victoria, supporting firms to grow. Other allocated efforts include Government programs and grants (e.g. Australian Research Council (ARC) grants, Cooperative Research Centres (CRC) grants, R&D Tax incentive), Industry-research collaborations, providing solutions through innovation; Councils Business programs and Knowledge Week. These efforts are reflected through the perceptions of participants.

"I think that our authorities in power have seen the contribution that small businesses made to our communities, and so they've encouraged that. The existing current way of government has, for example, set aside money to an organization called LaunchVic, were given 60 million dollars. They did it very smart. What they've done is, they have given them the responsibility to give money not to businesses directly, but to people who encourage lots of other

businesses. They will give it to an incubator, they will give it to some kind of organisation that teaches multiple people how to start businesses. I think that that was very clever because we're leveraging the value of those dollars." (PG1-3)

"I certainly think we're getting there. I think the work of LaunchVic is really good, and what they're doing to help support entrepreneurship. And I think it's borne out by the evidence, the rate that we're growing is really fast… I think what LaunchVic is doing in terms of their funding of providers of education or help for start-ups, I think is also a good thing and is a good approach." (PG3-26)

Regarding government's role within the ecosystem, including initiatives, programs and efforts to support businesses and entrepreneurial activity, participants stated the following.

"Government's main role is not to fund start-ups. However, there are support mechanisms in place such as the ones offered through LaunchVic, to enable start-ups to grow. Government's grants allocation are more inclined towards research-industry collaborations and SMEs. For businesses there are many resources available such as the ones offered through the Chambers of Commerce, business support tools, access to information about business, the regulatory environment, and education and training." (PG3-11)

"I'd definitely say that the Council is a valuable asset that most people don't even think about… Because there's usually a business development group… The first few years is honestly just figuring out what is business, how is it run, how do you just keep basic bookkeeping and who's your accountant? That I would say is usually valuable through Council…" (PG1-14)

"One [initiative] that City of Melbourne does is called Melbourne Knowledge Week. It's a huge festival! It's all about the future. So, that's like a big part of public programming, where they're just interfacing with the public and things on the edge. So, it's like the edge of science, the edge of the arts, the edge of business, all of that kind of stuff." (PG3-10)

Furthermore, participants depicted an advancement on the acknowledgement of entrepreneurship, leading to greater support of entrepreneurial activities. Within entrepreneurship research, it is increasingly recognised that entrepreneurship can be conducive to a variety of forms of entrepreneurial activity such as venture formation, spin-offs from corporations and universities, social movements and social ventures (Autio et al. 2014).

> *"One characteristic that has contributed to entrepreneurial initiatives is Government's acknowledgement that entrepreneurship can be an industry driver. Government has recognised this." (PG3-11)*

> *"It's getting better [perception of entrepreneurship]. I found that pleasing. Mainly through education and messaging particularly by the State Government of Victoria, through its arm, the LaunchVic, which is doing a very good job. Our worry, of course, is that when funding changes, because of political priorities, will our system crash and burn? I'm already seeing cracks appear, that the likelihood of on-going funding is diminishing." (PG3-4)*

Progress has been made, although more efforts are still needed, as depicted next. These advancements might pave the way towards incorporating the entrepreneurial ecosystem approach to help further support entrepreneurial activity. An approach already being embraced by governments and global organisations such as the OECD as a tool, assisting policy regarding entrepreneurship (Stam, 2015).

About government's role on supporting entrepreneurial activity, aspects considered relevant to improve, include better support at removing obstacles (e.g. bureaucratic processes, taxation framework), efficiency (e.g. response time government vs. industry), consistency (e.g. influenced by constant leadership changes, frequent grant schemes changes) and funding (e.g. early-stage support, parliamentary support to bodies such as LaunchVic to continue operating). Some of these challenges are perceived as follow.

> *"A lot of regulations and policies actually work against a support to start-ups in this space. A lot of large companies, especially fossil fuel, so fossil fuel is actually quite well subsidised in this country. We are competing with large companies who get subsidies, compared to biodiesel. Biodiesel manufacturing in Australia is*

actually taxed quite heavily which is why most biodiesel facilities have actually closed and gone offshore." (PG1-14)

"A lot of industry is involved with that [Fishermans Bend precincts]. But there is simply a lot of, I guess politics and bureaucracy and delays in all of that happening. And so when the government gets involved, industry sort of step back and say, "Well, we're not going to do anything now until the government actually makes their decision as to what's going to happen." So the government kind of have a tendency to say they're going to do things so that they can claim success stories. They get delayed, in the meantime, they've stopped industry from actually doing much." (PG2-27)

"So the rule of law works and the regulation works, but there's just too much of it. Like in the moment, if you've got less than 19 employees every week that you pay your employees within 24 hours of paying them, you have to submit an electronic record to the government. No ifs or buts. Ok, it's not a big deal, a piece of software will do, but you have to do that. But it's one more thing you have to do. And there's just this layer upon layer of things to do. And any one of them you could go, "Yeah, fair enough." When there's 20 of them, you go, "Hmm." (PG2-32)

"There's no financial support for any of the early stage ecosystem here. The numbers that are produced by LaunchVic are very, very political and they're not really that helpful. I guess, the general consensus of the community is that a lot of what LaunchVic does, it doesn't actually help the wider community." (PG2-27)

In respect to grants, there are supports in place, as previously mentioned. According to many participants, the R&D tax incentive is one of the most useful supports available for entrepreneurs.

"There is R&D tax incentive. I haven't used it, but I will when it's appropriate. That's actually very smart. I think that's a really important one to continue, the R&D tax incentive. Other than that, no, not really." (PG2-13)

"I think some of the grants can be quite useful. I mean, I think you can always do more with them. But yes, absolutely, we would use them. So there's grants and then there's also R&D tax concessions. We don't use them right at the moment, but they're excellent. Yeah, they're really good. Could there be more? Yes, of course there could. The grant system could be a bit better… I wouldn't expect to see a free-for-all with grants. But some of the grant processes take a very long time." (PG1-31)

Regarding grants, in overall, participants raised concerns related to availability, lack of applicability and the onerous process involved.

"Either I didn't do enough research, or the grants were not available to us. I think you must either be PR or a resident. When I was an international student, we didn't really have much that was available. Certain grants require, even though it's for start-up they say "Oh, your business must be running for three to four years." Then a lot of start-ups who just started maybe two months ago, fantastic idea but can't qualify for that." (PG1-9)

"Actually, that's been one of the bigger challenges, is being almost zero grants applicable to us, which is kind of crazy when you think about it. We're both a not-for-profit and an education company that's helping to fix a lot of the university training. You would think there was support for that, but… Not if you're not a university, or a TAFE. There's more money for TAFEs. But yeah, actually zero grants that are applicable. I even met with the government people who work on the grant side and they said, "There's just nothing we can give you." (PG2-13)

"Yes, I would [reach out for government funds]. It's just the timing, and that I don't have it to do it. For example, if you want to do funding or grants, you have to fill in this application, and it's just very time-consuming, and as a two-man band, you need to prioritise your time and be like, "Okay, do I stop everything and just focus on this grant application that may or may not pass, or do I focus on the business and trying to get sales and clients to grow the business?" For me, at this stage, I would love to, and I think there's many that we could apply and get, but I just don't have the time to do it." (PG1-18)

Other aspects highlighted included greater efforts towards innovation, a better understanding of the entrepreneurial ecosystem and greater support for entrepreneurial activities. Concerning innovation, efforts have been allocated in the past, and as mentioned before, some industries (e.g. Medical and Pharmaceuticals) are very well supported and thriving. However, participants identified innovation as an aspect deserving attention. For instance, more action needed towards innovation, lack of support in innovative industries and about ramifications of stifling innovation, such as a lag in regulations by which innovative businesses do not get enough leverage for their businesses.

> *"There's a massive conservative culture that is [influencing]. They talk about innovation a lot, but there's very little action. There's enough talk, but there's not enough follow up." (PG1-19)*

> *"I wouldn't say we have a lot of innovation here. I think we have a lot of technology that we never solve problems. And I think that's half the battle." (PG2-13)*

> *"I feel that the Victorian government's gone a little bit too far where they don't support at all innovation, and that's really, really happening… So, I think our last minister for innovation in Victoria was really, really amazing and it was very disappointing really to see him go and the new minister for innovation at the moment really doesn't do much with innovation at all. He's got bigger things to worry about with these other portfolios. And so innovation really has been left to other States. Australia overall is still not that great." (PG2-27)*

In some instances, policies and regulations stifle innovation because the implementation of technology by businesses is ahead of regulations (e.g. biofuel innovations and current carbon emission sustainability policy).

> *"Sustainability policy would be good. If Melbourne had a really strong, "Okay we are going to be a net carbon zero emitter by whatever"… many companies would be like, "Okay, well biodiesel's an easy one", absolutely." (PG1-14)*

"If there was emission regulations for vehicles here in Melbourne, that would be a different story, but it will come." (PG2-2)

Innovation is central to entrepreneurship due to their mutually-dependent relationship (Acs et al. 2017). It is a crucial instrument closely associated with entrepreneurship and entrepreneurial activity. As portrayed by participants, further support in this area is crucial.

4.5.4.8 Underutilisation of knowledge and lack of incentives in the higher education system

Universities are a natural source of knowledge, research and innovation. They play a key role in the entrepreneurial ecosystem for they are conducive to the development of new technologies, knowledge and entrepreneurial opportunities (Spigel, 2017). Melbourne is a university city, with the presence of many qualified universities. This translates into quality education and attraction of national and international students; contributing to the cultural and vibrant environment of the city, and a significant pool of qualified talent. Notwithstanding, many participants highlighted important aspects to consider and improve, including insufficient support for entrepreneurship, associated with deficiencies of metrics and incentives. For instance, incentives in place for researchers and academics interested in engaging with entrepreneurial activities.

"The universities don't support entrepreneurial researchers because they don't have KPIs around being entrepreneurial. They have KPIs on how to be a good researcher and how to write good papers. If they don't have KPIs and if they don't have allocation of hours to create a business, it's almost impossible for them to dedicate time to a new business. The ones that do that is because they are super motivated to do it and because they're putting in extra hours into the company. But this requires time and money for it and sometimes they don't have the time to do it… [In the case of academics] they have to do academic stuff. They have to teach. They have to do research. It's just impossible. They don't have any extra space in their mind to think about anything else, which is understandable." (PG3-8)

"I think there's a solid blame that you can lay to rest on the way we fund research in Australia. We're world class at funding research, but the way we do it is really

historical, and it forces universities to publish, not transfer. And there's this really interesting dynamic. I work a lot with international students, so international students is now Victoria's biggest service export. By a long shot. You've now got a cattle prod for universities to get research grants, research and then publish them without... It's really difficult to take transfer and commercialise from there. But not only that. You've got massive amounts of income and growth coming in from international students, who come here predominant because of ranking and you get ranking by publishing. It's made it worse." (PG3-25)

"University is measured on research, not on commercialisation. As soon as the government says, "We will pay you to produce commercialisation," the whole game changes. But all they've have to do is pull one leg. But they don't have the courage to do it. That's all. That will change the entire game. We would go world class in a year." (PG3-4)

Interrelated with this, is a perceived underutilisation of knowledge. Participants emphasise a disconnect between research and potential for commercialisation, as well as a disconnect between research and industry.

"You have seen a lot of tech start-ups, they call themselves techs, but at the end of the day it's just a website that does a kind of service. It doesn't go really deep into what it means really being a tech start-up that comes out from research, that comes out from patents, and trying to commercialise and close the gap between investigation and market. I haven't seen that yet." (PG2-2)

"Australia has some of the world leading engineering industries, like this company, a lot of other companies in this space, a lot of the other Future Fuels partners. They have world leading research. The problem is they don't talk to each other, right? You have these huge resource companies, but they use very old technology. Then you have all this cutting edge research that's been developed at the universities. It doesn't go anywhere." (PG1-14)

Regarding the development of new technologies from university and driving greater success in the entrepreneurial ecosystem, conditions appear to be improving. However,

the relevance of connecting the investment community to the development of technology was also emphasised.

> *"Australia is known to be a really entrepreneurial country, but all the IP that the country has developed doesn't belong to Australia anymore. All this massive fantastic IP that we developed in the past, has been licensed or assigned to America or to different countries to have their own companies and explode and make money out of that… Could be [because of the size of the market] or perhaps they didn't have support at the time, or no one paid attention to that. So, Australia is now getting better in the VC environment. But in the past, America was just driving the whole show. Again, for example, in the pharma industry and the medical device industry, people who were investing in the past were mainly American people. I think they realised that actually Australia can invest as well. And if we have VC's and Angels helping the Australian community to have these companies, it is going to be better for the country. I think success is to me, is a best fact that people can see, "Okay, we can create value, we can do better here." (PG3-8)*

4.5.4.9 Wealth and pitfalls of support services and support infrastructure

As previously mentioned, support services and support infrastructure comprise specialised professionals, services and infrastructure such as incubators, accelerators and co-working spaces. Services such as entrepreneurial and business-related programs, provide further benefits than only content, as expressed by a participant.

> *"For me to access that type of program has been invaluable. That comes at zero cost with access to very unique and ambitious individuals, maybe not running their own companies, but certainly a young group of people that are succeeding, that had their own certain skill set of expertise. Also, having access to senior leadership in very large companies, has been incredible. I've had the chance to sit down with the marketing managers of Crown, the CMO of Coles, Sports Bet. Very large companies that I would never ever have access to." (PG2-22)*

Additionally, as part of a supportive environment, participants mentioned valuing support services such as accelerators, mentors and co-working spaces. Regarding accelerators, identified strengths include learning through the practical side of entrepreneurship,

access to funding, networks and mentors, the cohort of likeminded people, guidance and assistance in structuring the business, assistance with the validation process and aiding the start-up to build a reputation.

> *"I think the accelerators are really good, because they come with a lot of knowledge and help, to help also verify if your idea is something that could turn into a business. But also once you've validated that idea, you have all the mentors of people that can connect you, people that know other people, and I think that's a really good way of feeling like it's worth doing." (PG1-18)*

> *"The support from the La Trobe accelerator program, which is a great program. I wasn't expecting this really… They [participants] can receive funding, mentoring, connections with legal assistance, these other companies that are ready to help us. At the end we pitch. And the winners of that pitch can get money. Without any compromise. The first prize is $10,000, the second prize is $5,000, the third prize is $2,000 and then $1,500. I think at the end, even the last one gets $500. I think that they spread evenly for everyone else. And it's wired straight into your bank account. It's amazing." (PG1-34)*

Regarding mentors, aspects valued include guidance and inspiration, obtaining different perspectives, access to specific skills, emotional support (e.g. resilience training, managing failure), accountability and networks. Areas typically mentored are business in general and business operation, specific areas (e.g. Finance, IT, Commercial, Legal, Leadership, Branding, Marketing, Sales, Pitching), wellbeing (e.g. personal, spiritual), academic (e.g. technical aspects), consultants (e.g. Strategy, Governance for more established/growing businesses).

> *"For me, that's been the most helpful thing by a mile, it's really fantastic mentors. And that's where I learn almost everything. It is, I fail a lot, and then I get their feedback a lot. And that's taught me how to do almost everything we need to for our start-up." (PG2-13)*

> *"I have about four different mentors. One for finance, one for IT, one for spiritual and mental, and another one for the academic side of things. This person works*

in a school, so she knows how all the politics works, how to get through different channels and all that." (PG1-9)

"Probably the most helpful ones have been the mentors that help us connect internationally. Sort of gaining other work relations internationally." (PG2-21)
"In my business now, I found out I'm falling in the trap of operating a business. And because of that the angle view now is very narrow in some way. So if someone from outside, they look at my business, they can see some new opportunities where I cannot see it. And that's the difference of the outsider and when you are in your business." (PG1-33)

In respect to co-working space aspects valued include accessibility and convenience, as well as access to information about the ecosystem.

"I think because I'm based out of the city, I'm two-hours south down in Mornington Peninsula, I think they've been practical throughout our journey for being an essential place for team members to come together. Because the team is somewhat virtual, it doesn't have any established office… I mean I do value it, because I think that if you can come and go when you need, not to abuse it, but if you've got this available to you, and it's a peace of mind, I think it actually helps a lot." (PG2-6)

"Co-working spaces as well, they're really good at showing you what events are on. Co-working is probably the other trend that I think has been really good for the ecosystem." (PG3-28)

Furthermore, not only tangible support infrastructure assists through the journey, emotional support is an important aspect as well. An individual's wellbeing may be critical to their persistence, influencing their ability to incorporate instrumental knowledge, leading to eventual success (Cardon et al. 2012). While instrumental support is relevant, emotional support is also a key component. Klyver et al. (2018, p. 710) define emotional support 'as listening and providing empathy, and instrumental support as tangible assistance aimed at solving problems.' Their study found that although both supports are intermingled, emotional support is most relevant in the early stages of firm

development, while instrumental support is most relevant for entrepreneurs beginning their ventures in earlier life stages.

> *"Looking at co-working spaces and finding a community, was something that only happened a year and a half into the business. But perhaps one of the best decisions I made. Because I was going through a lonely journey." (PG2-22)*

> *"I think the characteristics that are necessary for entrepreneurship are having things like this. Having the ability to work in shared office space so that you can just take a small desk and not have to take a big office. So one, you then have the ability to have your own little workspace and not have to pay too much. You're then also meeting other likeminded people and you can talk about your day, and even if they can't help you with the business, they're helping you with your mental health and your ability to be able to enjoy yourself, which I think is a big part. I've set up a business at home before, on my own, it's horrible. I've set up my business in a tiny little office, just me, it's horrible. This is a nice environment." (PG1-24)*

These aspects were corroborated during the participant observation period, which took place at an organisation situated in Melbourne's CBD. Strategically co-located with a State Government initiative providing support to international students, the organisation offers a range of services and a supportive environment for international students and start-ups. Besides co-working space and industry student placement, the organisation offers training, mentoring, and events were recruiters, start-up founders and students interrelate (Table 4.7). The space is a hub for interactions, learning, working and connecting with potential opportunities.

Table 4.7 Examples of Activities Provided at Hub

Activity	Topics
Skilled-based training	Software, pitching, website building
Events providing information	Rules and regulations, business environment, business start-up, employability
Industry-specific events	Information Technology, Artificial Intelligence
Workshops	Business start-up, Volunteering, LinkedIn

Interactions occurring within the space included those amongst and between student teams, start-ups, mentors moving between teams, work meetings, industry professionals. Additionally, mentors and instructors' briefings checking on teams, staff conducting interviews with incoming and potential students for placements, all engaging in social and work-related interactions. Topics discussed among people attending the space involved matters regarding internship options, potential connections with people, Australia's business environment, rules and regulations, how to start a business, working in a start-up, raising capital, business development, logistics, accounting, pricing, marketing, pitching, new technologies, motivating statements from founders to teams and start-ups, and social conversations within teams, among other.

Within the period of observations, an increase in people attending the space could be noticed, possibly related to the prevalent increased activity occurring within Melbourne's ecosystem. Real engagement from the two founders was also observed during the interactions with teams, staff and other individuals; infusing enthusiasm and positive energy to the people and the place. This contributed significantly to a friendly and vibrant environment that was perceived. Motivation, opportunities and support were things being provided and valued by people interacting in the space, as commented by some of them to the researcher. Although it was only possible to conduct observations in one setting, the process allowed the researcher firsthand primary insight into the reality of interactions and activities occurring within a co-working space, the diverse exchanges people are exposed to while attending, and the relevance a place like this can have to international students, entrepreneurs starting and needing support, and additional actors involved.

Regarding drawbacks within support services, participants highlighted several aspects concerning accelerators, mentors and co-working spaces. In respect to accelerators, these included limited access (e.g. difficult to enter, exclusivity), competitive (e.g. competitive behaviour among them rather than collaborating), and quantity vs quality.

> *"I think the government has funding as well to help create incubators and accelerators to help and accelerate ideas from entrepreneurs. The only downside is there are too many and, in my view, yes, it is fantastic because people have plenty of options, but I think it will be best if the government can concentrate the money and effort in a few good ones just to make a better impact." (PG3-8)*

Participants also mentioned that while engaging with mentors is mostly a beneficial practice, there are aspects to consider in order to make the most out of it. Aspects include trying to engage with a mentor that is business savvy, mentor-business alignment (e.g. business stage, vision), engage at early stages, seeking that the mentor complements the entrepreneur's weak spots, build trust.

> *"I went to a mentoring event a little while ago where they were meant to match us with mentors. Not one of the mentors had started a company. Every single one of those mentors was an ex-consultant or an ex-investment banker. They have very valuable skill-sets, but not for a start-up. Everything in a start-up is different to a normal business. The idea of a start-up is a phase. Once it gets past that start-up phase, then it's a normal business. Okay, then it's all really relevant." (PG1-31)*

The participant stressed the point that there is a need within the ecosystem to understand better and disseminate aspects such as 'how to actually run a start-up', the differences between tech start-ups and other types of entrepreneurial companies and how the needs change according to each phase. Thus, although mentoring can be highly beneficial, lack of alignment can undermine such efforts.

4.5.4.10 Potential of networks and networking strategies for entrepreneurial activity

Networks contribute significantly to entrepreneurial activity. They can help the entrepreneur to gather knowledge and information, acquire resources, gain access to customers and suppliers (Spigel, 2017). Many participants identified networks and networking events, such as meet-ups, as being key elements for entrepreneurial activity. Benefits mentioned include access to key actors (e.g. potential mentors, investors, customers), support (e.g. emotional support, empathy, social connectivity, collaboration), exposure (e.g. screening within the start-up community, role models, success stories, inspiration) and learning (e.g. relevant speakers, access to information and knowledge, peer learning failures and successes).

> *"The meet-ups are very good because the meet-ups now are becoming sophisticated. It's not just somebody trying to get an idea out there. They're thought leaders, they've done work and they share openly. Suddenly, it's a live and encyclopaedic thinking which is key." (PG2-36)*

"There's a lot of activity, and so people who want to try and do something start-up or entrepreneurial, it's not that hard to find a group to join or a meet-up to join. It is very easy to engage, and I think that, generally, all of those meet-ups are very supportive… Generally, I think that people would find it easy to find the Melbourne start-up community, and they would find that community supportive." (PG3-5)

In addition to support, access to resources is also key. Challenges firms tend to face at the emergence stage include the lack of internal resources and capabilities (Gartner & Brush, 1999). Often with constrained capital, firms need to gain access to external resources and know-how, depending heavily on the firm's external network (Sorenson, 2018).

Another participant pointed out that even though networking events in Melbourne are well placed, they are not utilised at their full capacity.

"I think there's actually lots of opportunities for networking in Melbourne. I think obviously one of the challenges I see is that we don't utilise our international students enough, to network with the planet. Because we have the planet here in Melbourne, and we're not doing anything with it. We don't learn from it. So, I think that's one of the key challenges. And I think you can go to networking events that a whole bunch of people in the room is the same as you, and I don't think there's any value in that. They will all agree with you and they're all trying to do the same thing." (PG3-25)

Not only network diversity can influence access to information and other resources (Hite & Hesterly, 2001), but also the breadth of knowledge available to the ecosystem (Roundy et al. 2017). Aspect worth of attention, for one of Melbourne's strengths, i.e. cultural diversity, might be potentially underutilised.

Networking practices can come more natural for some people than others. While some participants suggest that engaging in a natural networking process can yield better results (e.g. authentic interactions), many others recommend considering the following aspects and strategies for better outcomes.

- Two-sided value networks
- Targeted approach

- Connectedness through shared learning
- Attitude
- Genuine interactions
- Follow-up
- Broadening of networks
- Build and increase

Two-sided value networks refer to not only taking from the network but contributing to it in order to add value. A targeted approach refers to attending events with intention (e.g. clarity in the type of people you would be interested in talking to). Connectedness through shared learning refers to gaining richer levels of connectedness while involved in meaningful learning experiences (e.g. workshops, short courses) with like-minded people. Attitude relates to putting attention to the approach by which you engage with others (e.g. positive, assertive, emphatic, smiling). Genuine interactions relate to being authentic, to listen, and being genuinely curious. Follow-up refers to deciding whom of all the people you met (for instance, at a networking event), you would like to do a follow-up, and actually doing it. Broadening of networks refers to engaging not only with the start-up community but also, for instance, conferences and industry talks to connect with diverse groups. Lastly, build and increase refers to reaching out, increasing connections and engaging in the process of relationship building. The following passages exemplify some of these aspects and strategies.

> *"To me, that [smiling and engaging] has made a big difference in how people perceive me. And be just super genuine. Oh, yes, there's one very important thing, if you want something from someone, you first need to provide value to that person first. It is what I do myself as well… I think it's like, if you want something from someone, always give something of value back. And then you can make that ask." (PG1-15)*

> *"I think when you're networking, you're not there to sell your product or business. You're there to hear what others are saying, and I think a lot of networking events, it's mostly like, "This is what I do. You should use my service or my product." But I think the way to go forward is more listening, more than talking… Showing an interest in the person you're speaking to, rather than talking about yourself." (PG1-18)*

"I think the thing with networks is two sided. You've got to be authentic and you've got to have networks that are authentic towards you. But also at some point, you also need to contribute value to that network." (PG1-19)

"I think that networks are everything. Hence, part of my business here, is to encourage the students to attend a networking event at least once a week, so that by the end of the year they might go to say 40 of them, and they should have grown their network of significant people by 100 people at least each year, and that will deliver them a job, or a business, or a co-founder to do whatever they want to do… Strategies, well, you've got to identify them, places to go. And when you go, go with the intent to find significant people in the room and connect with them." (PG1-3)

Strategies may also vary depending on interests, age group and on how established your network already is. In the particular case of Melbourne, migrants and international students potentially would have less established networks compared to locals or immigrants living in Melbourne for more extended periods of time. The perceived value from networking and networking events might be increasingly so within less established groups.

4.5.4.11 Further start-up education to investors and investment education to start-ups

Investment capital is critical for both start-up activities and growth. Finance for ventures can be sought from diverse sources, including angel investors, venture capital, private equity, micro-loans, crowdfunding, accelerators (Isenberg, 2011; Drover et al. 2017). Although essential, accessing finance from investors is difficult and expensive for small firms (Ebben & Johnson, 2006). An additional layer within Melbourne's ecosystem is the conservative culture, permeating not only into the levels of innovativeness of start-ups but also into investors behaviours.

"I have stumbled upon a lot of great ideas [in Melbourne] that I haven't heard in the US, but I guess the market and investors and the Melbourne ecosystem tries always to bet in something that has been successful elsewhere rather than trying something radical new." (PG2-2)

"There's more businesses establishing themselves as a platform. And so that's not really that innovative. I've never invested in any of those because it's just a new way of doing something that's an old business, plumbers, trades people." (PG3-23)

In the case of business platforms, although some businesses may offer less innovative solutions or services than others, it could be relevant to assess them in detail while considering a financial investment. The reasoning behind this relates to the influence of evolving digital infrastructures and their influence on business model innovation. The digital economy is allowing shifts to the pursual of opportunities through technology affordances and business model innovation. As such, there has been a change of the internet from being a one-way content distribution medium into a global interaction platform able to support numerous transactions, among multiple stakeholders, regardless of location, allowing global diffusion and different shapes of value creation through digitalisation (Autio et al. 2018). Platform business models are highly scalable, enabling start-ups to scale and achieve high levels of valuation in a short time (Acs et al. 2017b). Therefore, business models that embrace digital infrastructures, enabling businesses' agility and capabilities, could reach outstanding potential.

"There's probably not enough great companies [innovative, scalable, quality of the idea] to invest in. And that the entrepreneur is resilient. We just had a round, so it was our two monthly forum, every second month forum, and we didn't have one [company] that we're taking any further. That would have been out of 24 companies, getting it down to four, and there wasn't enough interest out of the 80 investors to go any further… There's a lack of the whole package. Or they just didn't apply in that previous three months… And people are conservative with their money, obviously as well. So you're not just going to, I know there's some investors that'll just do, it's like playing a game of cards. Yeah, I'm in, I'm in, I'm in, but most people are being far more conservative than that." (PG3-23)

"In broad brush terms, what do Australians typically invest in? It is listed stocks and property. The listed stocks, the biggest ones, certainly in my lifetime, have been banks, mining companies and public utilities that have been privatised, like Telstra. We're not that creative in where we look for returns, I think, in general. Because of that we, over time, go for the safer option, the larger more stable

option. Culturally that doesn't sit well with people striking out on their own, and taking the risks that you need to take to get ahead. But I think that is changing… I just think that it's a cultural thing. That is the way it is because of a range of broad economic reasons." (PG3-28)

Further education and information to both start-up and investment communities, could assist in the efforts of investment diversification and gain a better understanding of the challenges and aspects involved at both sides. Furthermore, smaller and younger firms are less likely to receive bank financing. Bootstrapping tends to be an initial approach to finance ventures, which includes entrepreneurs' own resources and personal loans from family and friends (Ebben & Johnson, 2006). Accordingly, several participants from this study asserted using bootstrapping to start their ventures, and by doing so, also minimise acquiring debt at initial stages.

"We've grown organically. We are a bootstrap. We haven't taken on investment. Apart from sweat equity from both, myself and my co-founder. And then occasionally if we need some finance bridging, because we've got a really lengthy cashflow model, we've just gone with a lender… to try to bridge the gap, if our cashflow is really low. That was pretty straight forward. But we have not yet sought funding." (PG2-21)

"One of the things I did takeaway, having done a previous venture, was I bootstrapped. I didn't want to be the hamster on the wheel by taking capital too early. If there's one defining quality, I think, in Melbourne or Australia, is we've had very successful companies that were originally bootstrapped, or didn't take investment, for many years. Atlassian probably the best and most successful, which is now listed and worth billions of dollars as a unicorn." (PG2-6)

Nonetheless, investment was often considered relevant and necessary for later stages of growth. Regarding availability, the majority of participants recognise that financial resources are present in Melbourne. However, they report that gaining access represents a challenge, more so, at earlier stages of starting a venture.

"There's a lot of money available if you can get to a certain stage to prove your product value or your scalable value…To be honest, I think that there's a lot of

money out there, especially in Australia, especially in Melbourne. There's just a lot of money, it's just being able to access it. I don't think that they need to make it easier for you to access the money. Part of it is you should be good enough to be able to find that money." (PG1-14)

"A lot of people say that the investors in Australia are less sophisticated. I tend to agree, but in terms of how you improve that, I don't know. I think maybe a bit of education to them to say, you need to understand that for a business to be three years and successful, the first two years are the most critical and the most crucial, and that's when they need the money the most… To create that thriving system, you need to invest in the grassroots… You're not going to have a thriving big business, ecosystem if you're not putting money in that early stages. It doesn't work; because that early is when the businesses need money to get to that stage." (PG1-19)

Robust businesses with appropriate teams, market-fit and customers in the pipeline, have more possibilities of securing investment. However, reaching that point is a challenging and not straightforward journey. Not only investment requirements and processes change according to the stage of the business, but also practices can vary according to the industry. For instance, while some start-ups can bootstrap to start operations, other firms from capital intensive industries (e.g. biotechnology, space, health), face a different reality. Moreover, newer areas also face challenges of not being fully understood.

"The investment community in Melbourne, I think number one does not understand cybersecurity. It is the lack of understanding, which causes investors to be very cautious." (PG1-19)

Education for both sides, investors and businesses can help to bridge these gaps, gain better understanding among parties involved and attempt for better stakeholder alignment, an aspect so critical for both, businesses and the overall entrepreneurial ecosystem. To understand modern entrepreneurial ecosystems, there is a need to comprehend better the different shapes of value creation, delivery and capture (Autio et al. 2018).

4.5.4.12 Driving the ecosystem forward

As part of the entrepreneurial ecosystem missing aspects and recommendations provided, the following are identified aspects to drive the ecosystem forward.

- Community and cooperation; not necessarily collaboration

Attributes of successful start-up communities include characteristics such as willingness to give back to the community, accessibility (e.g. to entrepreneurs, advisors, mentors, investors) and engagement of the different players in events that allow for the community to connect (e.g. meet-ups, pitch days, start-up weekends, boot camps, hackathons) (Feld, 2012). Participants' observations suggest that there is a sense of community and cooperation within the start-up community.

> *"I think access to leaders, innovators and influences is a lot easier in Melbourne. So it's very easy for somebody to pick up the phone or to connect with them and make it a coffee catch up, or reach out for help and seek mentoring. It's very good in Melbourne. We don't seem to have, how you'd say is, 'a chip on our shoulder' about it. I think that we're very amenable to having people share ideas and get support from others." (PG3-12)*

> *"Sydney is very siloed, you can go there, and this is your silo within the ecosystem, and you sort of go up and down within that, that's your collaboration. You can exist in that and not collaborate with anyone else. In fact that's what happened, there are lots of silos within Sydney. Melbourne is very much more open, once you are in... It's the main pillar or the community. Generally, you get to know other people in the community quite quickly, because it is a lot more community oriented than a lot of other ecosystems I've been to." (PG1-7)*

However, collaboration is not necessarily so, within the overall ecosystem. For instance, between industry-business-university interactions, between corporates and the start-up community, or among and within universities themselves.

> *"I don't know if collaborative is the right word. I found companies here are really competitive focused. Universities are a great example. They don't like to work together. And it's quite fascinating because most of them have the same goal. I don't know if it's*

lack of clarity around mission. I don't know if it's bad strategy. But the competitive focus just really hurts companies. Because you go look at somewhere like Silicon Valley, and you will have big partners are willing to talk to each other, and willing to work together on a common goal. And it just doesn't really happen here." (PG2-13)

"There's a lot of very generous people starting to give back to the community. But the generosity is something that is quite common across most successful ecosystems, I'd say. I think it's good that Melbourne is moving in that direction. But once again, I'm not seeing it as much from the corporate space. I think that's a missing piece." (PG2-21)

Competitive behaviour appears to be an underlying factor undermining collaboration efforts and entrepreneurial activity within the ecosystem.

"Anyone who has any bit of knowledge thinks that by giving their knowledge, they can own a part of a company. That's probably been the most confronting thing about running a business and a start-up, has been the access to support comes at a cost. Irrespective of how compelling or how big your opportunity is. And really, Melbourne is a Shark Tank… It's competitive and you are spending more time protecting yourself, than freely swimming to find support." (PG2-22)

"One of the things that I see Australians are, is we are inherently and naturally really quite competitive. And in the start-up world we can be over competitive, and we can be overprotective of our intellectual property. And I've had experiences in places like China, where they have this view about, "We need these innovations for society." And I can go and speak to a corporate investor, he goes, "You know what? This is not for me. But I'll tell you what, my deeply competitor, who I hate, and we kill each other in the marketplace, they'd be really interested. I'll put you in a car and send you over there to talk to them." That wouldn't happen in this country. And I think the whole idea of introducing people to other people is sometimes blocked because of the competitive behaviour. And in particular when it comes to the introductions to investors." (PG3-25)

"Most entrepreneurs are collaborative with each other. They all feel they're in the same boat, to some extent, and they're all nice at events and it's fine. I think it

really depends on what you're doing. I think that from where we would pull research to make these start-ups, I think there's some really strong cartel-style blocs, in terms of the University of Melbourne in our health precincts, who don't collaborate with anyone else because they don't have to, a little bit. There's really tight bonds in there that you don't see in other cities so much. That Melbourne-health cartel is a really big one." (PG3-20)

Norms and trust that reward entrepreneurial action can provide additional resources and enhance cooperation between actors (Acs et al. 2014). Cooperation involves interactions between ecosystem players (e.g. large companies collaborating with local start-ups) (Feld, 2012). Such interactions not only influence access to relevant resources (e.g. talent, services, capital), but cooperation also increases possibilities for innovation, knowledge exchanges (Stam, 2015) and the development of trust between community members (Audretsch & Belitski, 2017).

- Greater efforts and collaborations to improve Innovation and Technology

Innovation and technology are essential not only for entrepreneurial ecosystems but also for the progress of society. These can be developed at large companies, research organisations and universities. Other sources of innovation and productivity are start-ups, high-growth start-ups and entrepreneurial employees (Stam, 2015). In Australia, while efforts have been allocated to foster innovation (Dodgson et al. 2011), aspects highlighted by participants in Melbourne limiting its application suggest competitive forces could be playing a role on pursing and implementing technology and innovation.

"Now, how they explore the technology and to what extent they go with it, I think Australia is probably the conservative on that. Or at least the industries where I have been, they are a bit conservative. I come from Portugal… Because Portugal is part of the European Union and it is playing in that market, there's a bit more pressure to do things or to go first to market with some things, right? Because if you don't, there might be a company coming from Spain, from Germany, that might take that opportunity. Australia is an Island and I think it's a bit sheltered from that, so people can afford to be a bit more conservative because that's the feeling." (PG2-1)

Potentially, this could be a combination of a conservative culture, risk aversion to adopting new technologies and insufficient motivation to change due to a lack of competitive forces, influencing technology adoption and the implementation of innovation.

Other aspects involve the ability of universities to transfer their innovation capabilities through greater collaboration with other ecosystem actors. Associated to the earlier mentioned element of cooperation.

> *"I think the government has to promote more start-ups coming out of universities rather than coffee shops. In the sense that everyone can have a great idea, but the next big idea above everyone else is coming mainly from research in big industries." (PG2-2)*

> *"There is Know hack, there is Education hack. They come there, they bring people together, and they try to come up with a solution. The same thing has to happen between industry, researchers, and entrepreneurs." (PG2-2)*

> *"It's customer service. You want industry to be knocking on your door saying, "I need innovation. Can you help me?" And for universities to rapidly and efficiently and quickly deliver it back to them, in a useful fashion that gives them what they want. Which is competitive advantage. That's all they want; they don't want anything else." (PG3-25)*

Such collaborations can be a vehicle for more innovation and technology development. Furthermore, increasing these interactions and communication between ecosystem actors can help improve the impact and applicability of research and innovation, for when these elements are not present, resources and efforts are wasted.

> *"I mainly see it in the space sector, but here we've got a real tendency to call innovation just new ideas, and it goes, 'A solution looking for a problem'. And it's completely the wrong way to do it, because you have no idea who your customer is. You over-develop features that aren't necessary. A great example is, I'm talking to this team who are trying to do this really complex imaging sent from space, and they go, "Oh, but it can do all these things." It's like, "Have you talked*

to any customer who's got that problem?" "No." Okay, well, number one, that's an issue. And then you go to talk to professionals, and they say, "We can do this in a much cheaper way, scalable across the planet, and we don't need to use their tool." So, all you've done is made Tech looking for a problem. And I think that's what most Australians, I've seen them doing." (PG2-13)

Interactions between players can be crucial for aligning intentions, outcomes and impact so that efforts are better channelled and innovation outputs improved. In close relation to this comes the next point.

- Collaboration and effectiveness between research projects and entrepreneurial opportunities

Linked to the before-mentioned aspect of underutilisation of knowledge, participants suggest that there is an important gap between research projects and entrepreneurial opportunities. This certainly does not imply that *all* research should be commercialised, and thus, have an entrepreneurial intention. Basic or pure research is also critical to advance knowledge, innovation and society. However, improvements are needed for the research that is apt to be commercialised.

"Stronger linkages between researchers and business. Whether they're creating new IP, I think researchers need to become more seasoned towards solving immediate problems that businesses are pitching. I think that's going to help with speeding up IP creation and actually accelerating business growth." (PG2-6)

"What I do with the people that I work with, the researchers I work with, is try to make them understand that they can do research. But at least they need to find an impact. So whatever they do in their labs, how it is going to be used? What is the importance? Do we have a market for it? Who is going to implement this in the company, for example? So what is the point in doing basic research if you don't even know if it is going to be applicable in real life… But they are super disconnected." (PG3-8)

Entrepreneurial opportunities are not limited to research-business collaborations; they can also occur within research-industry collaborations. Projects involving innovation are

an opportunity for these collaborations, such as the activities outlined at Victoria's Lead Scientist Strategic Plan (Victoria State Government, 2020b). Albeit these efforts, participants' perceptions reflect that there is a need to foster such partnerships actively.

> *"People say all sorts of good things about Australia, but the reality is most SMEs and industry won't touch universities to fund research. Universities love linkage grants, but universities have got a very poor record of delivering back to industry. And it's the opposite of what happens in America where universities like MIT, 80% of their funding come from industry. And it's not government supported. The industry funds it and whatever is developed they own, and they get back, which they love. It's a great system and therefore they're willing to fund it. In Australia, a lot of SMEs are profoundly disappointed. If they've ever funded a piece of research, they ask the university, "What did you do with my money?" And they go, "We did some really fun stuff, we published it. Thank you very much." And they get nothing." (PG3-25)*

> *"That's like the stat where we go, "Look how much research we've got. Lots of it does get commercialised." And you go, "Yeah, but most of that research is pure research. It's never got a commercial intention." Whereas other universities like Stanford and MIT, do have that… They think about it. They actually choose problems rather than just saying, "I think this would be interesting." (PG2-13)*

> *"I think the university should include in the academic-researcher KPIs, entrepreneurial activities as well, so that they feel like it's part of what they need to do. Not all researchers but at least the ones who want to do it, and they don't have the time, at least they will [if they have options and time allocations]." (PG3-8)*

The previous statements suggest not only the need for improved research impact and applicability but also more effective collaborations and mechanisms at university that allow and support these interactions. Research is fundamental for the development of science and knowledge; but it can also significantly contribute to solving real problems, advance technology and foster innovation and entrepreneurial opportunities. Even so, through already well-established industries (e.g. health sector). Start-up infrastructure

supporting such research capabilities can be instrumental in improving the link between research projects and entrepreneurial opportunities.

> *"I think in Melbourne, the biggest thing that's missing given the huge base of world-class health research is proper lab facilities outside of research environments [universities], that can be used by companies." (PG3-20)*

Bringing expertise together through interactions and collaborations can bring greater outcomes. For instance, bringing together great local researchers with entrepreneurs and business savvy individuals who possess commercial acumen, that can help envision and materialise entrepreneurial opportunities.

- Early funding investment

As mentioned before, many participants acknowledge that financial resources exist in Melbourne and that the challenge relies more on accessibility rather than availability issues. However, some participants stated that gaps of funding are more highlighted at some stages than others, that being, at earlier stages of funding. Consistent with LaunchVic (2019) and Startup Genome (2019).

> *"There has been a lot more venture capital made available. But it tends to be, as venture is, at the later stages, when a business is better established. There are a lot more accelerator programs. And so, it's easier than ever to get an initial idea launched. But trying to help an idea and a very young team, immature team, that comes out of an accelerator program, trying to help them actually get to revenue, and become sustainable, and be ready for later stages in investment, that's a real gap." (PG3-5)*

> *"I've been to Israel; I've been to San Francisco and right now I'm here in Singapore. I think what Melbourne is missing is investment, private investment into entrepreneurship." (PG1-19)*

> *"The government or the whole ecosystem, they tend to help ideas, companies or researchers either in very early stage or very late stage, but there's nothing in the middle. So when we are looking for funding for example, to do a proof of concept*

or to develop MVPs, it is almost impossible to find resources to help those ideas." (PG3-8)

Successful start-up ecosystems require a supportive community of venture capitalists, angels, seed investors and additional sources of financing available and accessible across sectors, demographics and geography (Feld, 2012). Participants identified other forms and sources of support that could nurture the ecosystem. These include grants from government targeted at solving challenges faced at earlier stages of venture creation, and investment diversification, such as superannuation funds.

"So I think Australia's good in the fact that you can't get money that easily, because that's just not a sustainable ecosystem, long-term. But being said, grants would be the one area I think you'd want to help teams with more. Especially maybe just bringing on first employees, some of those kinds of things. Because it's pretty important to get a good team early. It's a mix of that and actually it's just training people in HR and all those things that are just as useful. So support that's not financial, but supporting in those areas." (PG2-13)

"What I think could eventually be the trigger, is looking at more of a fund approach to pulling start-ups, whether it being an industry sector or start-ups generally, for investment. And so, one opportunity there is to potentially use superannuation funds is probably a good example, and have a higher risk component of that, that could be invested into start-ups. And I believe that that's something they're already looking at." (PG3-17)

Equity crowdfunding could be another alternative for businesses fitting into this type of investment. Related to the crowdfunding process—but with different features—equity crowdfunding facilitates investment in businesses. Investors receive shares, and the relationship is that of companies with shareholders involved.

"We essentially help small and growing businesses to raise money online from a national audience of retail investors, wholesale investors, anyone basically, all online. We tend to focus on businesses that have a strong consumer proposition." (PG3-28)

In short, financial options exist. This is very important for the ecosystem to subsist and progress. Nonetheless, more support is needed at earlier stages, and start-ups need to be well prepared and robust to increase their probabilities of being successful in the financing process.

- A stronger link between entrepreneurship education and its association to practice

Entrepreneurship education is an essential component within entrepreneurial ecosystems (Maritz et al. 2015a). Entrepreneurship education and training assist in developing entrepreneurial mindsets (Spigel, 2017) and to obtain knowledge on the topic allowing for better informed entrepreneurial initiatives (Coduras et al. 2008). Furthermore, entrepreneurship education and training help create positive attitudes towards entrepreneurship (Isenberg, 2011). Within this study, while some participants did not consider it relevant to have entrepreneurship education, others did.

> *"Entrepreneurship education, I don't believe in entrepreneurship education. Because the people teaching it ... So far from my own personal life data set, I have not seen an entrepreneurship education program run well." (PG3-29)*

> *"I learnt, when I had become an entrepreneur, by doing it. It hasn't always been that pleasant, it can be quite painful. Particularly when you're doing your first venture. If there is any benefit, education would probably promote more awareness of understanding of what some of these challenges are, with doing a first time venture." (PG2-6)*

> *"I think there are some naturally gifted entrepreneurs, and then I think there are people who have that really strong technical background who can really benefit from more structured programs and approaches to entrepreneurial education." (PG3-17)*

> *"Definitely, yes [important for entrepreneurs to have it]. Particularly in two areas, finance and finance." (PG3-4)*

Aspects valued within participants included frameworks and tools that help provide guidance and structure (e.g. Business Model Canvas, Lean Canvas), cohort at programs

(networks and interactions with like-minded people), and the development of creativity and innovation.

> *"I don't think it's that different to the way business people assess businesses, we use the old fashioned, the who, the what, the where, the why, the how, the how much. I don't think it's any different to that, but I think putting a framework around it means that things don't get missed, and you're really held accountable. In that Lean Canvas where it requires you to validate your idea with at least 100 potential customers, having that number, I think putting that framework around it means that we're going to get better results." (PG1-3)*

> *"When I first saw the lean start-up in university… I just sat and I thought, "Well, this is brilliant." When I started in '03, we'd built one thing already and it cost us two and a half million dollars to build it and I could build it today for $200,000 and that two and a half million dollars, I never got back… Lean start-up and all of these things has just shown us the more far more sensible way." (PG2-32)*

> *"Not critical [entrepreneurship education]. But I think it can be helpful. And there are several aspects to it. So there's the aspect of the formal education. The things that we learn in the classroom that are interesting but almost say that you can also get them elsewhere. And then there's the aspect that I really enjoyed about it, that is, people working together in each other's ideas and I think that the value of that is invaluable." (PG2-1)*

In Australia, although present at all 40 universities (represented sparsely, moderately or strongly depending on the university), entrepreneurship education is not at its full potential (Maritz et al. 2019). Additionally, as highlighted in the present study, there is a need to bring closer entrepreneurship education theory and practice. Within the entrepreneurship literature, albeit significant advancements conducted in the field, the need for allocating efforts to bring closer education and practice has also been identified (Fayolle, 2013).

> *"I recommend everyone should get out there and get some education to begin with, and that's been proven with enough statistics that show failure rate goes down. However, nothing can beat doing something, for education. You can learn about it all*

you want, you need to actually get out and do it and go "Oh wow, that's actually different from what I was expecting"… There are classes coming out of Stanford, MIT usually they're by Steve Blank... Where he was actually doing more of a, almost like a workshop something where he pushes people, "Go out and talk to people." That sort of combining that academic and practical side together. Get out because what you're doing is you are learning from those people. Because that's where the learning comes from." (PG1-7)

"I think the foundation needs to be there first, so that's where the theory comes in. That's where maybe in the final year then they say, "Okay guys, we'll spend this year at an accelerator and we're going to pollinate these ideas. You're going to learn". And then after that, once they have the theory around it it's like, "Oh, so this is why we learned that." (PG1-9)

"I think there are two most important differences between the courses there [LaunchVic] and in the [university]; in the [university] the students, in general, they are not ready to think about running or founding a business. But in LaunchVic courses, most of them there, have an idea and want to run it. That's why they attend it. So the cohort of the group of people are different. The second thing is that most of the guys that run the courses in LaunchVic, they are from business, they are doing business and are running their business, and they also run the business in teaching or in education. So that's why the experience there or the lesson learned is better… I really liked one of the courses regarding to the selling technique. Because in the [university] there's no seminar or course regarding to selling… So, I found that that is very valuable to my business and to the way that I'm confident going out to sell, and I apply it." (PG1-33)

"People tend to study the entrepreneur as a subject or a specimen, rather than study the practice of entrepreneurship, and the mindsets that people need to bring into the journey. So, I think we put them into real world situations, we challenge them to actually build their professional networks in the country. They end up, pitching and launching something in a couple of weeks. So, we really put things into practice." (PG2-21)

- Ecosystem leader

There are mixed views regarding the relevant aspect of who should drive the ecosystem forward and the implications of this. Some participants believe the government should lead.

> *"I think it's the* right role for government to play… *I feel like because the government is the representative body, it's probably the right body to be the one that is paving the path forward. But I feel like it lacks power, because corporations are strong, and I feel it lacks capability." (PG3-10)*

A differing view asserts that entrepreneurs should lead the ecosystem.

> *"The ecosystem really needs to be led by entrepreneurs and not government. Because there's longevity. The entrepreneurs have the actual ecosystem at interest, not political points. And success breeds success. The government has a role in it, but the government's role should be to help where they're asked for help. If they're asked for help to remove a roadblock whether that's a law or change some part of the ecosystem, whether that's to do with share options, some regulatory hurdle, that's where they should be doing it… At the end of the day what makes a free market work, is people coming in with different ideas and different ways of doing things. It's not one group to lead it, and often that stifles innovation. That's been proven with any company that has a monopoly on an industry or a duopoly, stifles the innovation because there is no pressure on them to need to innovate. If you've just got a government up there saying, "We're going to do it this way", who says that's right?... Victoria is not the only player in the ecosystem, there are many players and they all are doing different things and trying different things, and that's what makes a great ecosystem… It's not one tree, it's a forest of trees." (PG1-7)*

One characteristic of the entrepreneurial ecosystem approach is that it recognises the importance of entrepreneurs as central players. As such, it differs from other economic policy approaches and reduces the role of government. The latter does not imply that the government does not play an important role within the ecosystem. Government's role is very important for the ecosystem, but as a 'feeder' of the ecosystem rather than a 'leader', as is the case with other ecosystem actors and elements such as professional

services and financial infrastructure. Visible, accessible and committed entrepreneurs are more apt to drive the ecosystem forward (Stam, 2015; Feld, 2012).

Figure 4.3 presented next, summarises the generated themes presented in this chapter.

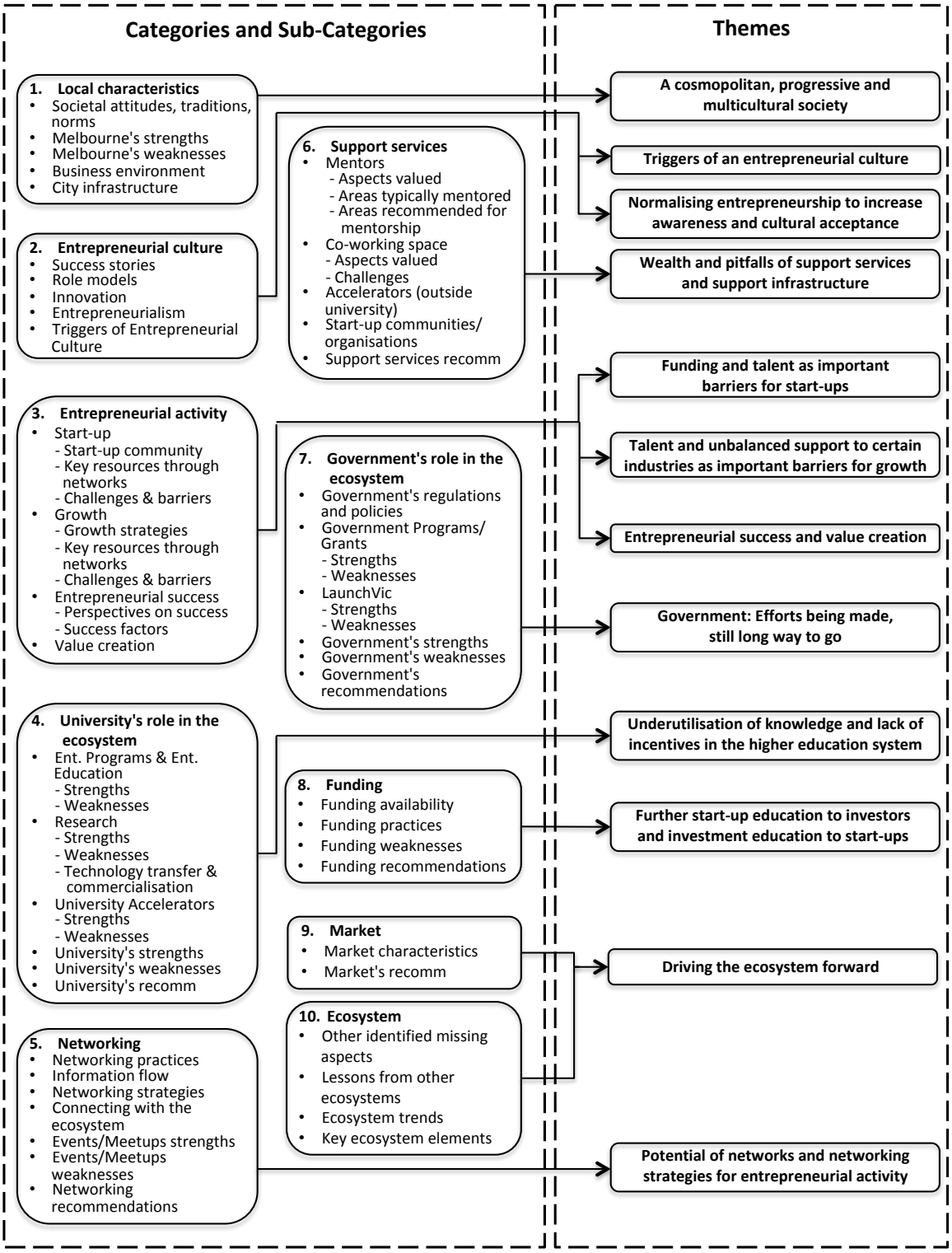


Figure 4.3 Thematic Analysis- Categories and Themes

4.5.5 Network Analysis

The purpose of conducting network analysis was to study the dynamics of entrepreneurs' networks within the entrepreneurial ecosystem. It encompassed aspects of their composition, interactions with other ecosystem actors and associated resources. The utilised network approach addresses calls in the entrepreneurial ecosystem literature for research adopting a social networks perspective to gain a better understanding of the dynamics, interactions, patterns and influential actors involved in entrepreneurial activities (Alvedalen & Boschma, 2017; Motoyama & Knowlton, 2017). This analysis was also aimed to investigate how entrepreneurs' networks change according to the stages of start-up and growth in terms of their characteristics and compositional ties while interacting within the ecosystem.

The study of structural and interactional dimensions assisted towards this task. Structural dimensions address aspects about what the network looks like, while interactional dimensions address who is involved and how are they related. Data utilised to conduct the analysis included:

- Network data collected through network charts
- Data about ego's alters interactions collected through a network grid

Figure 4.4 is an example of collected network data through a network chart. Ego (entrepreneur) is represented by the grey circle at the middle of the graph, while the alters (individuals and other ecosystem actors) are distributed across six levels of relevance. Through this tool, aspects concerning the nature and duration of the relationship were captured as well as alters' level of relevance (6 highly important and 1 little importance), according to the significance they have for the entrepreneur and his/her venture. Regarding the network grid, information collected comprised alters characteristics (e.g. position, organisation, sector/industry), the main purpose of the relationship (e.g. service, support, resources), and additional tangible and intangible resources gained through the interactions. Data from both of these tools were used to perform the structural and interactional analyses.

To conduct the network analysis, data from the network chart was transformed into binary matrices for each ego network. UCINET 6 was used to calculate network measures and depict entrepreneurs' ego networks. Figure 4.5 is the same entrepreneur's network presented above, with data transformed to be utilised with the software.

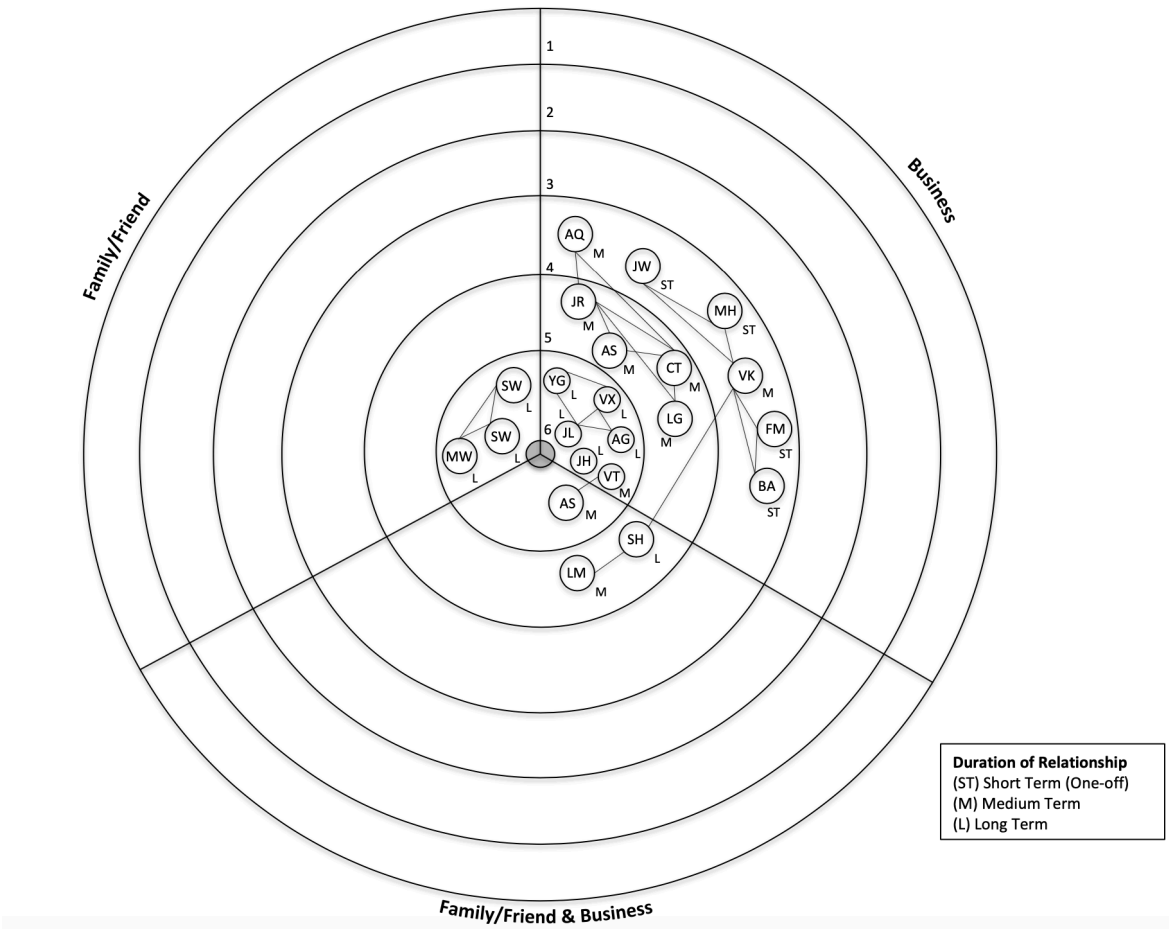


Figure 4.4 Entrepreneur's Network Chart- growth stage (PG2-6)

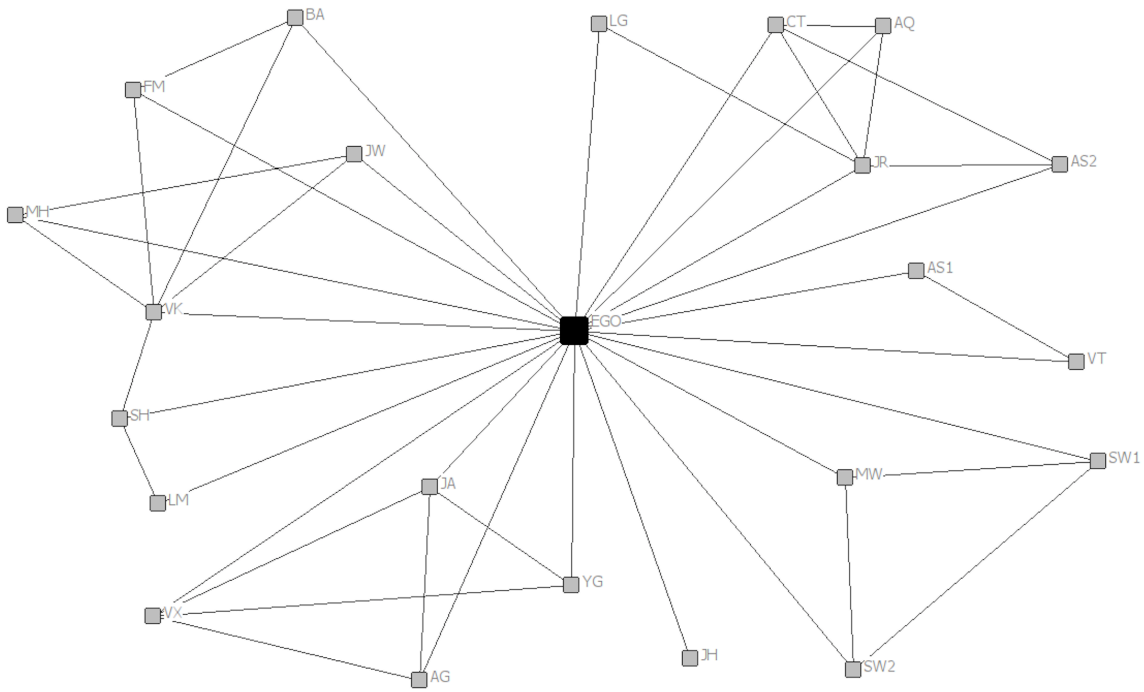


Figure 4.5 Entrepreneur's Network- growth stage (PG2-6)

This process was performed for all entrepreneurs at both stages, start-up and growth. The overall process guiding the network analysis is presented in Figure 4.6.

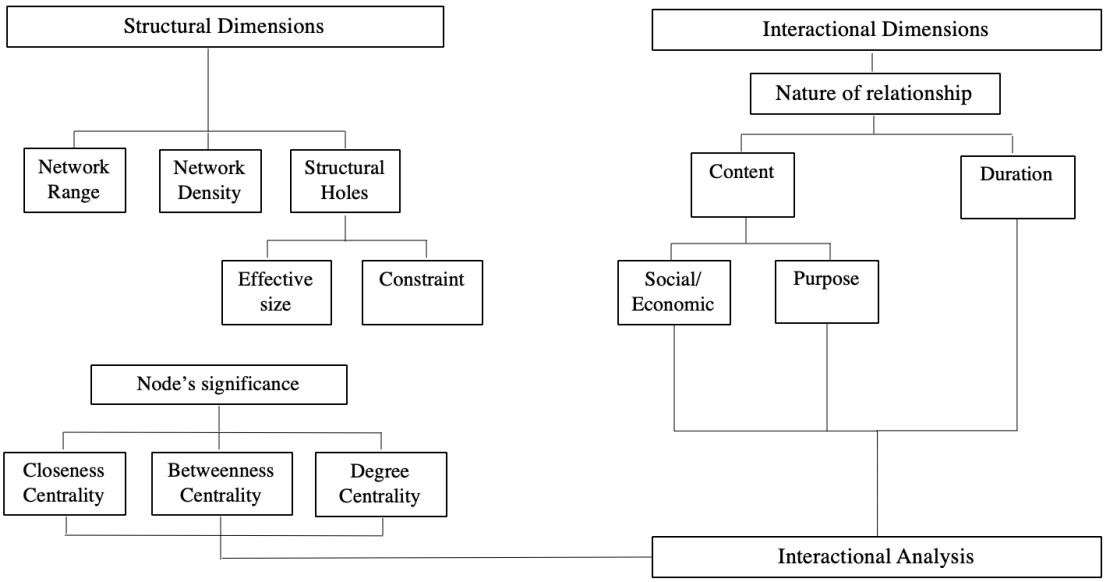


Figure 4.6 Network Analysis

4.5.5.1 Structural dimension

Network range (size), density and structural holes measures were calculated for each ego network at both stages, start-up and growth. Results are presented in Table 4.8.

Table 4.8 Comparing Network Structure Measures by Stage

Structural Characteristic	Start-up	Growth
Data sample	11	8
Ego Network		
Mean Size	11.73	19
Mean Network Density	26.98	16.72
Mean Ego nBetweenness	54.45	69.55
Structural Holes		
Mean Ego Efficiency	0.756	0.754
Mean Constraints	0.27	0.2

The study's sample included a total of 21 entrepreneurs, comprised of 11 entrepreneurs at start-up and 10 entrepreneurs at growth. However, network data from 2 entrepreneurs at growth was not complete and was excluded from the network analysis section; conducting the analysis with a total of 19 entrepreneurs.

As seen in Table 4.8, in average, the networks of entrepreneurs at growth stage were larger (19) than the group of entrepreneurs at start-up, showing a fewer number of actors (11.73) within their network. The size of the network or network range is expected to be smaller at start-up than at growth. As companies become more stable, they begin to grow, and their network size increases.

Concerning network density, start-ups were more connected on average. The highest network density value reported at the start-up group was 60%, while the highest network density at growth was 25.83%. Therefore, as shown in Table 4.8, the mean network density at start-up group is approximately 10% higher than the growth group. This means that start-ups appear to have greater network cohesion or connectedness (Borgatti et al. 2018), influencing access to information and enabling trust (Coleman, 1988). However, according to Burt's (1992) perspective, this can also entail higher levels of information redundancy, leading to lower social capital. Lower density scores suggest a more non-redundant or sparse network, potentially conducting to accessing more novel information. Networks tend to become larger and less dense over time, shifting from being dense to sparse, as observed between start-up networks and growth networks.

Growth entrepreneurs presented higher normalised betweenness levels. This result shows entrepreneurs at growth acting more as gatekeepers in their own network than their counterparts. This characteristic is important for connecting different groups and monitoring information and resources, thus showing more control in their network.

Structural holes measures of ego networks show the mean ego efficiency and constraint values of both start-up and growth groups are close to each other. Therefore, both groups have a similar potential of access to information and control benefits. Slightly lower constraint values at growth stage indicate fewer connections were redundant, suggesting greater opportunities for action. Burt's (1992) notion of structural holes associates social capital as a function of entrepreneurial opportunities. Opportunities are constantly being explored. For instance, to expand to foreign markets, raise capital from other countries, form partnerships that leverage start-ups, enter accelerator programs that positively impact businesses, link to potential business contacts, connect with service and technology providers. Often, through different interactions and connections, a variety of ties influence access to such opportunities. Furthermore, Greve (1995) points out the importance of minimising redundancy, as it is a key for successful entrepreneurship.

Centrality measures were used to analyse the importance of actors within egos' network. These are described next.

Node Significance

To determine nodes' significance, binary matrices were created for each of the egos at start-up and growth. Three measures of centrality were conducted to identify key alters within each ego network:

- Degree centrality
- Closeness centrality
- Betweenness centrality

Results of each of the above centrality analysis show specific characteristics of the significance of alters in the ego network. Degree displays the level of connectedness of a node to others; closeness depicts how close a node is to any other node within the network, and betweenness captures the node's role as a connector or bridge. The three measures provide aspects of the flow of resources within ego's network, but in different ways (as referred in more detail at section *4.3.5.1*). Therefore, the three of them were considered, and no priority was given to any of the analyses. These values depict the alters' significance within each network.

Once determining the key alters within each measure, these were characterised and analysed through their associated interactional relationships with ego (entrepreneur). These results are presented subsequently in section *4.5.5.2* concerning the interactional dimensions. In the next section, first, an overall interactional analysis is conducted for all egos and their networks.

4.5.5.2 Interactional dimension

The interactions within each entrepreneur's network were also analysed for further understanding of network dynamics. All characteristics presented next are as perceived by ego (not by alters). Within this interactional dimension, tie durability and tie content between ego and his/her alters were analysed. Tie durability relates to the duration of the interactions. Tie content relates to the nature of the relationship (i.e. social and/or economic). Next, the relevance of each actor (as perceived by ego) of the identified interactions, are also presented. Lastly, multiplexity is also assessed to complement aspects regarding the nature of the relationship, considering the multidimensional nature

of business relationships (Table 4.9). This analysis has been done for each ego network; then, the average percentages were calculated for each interactional characteristic at each stage (Start-up and growth), as presented next.

As discussed by Larson and Starr (1993), tie durability is associated with the stability of the network through time. In respect to the duration of the relationships, entrepreneurs at growth present a greater number of long term or ongoing relationships than entrepreneurs at start-up, thus representing more established and stable networks.

Table 4.9 Comparing Network Interactional Characteristics by Stage

Interactional Characteristics	Start-up			Growth		
	Mean (%)	**Median (%)**	**SD**	**Mean (%)**	**Median (%)**	**SD**
Duration						
Short term (one-off/few)	13.13	8.33	16.06	11.35	0.00	15.10
Medium-term	26.33	28.34	14.34	21.83	22.22	14.62
Long term (ongoing)	60.54	60.00	14.79	66.82	61.54	22.97
Nature of relationship						
Family/Friend	23.46	23.21	12.44	13.04	13.64	11.53
Business	52.86	45.45	20.05	41.65	44.44	31.92
Both	23.68	25.00	17.83	45.31	38.89	30.88
Perceived relevance of actors by Ego						
Position 6 (Highly Important)	32.64	27.27	22.65	24.57	23.08	16.90
Position 5	22.61	21.43	11.34	23.27	18.18	14.36
Position 4	18.82	14.29	12.80	21.12	22.45	15.58
Position 3	14.93	23.53	15.98	10.55	9.09	11.82
Position 2	8.88	9.09	9.55	10.20	9.09	10.90
Position 1 (Little Importance)	2.12	8.33	3.71	10.30	7.69	14.05
Multiplexity						
Social	21.61	20.00	19.69	26.36	20.00	27.40
Relational	67.34	63.64	21.56	67.19	73.33	31.78
Other	11.05	18.18	13.44	6.45	5.56	7.55

Concerning the nature of the relationship, entrepreneurs at the start-up stage presented 53% of their ties being business-oriented within their networks, then both (24%), and family/friend (23%). Entrepreneurs at growth presented more dichotomous relationships composed of both, family/friends and business ties (45%), then ties being only business-

related (42%) and lastly, family/friend ties (13%). This is consistent with entrepreneurs at the growth stage having more established networks were relationships evolve from merely business interactions into business and friendship relationships.

Perceived relevance of actors refers to alters' positions within the ego network according to the entrepreneur, as represented during the data collection at network charts (Figure 4.4). Table 4.9 shows that entrepreneurs at start-up located a higher number of alters (33%) at position 6, the closest (highly important) to the entrepreneur; distributing the rest of alters, in a decreasing manner, throughout the rest of the positions in the chart. In the case of growth, entrepreneurs networks are more evenly distributed, with a majority of alters being located across the first three positions. This could be associated with entrepreneurs relying more on key people within their network at earlier stages of the venture.

Concerning multiplexity, entrepreneurs at growth presented slightly higher social multiplexity (26%) compared to start-up entrepreneurs (22%), indicating the presence of more business relationships embedded with social aspects at growth. Relational multiplexity was similar at both groups, portraying multidimensional relationships present among both groups. For instance, a single relationship based on several exchanges, such as being a business partner, providing funding and networks. Alternatively, as another example, a person could be providing advice and emotional support, while he/she is an immediate family member, resulting in having multiplex ties. Results portray different layers of exchanges occurring between entrepreneurs and their alters, deriving in relationships with higher levels of interdependence (Bliemel et al. 2016).

The above interactional analysis was conducted for entrepreneurs' networks. The analysis presented next depicts key actors within entrepreneurs' networks. The analysis is based on the key alters previously identified through centrality measures (degree, closeness and betweenness) within both stages, start-up and growth (Table 4.10). The first three measurements (mean nDegree, mean nCloseness and mean nBetweenness), were obtained with UCINET 6. The rest of results (duration, nature of the relationship, perceived relevance, relationship type and organisation type), concern alters' characteristics and interactional data, obtained through the network chart and network grid tools.

Table 4.10 Key Alter Analysis Based on Degree, Closeness and Betweenness

Interaction Characteristics	Start-up Stage			Growth Stage		
	nDegree	**nCloseness**	**nBetween-ness**	**nDegree**	**nCloseness**	**nBetween-ness**
Mean nDegree	0.55	-	-	0.47	-	-
Mean nCloseness	-	44.00	-	-	30.59	-
Mean nBetweenness	-	-	35.21	-	-	22.97
Duration (%)						
Short term (one-off/few)	0	5.88	7.14	0	0	0
Medium-term	5.26	17.65	21.43	11.11	11.11	22.22
Long term (ongoing)	94.74	76.47	71.43	88.89	88.89	77.78
Nature of relationship (%)						
Family/Friend	26.32	23.53	28.57	11.11	11.11	11.11
Business	42.11	47.60	50.00	22.22	22.22	33.33
Both	31.58	29.41	21.43	66.67	66.67	55.56
Perceived relevance of actors by Ego (%)						
Position 6 (High)	78.95	76.47	78.57	66.67	55.56	44.44
Position 5	10.53	5.88	7.14	11.11	11.11	33.33
Position 4	5.26	5.88	7.14	22.22	33.33	22.22
Position 3	0	0	0	0	0	0
Position 2	5.26	11.76	7.14	0	0	0
Position 1 (Low)	0	0	0	0	0	0
Relationship Type (%)						
Immediate Family Members	26.32	23.53	28.57	11.11	11.11	11.11
Friendship & Emotional Support	21.05	35.29	50.00	55.56	66.67	55.56
Mentorship	15.79	17.65	28.57	11.11	11.11	22.22
Advice/Knowledge	31.58	35.29	50.00	66.67	77.78	55.56
Business Partner/Co-founder	21.05	11.76	42.86	33.33	55.56	33.33
Organisation Type (%)						
Ego's Start-up	26.32	41.18	50.00	44.44	55.56	44.44
Finance	5.26	0	0	0	0	0
Government	10.53	0	0	0	0	0
Professional/Business	31.58	23.53	21.43	44.44	33.33	44.44
Support Services	0	5.88	0	0	0	0
University	0	5.88	7.14	11.11	11.11	11.11
Other	26.32	23.53	21.43	0	0	0

The aim of the key alter analysis was to identify key individuals/actors within entrepreneurs' networks. But rather than focusing only on entrepreneurs' perceived level of actors' significance (as previously addressed), by using UCINET 6 and centrality measures, it was possible to identify key alters (actors) within egos' networks (entrepreneurs networks), in respect to structural characteristics and their position within the network. The rationale for key alter selection was the following. The alter with the highest value within each of the three centrality measures (degree, closeness, betweenness) was selected. When there was more than one alter with the same highest value, all of those alters were selected and considered in the analysis. Some key actors were common in all three categories.

Degree displays the level of connectedness of a node to others. Key alters in entrepreneurs' networks at start-up showed higher levels of connectedness (55%) than their counterparts at growth (47%). Closeness portrays how close a node is to any other node within the network. That is, how quickly or easy a node can reach others, influencing, for instance, information flow. Key alters in entrepreneurs' networks at start-up showed higher closeness (44%) than their counterparts at growth (31%). This relates to entrepreneurs presenting denser networks at start-up than growth, as shown in Table 4.8. Betweenness captures a node's role as a connector or bridge. Key alters in entrepreneurs' networks at start-up showed higher betweenness (35%) than their counterparts at growth (23%). This can be interpreted as key alters at entrepreneurs' start-up networks having more level of brokerage and acting more as gatekeepers in the network than their counterparts at growth. A higher level of betweenness centrality indicates more opportunities for information dissemination and control (Borgatti et al. 1998), suggesting a greater potential for information control and broker exchange processes. Key alters' interactional characteristics with ego relationships are described next.

Regarding the duration of the relationships, key alters at both stages and the three analysis (degree, closeness and betweenness), presented high values of long term relationships with ego. Key alters within start-up networks presented 95% of long term relationships and 89% at growth, at the degree centrality analysis.

Concerning the nature of the relationship, business ties dominated within key alters at the start-up stage in all three analysis with values of 42%, 48% and 50%. However, the type

of ties dominating at growth for key alters were dichotomous relationships composed of both family/friends and business ties (67%, 67% and 55%).

Network position of key alters at both stages and in the three analysis were majorly located at position 6 (highly important), and occupying top 3 positions in the case of growth. A consistent result linking key alters as perceived by entrepreneurs with the highest results in obtained through centrality measures.

Concerning relationship type of key alters with ego, immediate family members relations were more prevalent at start-ups than at growth. Friendship and/or emotional support relationships at growth stage were higher than at start-up. This potentially due to the developed friendship over years of working/collaborating in the business. Results also show that while mentorship related interactions at start-ups were higher than those at growth, advice/knowledge relationships were more present at growth than at start-ups. Results appear to be true for all three categories. In overall, key alters relationships with ego involved immediate family members support and mentorship relationships in the start-up group. While at growth, key alters relationships with ego involved friendship/emotional support and advice relationships.

Regarding organisation type, within start-ups, key alters were part of *ego's start-up* (e.g. business partner, co-founder, employee), *professional/business* (providing services such as website development, business operations, brand design) and *other* (providing economic support, emotional support and mentorship). Fewer key alters were members of the government (10%), university (7%), support services (6%) or financial organisations (5%). In the case of key alters at the growth stage, the majority also formed part of *entrepreneurs' businesses*. Other key alters included people from *professional/business*, mainly providing support, mentorship and advice, as the main purpose of interaction. Regarding other ecosystem actors at entrepreneurs' networks at the growth stage, only university was present as a key alter (11%). Neither of other ecosystem actors (e.g. financial organisations, government, support services) were represented as key alters at the growth stage.

4.6 Addressing Research Objectives

The following section addresses the research objectives guiding this investigation. Results comprise the influence of the context on entrepreneurial activity, ecosystem

actors' interactions, key actors and resources attached to those interactions, and elements that enhance and hinder the dynamics of entrepreneurial activities.

4.6.1 Influence of Context on Entrepreneurship and Entrepreneurial Activity

Melbourne has a thriving entrepreneurial ecosystem that fosters and supports entrepreneurial activity. Numerous elements contribute to this. Entrepreneurs, ecosystem advocates, start-up community, mentors, investment community, government, universities, established businesses, among others. State and local governments contribute through strategies to improve infrastructure, job market, invest in industries, technology, innovation and allocate efforts to position Melbourne as a globally recognised, entrepreneurial and competitive knowledge city (Yigitcanlar, 2005). As a country, broader aspects influencing the prosperous scene include political stability and economic development and growth. Additional layers that also play a role in entrepreneurship and entrepreneurial activity are societal attitudes, traditions and norms, as described next.

4.6.1.1 Societal attitudes, traditions and norms

A cosmopolitan, progressive and multicultural city are some of the elements characterising Melbourne. As a cosmopolitan city, Melbourne is rich in culture, arts, creativity and cultural experiences; manifested through elements such as a diverse food culture, sophistication, curiosity, innovation and a wide variety of events, festivals, activities and meet-ups. As a progressive city, it offers access to quality education, healthcare, safety, freedom, quality of life, inclusivity and sense of community. And lastly, as a multicultural city, it is one of significant diversity; attained through a series of immigration waves at different points in time, new migrants and a constant influx of international students. Multiculturalism manifests itself through having different perspectives, diverse cultural influences, variety of skills and abilities, breadth of knowledge, and cultural exchanges, to mention a few. Such characteristics and elements not only provide a great and prosperous environment for a living but also offer inspiration, attract talent and ambition. These aspects infuse into the entrepreneurial ecosystem, contributing to entrepreneurial activity. Aspects such as inclusion and diversity, openness to new ideas and creativity nourish the entrepreneurial space.

There are also other underlying beliefs and outlooks historically present that overshadow the scene. A conservative environment and the eminent Tall poppy syndrome appear to have diverse ramifications detrimental to entrepreneurial activity and thus, the entrepreneurial ecosystem. A conservative environment can influence the entrepreneurial scene at diverse levels. Aspects identified in this study suggest an influence into the tolerance for risk, levels of innovation and investment approaches. Regarding the Tall poppy syndrome, it was found that it influences the celebration of success, undermines the aspect of support and recognition, and the tolerance for mistakes and failure. Kirkwood (2007) states that the Tall poppy syndrome (i.e. denigrating or 'cutting down' successful people or high achievers), can have significant implications for entrepreneurship such as:

- Discouragement of entrepreneurs for starting a business
- If a business fails, entrepreneurs might be more reluctant to try again because of people's reaction
- Deliberately limit business growth to avoid attracting attention

Additionally, although findings suggest it has been gradually improving and more even so in recent times, it was also found that a pejorative connotation to the term entrepreneur is still present within Melbourne's environment. In the past, terms such as 'dodgy' and 'shady' were expressions associated with entrepreneurs, suggesting a derogatory implication. Although significantly improved, if negative perceptions still loom in the environment, it can be damaging and dilute the many positive aspects that entrepreneurs contribute to.

Embedded in the community's social fabric, such aspects seem to undermine the entrepreneurial ecosystem for they influence cultural attitudes towards entrepreneurs and entrepreneurship. However, gradual changes within Melbourne have had a positive influence. Aspects improving the entrepreneurial scene include persistent and tenacious entrepreneurs, alongside with the entrepreneurial and investment communities, support infrastructure such as incubators, accelerators and co-working spaces, government efforts through LaunchVic and business-related initiatives, entrepreneurship awareness through entrepreneurship education and training at universities and new generations of local and international young entrepreneurs bringing novel ideas, energy and determination. All these efforts have contributed not only to advance the entrepreneurial ecosystem but also

to progress towards embracing entrepreneurship, to improve the level of acceptance of being an entrepreneur and to better understand what entrepreneurship is.

4.6.2 Entrepreneurial Ecosystem Elements, Actors and Interactions

The entrepreneurial ecosystem concept materialises not only through elements within the ecosystem allocating efforts towards entrepreneurial activity (e.g. entrepreneurs, financial organisations, universities, support services and support infrastructure, government), but also through the interactions occurring amongst them. This section presents elements, actors and interactions occurring within Melbourne's entrepreneurial ecosystem.

4.6.2.1 Regulatory, social and cultural contexts

The macroeconomic and political stability, regulatory frameworks in place and the rule of law, all contribute to a business enabling environment. Values associated with the Australian society such as civility, equality and inclusivity play important roles contributing to prosperity. Society's inclusiveness and creative thinking contribute towards entrepreneurship and innovation, whilst the Tall poppy syndrome phenomenon undermines it. Multiculturalism and egalitarianism are cultural elements contributing towards diversity (e.g. skills, breadth of knowledge, experience), openness and sense of community, characteristics that infuse into the entrepreneurial ecosystem.

4.6.2.2 Melbourne's entrepreneurial ecosystem

Societal attitudes, traditions and norms. Inclusiveness, cosmopolitanism and multiculturalism are socio-cultural traits potentially contributing to entrepreneurial activity. However, despite being a progressive city, certain conservative approaches (e.g. risk-averse business culture, investment behaviours) and the Tall poppy syndrome are aspects undermining it (e.g. promoting and recognising success). Regarding interactions, societal attitudes such as accessibility/approachability, facilitate interactions to occur and enable connections among entrepreneurs, leaders, influencers, mentors, etc.; contributing to the entrepreneurial ecosystem. Yet, on the other hand, the presence of competitive behaviours can also lead to adverse outcomes such as undermining the process of connection building, with introductions sometimes being blocked, limiting access to key actors (e.g. investors); or businesses engaging in non-cooperative behaviours. Although Melbourne's start-up community tends to be mostly supportive, the evidence suggests

that this lack of collaboration is, to some extent, also present in the start-up community. However, it appears to be more even so among other ecosystem actors, such as large companies and universities insufficiently collaborating with local start-ups. Collaborations between large organisations and small innovative new ventures can be beneficial for fostering innovation, for businesses and the entrepreneurial ecosystem (Cavallo et al. 2019).

Cultural attitudes towards entrepreneurship. Sense of community, openness, inspiration, creativity and diversity are characteristics contributing towards entrepreneurship. Progress has been attained on the encouragement and acceptance of entrepreneurship, but efforts are still needed to improve its perception and positive impacts. Although support mechanisms are in place, there is a need for universities, support organisations and government to increase efforts allocated towards promoting and supporting entrepreneurship and innovation and the benefits they convey not only to the economy but also society.

Role models and success stories. There is a presence of local role models and success stories; however, as a young ecosystem, examples are not vast. Experienced ecosystem actors, e.g. successful entrepreneurs (a critical mass of founders), mentors and wisdom can help nurture the ecosystem and also be a source of inspiration for aspiring and also more established/mature entrepreneurs. Regarding success stories, there appears to be a need to communicate more holistic stories (failures and successes) and a need of mechanisms—aligned with the prevailing culture—that foster and support recognition and success.

Triggers of an entrepreneurial culture. Support organisations, universities and government could potentially benefit from gaining a better understanding about the drivers of entrepreneurs in the region, for although some may be more general or universal, others can be more closely related to the particularities of a place. Such information can assist in the development of incentives and supports to enhance and promote entrepreneurial activity. Findings suggest that localised factors igniting entrepreneurship within Melbourne's ecosystem include creating change; finding solutions to problems; the presence of a strong job market that helps to reduce the perception of risk; exposure, role models and success stories; support; access to information and education; connecting with personal drivers and purpose; generating

impact; a profit-impact duality; working in a start-up; when innovation and new ideas are being fostered; openness and collaboration; and, social change. Necessity—a well-known trigger—in Melbourne's context, may be a driver for migrants to overcome a lack of local work experience and visa limitations, faced while trying to enter the job market. As Welter et al. (2017) argue, 'necessity motivations may not be specific to individuals but rather temporary for particular individuals during specific episodes of time' (p. 316).

Networks. Society's traits of approachability, openness, goodwill and sense of community seem to facilitate interactions and contribute towards networking. The wide variety of networking events and meet-ups taking place within the ecosystem provide an important platform for entrepreneurs and other actors to interact. Entrepreneurial start-up infrastructure such as accelerators, incubators and co-working spaces, also enable such interactions. Related to the element of societal attitudes and norms, Melbourne's cultural diversity derives in the existence of diversity also in networks. Network diversity can influence access to information and other resources (Hite & Hesterly, 2001), increase the breadth of knowledge available to the ecosystem (Roundy et al. 2017), and allow for cultural exchanges; representing a strength within the ecosystem. Recommendations and aspects valued within the ecosystem regarding networking practices that can nurture it include engaging in two-sided value networks, enhancing connectedness through shared learning, genuine interactions and broadening of networks.

Investment capital. Albeit the availability of financial options, there is an early-stage funding gap. For instance, to support young teams coming out of accelerator programs; to acquire talent and be able to pay competitive salaries at a stage in which firms tend to be resource constrained; or for developing further a minimum viable product (MVP). Additionally, education for both angel investors and start-ups could bring greater understanding of aims and needs at both sides of this relationship. According to participants perceptions and ecosystem related reports (LaunchVic, 2019; Start-up Gerome, 2018), interactions between the start-up community and investment community have been improving in recent years, deriving in greater investment outcomes and connectedness. A crucial aspect for sustaining and developing the ecosystem.

Mentors. Mentors are perceived as important for both start-up and growth, more even so for young firms and young entrepreneurs. Albeit the possibility that lack of alignment between business and mentor could exist, a well-established relationship can entail

numerous benefits. Aspects valued include gaining different perspectives, experience, emotional support (e.g. building resilience), complementary skills, advice, inspiration and potential networks. Mentors tend to interact with universities, organisations providing support such as accelerators and the overall start-up community.

Worker talent. Melbourne's attractiveness, immigration, quality education all contribute to the pool of local and international talent. The diversity of skills, breadth of knowledge and variety of backgrounds, provide a rich source of employees, beneficial for the ecosystem. However, while more established firms may have greater possibilities to access it, acquiring talent for start-ups can be a challenge. While talent is a key element to build great teams, firms struggle to pay competitive salaries offered in the job market; prevailing visa limitations, and requiring employees with certain tolerance for risk and open to demands of working in small firms.

Universities. The presence of a variety of universities derives in numerous benefits for the ecosystem such as worker talent, accelerators, research and knowledge spillovers. Entrepreneurship education assists to enhance knowledge and entrepreneurship awareness; however, it is still perceived as being distant from practice. Additionally, further incentives and support are needed to promote entrepreneurial activity. For instance, fostering greater collaborations with businesses and industry, improving the link and effectiveness between research and potential opportunities for commercialisation, as well as incentives for academics and researchers wanting to engage with entrepreneurial activity. The evidence suggests that there is a need for universities to enhance their ability to transfer their innovation capabilities through greater collaboration with other ecosystem actors and to improve the impact and applicability of research and innovation.

Support services and support infrastructure. The wide variety of events, entrepreneurship and business-related programs, accelerators, incubators, co-working spaces and competitions not only provide access to key actors, successful individuals, and resources but also allow access to support, information and knowledge exchange while allowing spaces and opportunities for people to interact. This contributes to the development of a supportive community and facilitates network interactions. There appear to be concerns regarding quality over quantity of services and events offered; however, such services and support are instrumental for entrepreneurs, for immigrants, and for the international

student community who potentially may lack well-established networks. For instance, benefits from accelerators comprise training, access to funding, networks and mentors, a cohort of likeminded people. Co-working spaces provide a platform to interact, e.g. among entrepreneurs, between entrepreneurs and other individuals, facilitating access to support and information exchanges and connecting with potential opportunities.

Policies and governance. The aforementioned business enabling environment contributes to the ecosystem, with transparency and a functioning regulatory framework. Progress has been made in acknowledging the significance of entrepreneurship; which manifests through entrepreneurship education at universities, enterprise programs, funds and training through LaunchVic, tax incentives (e.g. R&D tax incentive), initiatives towards the development of technology and innovation, to mention some. However, participants highlight that further efforts are needed to support innovation and entrepreneurship and nurture the ecosystem—for instance, support on shifting perceptions on entrepreneurship (normalising entrepreneurship). Programs developed to promote and legitimise the role of entrepreneurs can assist in this task (Autio et al. 2014). Additional efforts needed include fostering an entrepreneurial culture, grants specifically for start-up and start-up growth, parliamentary support to bodies supporting entrepreneurship (such as LaunchVic), visas supporting innovation and entrepreneurship, and regulations that enable entrepreneurial activity.

Market. Melbourne appears to be a suitable testing environment, good for starting businesses and making early sales. People count with purchasing power to engage in economic transactions. The openness for new ideas helps towards entrepreneurship. However, competitive behaviours undermine collaborative efforts, conservative forces constrain innovation, and there appears to be insufficient development and adoption of disruptive technologies; limiting the introduction of new-to-market innovations.

Innovation and Technology. Efforts have been allocated towards the development of science, technology and innovation. Initiatives and strategies are in place, as reflected in research capabilities within universities, research centres and industry. Nevertheless, improvements are still needed. Whilst nationally, there is a decrease in the number of businesses engaging with innovation, within Melbourne it was identified that, for instance, there is unbalanced support to some industries; technology implementation in some businesses is ahead of regulations; insufficient radical innovations; extent in which

businesses embrace technology; a need to improve the transferability, impact and applicability of research from universities; portraying a need for further initiatives and support towards innovation. Interactions between players can be crucial for aligning intentions, outcomes and impact so that efforts are better channelled and innovation outputs improved.

4.6.2.3 Entrepreneurs' networks and interactions

Findings portray that an entrepreneurial ecosystem providing support services and support infrastructure can be significantly important for entrepreneurs. Accelerators, co-working spaces, incubators, start-up and business-related programs, events and competitions not only can provide direct value to entrepreneurs and their venture but also provide spaces that facilitate interactions. Although very relevant for start-ups, entrepreneurs at both stages, start-up and growth, can gain significant benefits from the entrepreneurial ecosystem. Immediate benefits are connecting to a supportive community, opportunities to connect with other ecosystem actors and access to resources and information. More even so, in the case of international students, new migrants or entrepreneurs who might not have an established network. Places that allow for such interactions to occur can be instrumental for the development of entrepreneurial activities.

Entrepreneurs at start-up stage tend to have smaller and less established networks than entrepreneurs at growth; however, an entrepreneurial ecosystem providing spaces, events and opportunities for networking that can facilitate interactions, contributes to the process of building networks. Furthermore, growing a network should not be a quest concerning only the *amount* but also attention should be made to the *diversity* of the network, for this can derive not only in richer sources of information and resources but also in new opportunities. It becomes relevant to engage in two-sided value networks, broadening and building diverse networks to enhance access to different sources of information, knowledge and opportunities.

Using centrality measures, it was possible to identify key alters (actors) within entrepreneurs' networks, in respect to structural characteristics and their position within the network. These actors influence entrepreneurs' networks due to their higher levels of connectedness to others within the network (degree), higher levels of accessibility or possibility to reach others within the network (closeness), and their capability to act as

bridges (betweenness) connecting different groups. Such characteristics influence the resources and information flow in entrepreneurs' networks. Results suggest that primarily, business partners/co-founders/employees, and secondly, professional services/business support appear to be the most important actors (according to their position and their roles within entrepreneurs' networks), at both start-up and growth. Additionally, although in less proportion, other ecosystem actors such as government, university, support services, and financial organisations were also present within key alters at start-up; while the university was the only other ecosystem actor present at growth.

Entrepreneurial ecosystems present structural elements (e.g. accelerators, co-working spaces, makerspaces) that facilitate horizontal sharing and the dissemination of experiences and practices (Autio et al. 2018). As entrepreneurial ecosystems are characterised by cooperation (Audretsch et al. 2019), fostering this approach could potentially assist towards increasing the collaboration between ecosystem actors.

4.6.3 Key Actors within the Ecosystem

The next section presents findings in two different levels of analysis. This section adopts a macro-level perspective. Through the entrepreneurial ecosystem approach, it focuses on assigning levels of perceived significance of diverse actors and elements involved.

4.6.3.1 Perceived level of significance of actors and elements within the entrepreneurial ecosystem

The following section presents findings on the importance of ecosystem actors, according to the diverse participant groups involved. Participants assessed their perceived level of significance of actors and elements within the entrepreneurial ecosystem through a five-point Likert scale (1-not at all important, 2-of little importance, 3-moderately important, 4-important, and 5-very important). Entrepreneurs at start-up and growth responded to one group of questions, while other ecosystem actors responded to a second group of questions. The first set of questions (for entrepreneurs), focus on the level of importance different ecosystem elements and actors have on entrepreneurs' ventures.

- Questions for entrepreneurs (start-up and growth)

1. How important has been *Melbourne's environment* to achieve your venture's objectives?
2. How important *networks* have been to achieve your venture's objectives?
3. How important *mentors* have been to achieve your venture's objectives?
4. How important *universities* have been to achieve your venture's objectives?
5. How important *support services* have been to achieve your venture's objectives?
6. How important *government regulations and policies* have been to achieve your venture's objectives?
7. How important *Melbourne's market* has been to achieve your venture's objectives?

Results of these questions are presented in Table 4.11.

Table 4.11 Entrepreneurs' Responses -Perceived Relevance

Entrepreneurs	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**
Start-Up (mean value)	3.64	4.09	4.09	2.73	3.55	3.00	3.00
Growth (mean value)	4.00	4.22	3.67	2.78	3.11	2.56	3.78

Entrepreneurs at the start-up stage perceive key important elements and actors helping to achieve their venture's objectives are:

1. Networks and Mentors (equally important)
2. Melbourne's environment
3. Support services
4. Government regulations and policies, and market (equally important)
5. Universities

Entrepreneurs at growth stage perceive key important elements and actors helping to achieve their venture's objectives are:

1. Networks
2. Melbourne's environment
3. Market
4. Mentors
5. Support services
6. Universities
7. Government regulation and policies

The second set of questions (for other ecosystem actors), focus on the level of importance different ecosystem elements and actors have for entrepreneurs and their ventures. Some questions were designed in specific for a certain ecosystem actor and did not apply for the rest.

- Questions for other ecosystem actors

1. How important are *networks for start-up activities*?
2. How important are *networks for growth activities*?
3. How important do you consider *mentors* are for entrepreneurs to achieve venture's objectives?
4. According to your experience, how important do you think it is for entrepreneurs to get *entrepreneurship education* before or during starting/growing their business? Why?
5. According to your perception, how important *support services* are to entrepreneurs?
6. How important is *entrepreneurship* within the *university's priorities*?
7. How important are *entrepreneurship and innovation* within the *government's priorities*?

Table 4.12 Other Ecosystem Actors' Responses -Perceived Relevance

	Other Ecosystem Actors						
Participant	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**
Finance (mean value)	N/A	N/A	4.33	N/A	N/A	N/A	N/A
Government (mean value)	5.00	4.50	4.00	N/A	3.50	N/A	2.00
Support Services (mean value)	4.86	4.00	4.00	3.33	4.00	N/A	N/A
University (mean value)	4.33	3.67	4.67	N/A	3.5	3.00	N/A

As can be seen in Table 4.12, all participants perceive that network and mentors are very important for entrepreneurs to achieve venture's objectives. Participants in support services perceive that entrepreneurship education is moderately important for entrepreneurs at start-up and growth. Participants in university perceive that incentives from university to support entrepreneurship is moderately important within universities priorities. Participants in government perceive that entrepreneurship and innovation have a low priority for the government.

4.6.3.2 Key actors within entrepreneurs' networks

This section adopts a micro-level view. Networks play an important role in better understanding interactions, patterns and influential actors involved in the entrepreneurship process and activities (Alvedalen & Boschma, 2017; Motoyama & Knowlton, 2017). Entrepreneurs are at the centre of entrepreneurial ecosystems. Thus, network analysis on entrepreneurs' networks assisted in identifying important actors within their networks and better understanding the dynamics within entrepreneurial ecosystems.

As earlier described in this chapter, actors significance was determined through centrality measures using UCINET 6.

- *Degree*. Depicts the level of connectedness of a node.
- *Closeness*. Represents how close a node is to other nodes in the network.
- *Betweenness*. Captures a node's role as a connector.

Table 4.13 depicts alters within entrepreneurs' networks representing key actors according to their level of connectedness and position within the network.

Table 4.13 Key Alter Analysis Based on Degree, Closeness and Betweenness

Interaction Characteristic	Start-up Stage			Growth Stage		
	nDegree	nCloseness	nBetween-ness	nDegree	nCloseness	nBetween-ness
Organisation Type (%)						
Ego's Start-up	26.32	41.18	50.00	44.44	55.56	44.44
Finance	5.26	0	0	0	0	0
Government	10.53	0	0	0	0	0
Professional/Business	31.58	23.53	21.43	44.44	33.33	44.44
Support Services	0	5.88	0	0	0	0
University	0	5.88	7.14	11.11	11.11	11.11
Other	26.32	23.53	21.43	0	0	0

Key actors within entrepreneurs' networks at the start-up stage are mostly represented within these categories:

1) Business partner/ employees at entrepreneurs' start-up
2) Professional/Business
3) Other

Business partners and employees working at entrepreneurs' start-up are the most influential actors within entrepreneurs' networks at start-up, followed by Professional/Business (i.e. professional services and actors at other businesses) and Other (i.e. Family member/friend), in respect to the level of connectedness to other actors, their position and their role as a connector within the network. Although less represented, actors from government and financial organisations, are also key actors within their networks.

Key actors within entrepreneurs' networks at growth stage are mostly represented within these categories:

1) Business partner/ employees at entrepreneurs' start-up
2) Professional/Business
3) University

Business partners and employees are also the most influential actors within entrepreneurs' networks at growth, followed by Professional/Business and University, in respect to the level of connectedness to other actors, their position and their role as a connector within the network. Family members and friends appear to not play a key role in entrepreneurs' networks at growth concerning these measures.

Resulting key actors at each stage play a role in entrepreneurs' networks through their levels of connectedness to other actors, influencing information flow and resources. Betweenness captures the level of brokerage of the actor, which can act as a gatekeeper in the network. Important for connecting different groups and monitoring the flow of information, resources and exchange processes (Borgatti et al. 1998).

4.6.4 Resources Flow at Key Actors' Interactions

Findings of the current study identified that in overall, according to participants' perceptions of both entrepreneurs and ecosystem actors, resources for start-ups through networks include:

- Customers
- Information (e.g. on competitors, ideas, other people on the same field)
- Intangible support (e.g. empathy, emotional support, belonging)
- Knowledge and further learning (e.g. marketing, finance options)

- Links to potential funding
- Mentors (e.g. advice, skills, support, networks)
- Professional services (e.g. accountant, lawyer, specific R&D accountant)
- Referrals or introductions to businesses
- Talent

In the case of the growth stage, resources accessed through networks involve:

- Customers
- Industry and government networks (different type of networks than at start-up stage)
- Key connections (e.g. to expand/grow, partnerships, international markets, advisors connected in a specific field)
- Links to potential funding
- Mentors (e.g. advice, skills, support, networks-although they may change according to the stage the venture is at)
- Subject matter experts
- Talent
- Targeted links (e.g. to enter a particular market, selective networks, industry exhibitions)

Although some of the resources remain similar at both stages, other resources are more stage-specific, for instance, the emotional support and access to professional services at start-up; and, connections targeting expansion and growth at the growth stage. More detailed information was obtained through the micro-analysis of key actors' interactions as presented next.

This section identifies resources attached to interactions occurring specifically between key actors and entrepreneurs at start-up and growth. Table 4.14 depicts firstly, the main purpose of the interaction, followed by other tangible and intangible resources.

It can be observed that besides the main purpose of the interaction, entrepreneurs receive additional value from other tangible and intangible resources. More even so, from non-material or intangible resources embedded within the interactions and/or developed through the relationships. This relates to the aspect of support mentioned earlier in this

chapter, where not only tangible and support infrastructure is important but also emotional; while instrumental support is relevant, emotional support is also a key component assisting entrepreneurs (Klyver et al. 2018).

Table 4.14 Key Alters Interactions and Resources

Stage	Main purpose of the interaction, role or service	Other material resources obtained	Non-material /Intangible support
Start-up	Business partner Co-Location Customer Economic support Family support Financial advice Friendship Knowledge Mentorship Networks Professional services Training	Co-working space Financial (sales) Funding	Advice Connections Credibility in the marketplace Emotional support Entrepreneurial experience Expertise Friendship Information Inspiration Knowledge Mentorship Networks Referral Skills Strategy
Growth	Advice Business partner Business services Consultancy Contractor Friendship Mentee Mentorship Personal support Product supply Professional support	Capital/ Funding	Advice Connections Emotional support Expertise Friendship Honest feedback Ideas Information Insights IP Knowledge Mentorship Networks Opportunities Strategy Talent/Skills Trends

4.6.5 Elements that Enhance or Hinder the Dynamics of Entrepreneurial Activities

The last research objective concerns the identification of elements that enhance or hinder entrepreneurial activities within the local context. Table 4.15 depicts such elements.

Table 4.15 Enablers and Barriers of Entrepreneurial Activity within Melbourne's Ecosystem

Ecosystem elements	Enablers of entrepreneurial activity	Barriers to entrepreneurial activity	Aspects to improve
Societal attitudes traditions and norms	Progressive, cosmopolitan, multicultural society; Inclusivity; Diversity	Conservative environment; Tall poppy syndrome	Nurture and promote the positive aspects and advantages of entrepreneurship (e.g. economic, technological, social and environmental impacts)
Cultural attitudes towards entrepreneurship	There is support for entrepreneurs; Creativity; Sense of community; Motivation/inspiration; Openness to new ideas and different perspectives	Risk aversion; Undermining celebration of success and recognition; Negative associations with entrepreneurship	Nurture and promote the positive aspects and advantages of entrepreneurship
Role models and success stories	Inspiration for other entrepreneurs; Exemplify a potential career path	Cultural issue with the celebration of success hinders the promotion of role models and success stories	Success recognition and promotion; Realistic and holistic success stories (failures and successes); Recognition of hard work and risks entrepreneurs take; Policymakers promoting success stories
Triggers of an entrepreneurial culture	Exposure, role models, success stories; Support; Collaboration; Purpose & impact; Profit & impact; Necessity; Education & training; Access to information	Undermining celebration of success and recognition; Competitive behaviour	Success recognition and promotion; Foster and reward collaborative behaviour; Support mechanisms in place

Ecosystem elements	Enablers of entrepreneurial activity	Barriers to entrepreneurial activity	Aspects to improve
Networks	Availability/diversity; Access to key actors, success stories, role models; Access to support and resources; Network diversity	Quantity vs quality; Wide variety of options not efficiently communicated; Not targeted enough	Events follow-up; Efficiently communicating options to respective audiences; Two-sided value networks; A giving network is more sustainable
Investment capital	Available financial options; Improved investor-start-up/business community connection	Conservative environment; Accessibility; Early funding investment gap	Investment diversification; Access to funding, Financial support at earlier stages
Mentors	Experience, different perspective, feedback; Emotional support; Guidance, inspiration and networks	Availability; Inadequate mentorship alignment can jeopardise venture	Mentor-start-up/business connection and alignment; Additional experienced entrepreneurs needed as mentors
Talent	Pool of local and international talent; Global attraction; University city	Talent attraction into start-ups (accessibility issue rather than availability); Visa limitations	Funding support to start-ups to pay competitive salaries to qualified employees; Visa supporting innovation and entrepreneurship
Universities	Quality education; University accelerators; Entrepreneurship education (but needs to improve); Attraction of national and Intl students	Insufficient support for entrepreneurial activity; Disconnect between research and potential for commercialisation; Overreliance on publications	Incentives that support and promote entrepreneurial activity; Stronger link between entrepreneurship education and practice; Research impact and applicability; Greater collaboration

Ecosystem elements	Enablers of entrepreneurial activity	Barriers to entrepreneurial activity	Aspects to improve
Support services and support infrastructure	Spaces fostering entrepreneurship (programs, accelerators, incubators, co-working); Supportive community; Networking facilitator	Clarity of services available; Accelerators' access; Co-working spaces costs	Quality vs quantity; idea/start-up validation through pre-accelerators
Policies and governance	Economic and political stability (job market, transparency, rule of law); Support programs and partnerships, LaunchVic; Progress in acknowledging entrepreneurship	Funding through LaunchVic could be affected if priorities change; Taxation framework	Parliamentary support to bodies supporting entrepreneurship; Visa supporting innovation and entrep.; Early-stage support programs; Legislation enabling business creation; Further support for innovation and entrepreneurship
Market	Good market to start, test environment; purchasing power; Melbourne's key innovation sub-sectors: AdTech, BioTech & Life Sciences, HealthTech	Adoption of radical and disruptive innovations; Competitive behaviours undermine collaboration efforts; Communicating product/service	Further support for innovative start-ups; Greater collaboration amongst ecosystem actors, universities, businesses
Innovation and Technology	Initiatives and strategies towards innovation; Research & development at universities, research organisations, industry	Unbalanced support; Transfer of innovation capabilities at university; Lag in certain regulations limit the implementation of technology	Further support towards innovation; Start-up infrastructure in R&D intensive industries; Impact and applicability of research & innovation; Regulations not stifling innovation

The ecosystem contributes to aggregated entrepreneurial activity, ultimately deriving in value creation. This value creation is obtained through outputs of the overall ecosystem producing economic and social value. Findings suggest that although there is a cultural orientation for profit in the ecosystem, there is also an orientation for social value. Purpose and social impact play an important role. Although certain competitive behaviours undermine entrepreneurial activities, efforts are being allocated to strive for shared value through collaboration. Encouraging a culture of co-opetition can continue to help towards this task.

4.7 Chapter Summary

Framed by the overarching research objectives, this chapter presented the analysis procedures and findings of the diverse sources of data employed. The developed themes and overall findings allowed rich insights about particularities of Melbourne's entrepreneurial ecosystem, the perceived relevance of elements within the ecosystem according to the different actors from a macro-level view as well as key actors within entrepreneurs' networks at a micro-level view. Furthermore, resources flowing between the actor's relations portrayed the different layers existing within the interactions and the relevance that intangible resources can have for entrepreneurs. Lastly, the analysis allowed the synthesis of elements enabling and constraining entrepreneurial activity within the ecosystem, as well as recommendations for their improvement.

The next and last chapter presents the discussion and conclusions of the investigation.

Chapter 5. Discussion and Conclusion

5.1 Chapter Introduction

This chapter integrates the findings and presents the overall discussion and conclusion of the research. First, a research overview is presented, followed by the overall research integration and discussion. Next, the research strengths, limitations and recommendations for further research are described. Findings' implications and contribution of the research are then presented and, lastly, the concluding remarks. The contents of this chapter are summarised in Figure 5.1.

5.2 Research Overview

The overall aim of this investigation consists in gaining further understanding about the contextualisation of entrepreneurship, the dynamic processes involved, and the systemic nature of entrepreneurial activity. This, to advance entrepreneurship research, and to provide greater support to entrepreneurs, policymakers and stakeholders involved. Adopting an entrepreneurial ecosystem approach, the study focuses on the influence that the context, composition and interactions have on entrepreneurial activity, at the stages of start-up and growth.

Entrepreneurial ecosystems are dynamic multi-level, multi-actor phenomena (Brown & Mason, 2017), comprising numerous interactions (Motoyama & Knowlton, 2017; Stam, 2015), in which macro-level behaviours both emerge from and influence micro-level interactions, in complex ways (Roundy et al. 2018). As such, this investigation adopts a multi-method and multi-level design to study this complex phenomenon.

5.3 Study Frameworks

The following section describes the theories and perspectives helping to guide and structure the present research. The study's standpoints and frameworks assisted importantly in articulating the investigation and guided the methodological choices throughout the research process (Ravitch & Riggan, 2017).

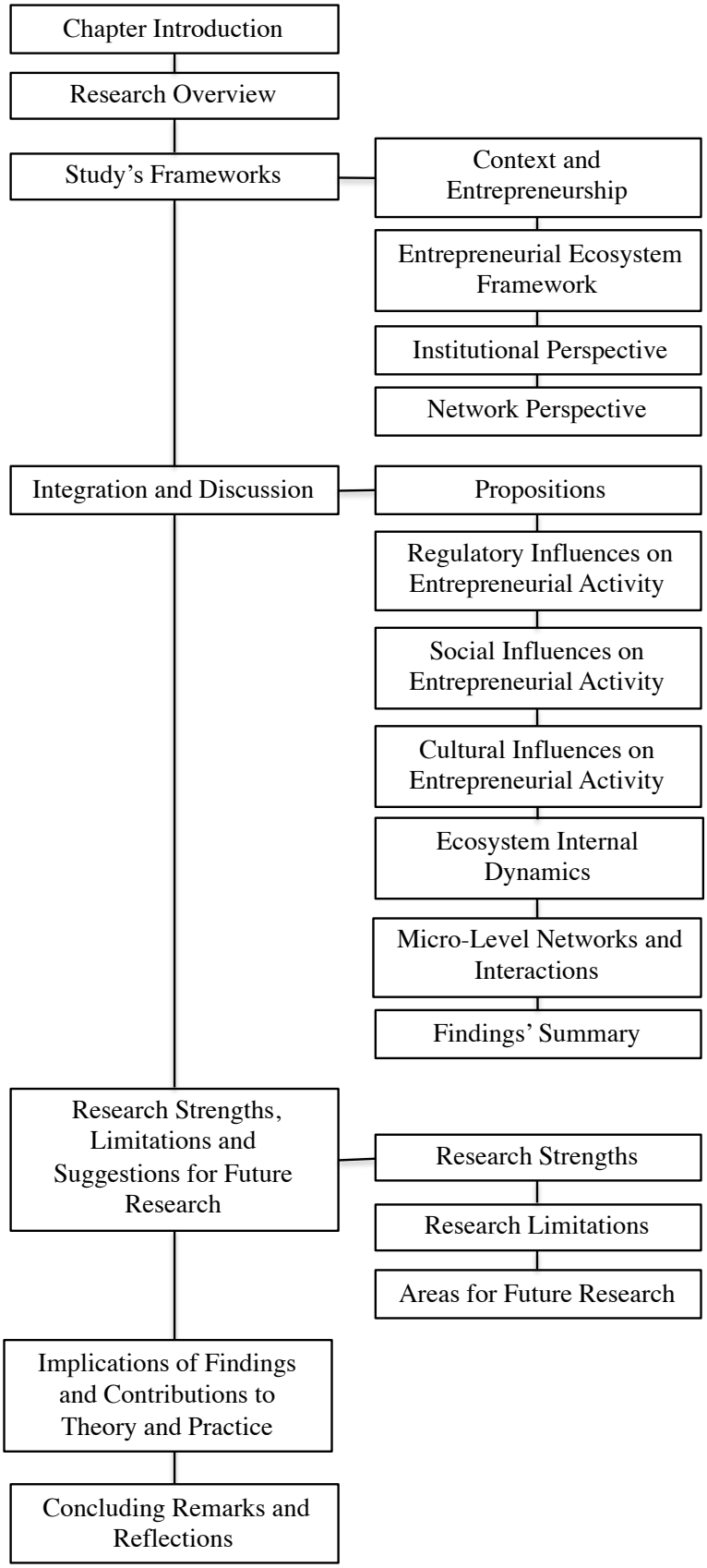


Figure 5.1 Chapter Five Overview

5.3.1 Context and Entrepreneurship

Creating a new firm is a complex, idiosyncratic process that initiates when an entrepreneur embarks in the pursual of an opportunity, gathering resources that the entrepreneur does not necessarily possess or control (Sarasvathy, 2001). In addition to the perseverance and commitment required, the entrepreneur needs to perform a series of organising activities (e.g. business plan, applying for funding, hiring employees) and obtain support to acquire the necessary resources to take the idea further. These organising activities and resources gathered, result on the establishment of the firm and the commencement of exchanges with other actors in the environment (Edelman & Yli-Renko, 2010; Brush et al. 2008) in which the firm is embedded. Relevant since 'the scope and quality of entrepreneurial activity are not independent of the environment within which businesses operate'(Szerb et al. 2019, p. 1313).

It has been drawn to attention that whilst a tendency exists to focus on internal or personal factors influencing behaviour, the influence of external factors should not be undermined (Welter, 2011). Past research has shown that environmental factors significantly affect the entrepreneurial process, influencing firm formation, survival and growth (Bosma et al. 2008; Reynolds, 1997). In management research, context refers to 'circumstances, conditions, situations, or environments that are external to the respective phenomenon and enable or constrain it' (Welter, 2011, p. 167). Understanding and explaining aspects of entrepreneurship can be certainly influenced by the different contexts in which it is being studied. Entrepreneurs' actions and interactions are guided by the context in which they operate, manifested through the culture, economic conditions, values and institutions (Anderson & Ronteau, 2017).

Ecosystems are characterised by spatial boundaries where geographical proximity allows the interchange of knowledge, interactions and network formation between actors (Brown & Mason, 2017; Welter, 2011). Whilst non-local interactions exist (e.g. transnational entrepreneurship, external VCs), entrepreneurship principally occurs within a local context (Spigel, 2017). However, spatial demarcations for their study include national, regional or local area (Brown & Mason, 2017; Fraiberg, 2017), and even smaller instances such as the university environment as an entrepreneurial ecosystem (Miller & Acs, 2017). The specification of boundaries aid in the task of providing contextualisation (Welter, 2011).

Within entrepreneurship, 'context is important for understanding when, how, and why entrepreneurship happens and who becomes involved' (Welter, 2011, p. 166). A country's framework, location and culture intermingle and play a role in the development of entrepreneurial activities. As such, this research considered the context in which entrepreneurship takes place by considering the dimensions presented in Table 5.1.

Table 5.1 Contextual Dimensions

Dimension	Description
Business	*Venture life-cycle* Start-up and Growth
Social	*Social network perspective* Network structure, interactions and resources
Spatial	*Local characteristics* Melbourne
Institutional	*Institutional perspective* Formal and informal institutions shaping entrepreneurial activity

Source: Adapted from Welter (2011)

These dimensions are not only multi-faceted but also cut across levels of analysis, allowing to frame entrepreneurship into lower and higher levels of analysis (Welter, 2011).

5.3.2 Entrepreneurial Ecosystem Model

The study builds from the adapted conceptual framework based on research from Spigel (2017) and Stam (2015) (refer to Chapter 2, section 2.4). This study expands previous work on ecosystems and provides a suggestive model (Figure 5.2) derived from the initial conceptual framework and informed by the present empirical research.

The developed conceptual framework was instrumental in studying an entrepreneurial ecosystem. Although findings of this study are specific to the selected geographical area of Melbourne and should not be considered generalisable, findings do point to three more generalisable elements proposed to be included in the framework: societal attitudes, traditions and norms; triggers of an entrepreneurial culture; and, innovation and technology.

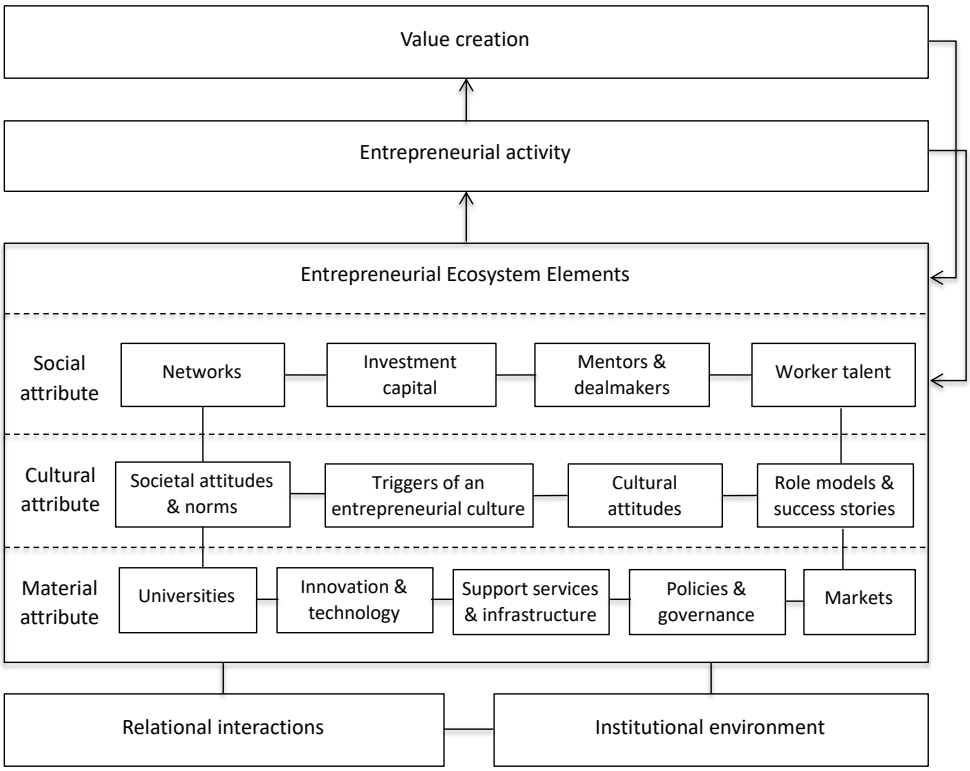


Figure 5.2 Entrepreneurial Ecosystem Components and Interactions

Further details of the ecosystem's elements are depicted in Figure 5.3, which originate from the current research and the literature review. The rationale for the added components is presented next.

5.3.2.1 Societal attitudes, traditions and norms

Spigel (2017) includes the attribute of *cultural attitudes* within his framework. This attribute relates to the underlying beliefs about entrepreneurship within a region (e.g. supportive culture towards entrepreneurship, tolerance to risk, innovation). The rationale for including *societal attitudes, traditions and norms* as an additional component is that it provides a bridge connecting informal institutions to the framework; allowing for deeper understanding into the societal and cultural practices of a particular geographical location. An institutional perspective directs attention to the rules, norms and beliefs that influence society, organisations and their members, taking into account that these vary across countries and cultures (Scott, 2007). Thus, the additional layer analysing societal attitudes, traditions and norms considers the particular socio-cultural context within a certain environment (Alvarez et al. 2011), ultimately infusing and influencing a society's attitudes towards entrepreneurship (i.e. cultural attitudes component).

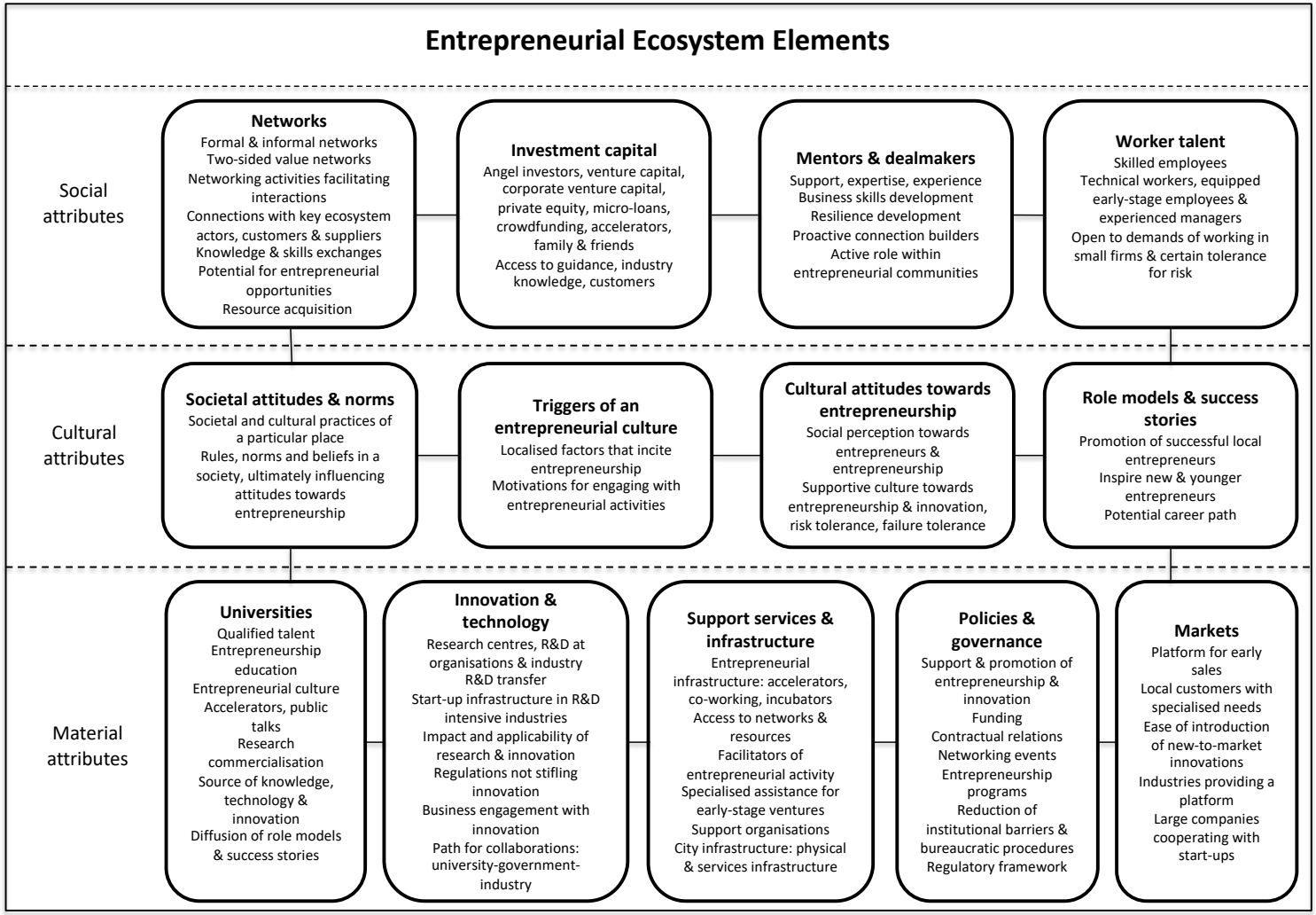


Figure 5.3 Features of the Ecosystem Elements

5.3.2.2 Triggers of an entrepreneurial culture

The element proposed next also relates to the specificities of place. The scholarship on ecosystems generally focuses on bounded sites, that being at the national, regional or local area (O'Connor et al. 2018; Fraiberg, 2017). Furthermore, prevailing circumstances vary across geographical contexts, and the motives and needs for engaging in entrepreneurial activity also change. For instance, while some entrepreneurs might engage in ambitious entrepreneurship exploring opportunities that are more likely to derive in substantial firm growth (Stam, 2015); others may engage in necessity entrepreneurship, for instance in developing countries (Rosa et al. 2006); and others might engage in solving identified issues within their city (Cohen & Muñoz, 2015). Assessing motivations triggering entrepreneurship within a place, help towards the understanding of the prevailing intentions and entrepreneurial culture, and assist in the development of better-aligned supports and incentives.

5.3.2.3 Innovation and technology

Innovation is central to entrepreneurship due to their mutually-dependent relationship (Acs et al. 2017a), being a crucial element for both entrepreneurial firms and entrepreneurial ecosystems. Entrepreneurial firms are firms with strategies oriented toward innovation and growth through their capability to assume relevant risks (Covin & Slevin, 1991). Entrepreneurial ecosystems are supportive environments that foster innovation-based ventures and that include culture, social networks, investments, universities and economic policies (Spigel, 2017). Such conditions and interactions with other ecosystem actors, facilitate the process of business model innovation, in which firms re-invent how they create, capture and deliver value (Autio et al. 2018). Furthermore, innovation is associated with quality entrepreneurship, contributing to the notion that ventures' quality can have superior effects than a focus on generating a greater number of ventures *per se*. Accordingly, innovation is both a process and an outcome (Crossan & Apaydin, 2010). As such, innovation is not only critical for entrepreneurial firms but is also a relevant output of the ecosystem, conducive to territorial performance (Szerb et al. 2019). Through entrepreneurial activity, innovation leads to new value in society (Stam, 2015). Technology and technology transfer are also crucial related elements. Significant since an effective entrepreneurial ecosystem enables technology transfer between actors and institutions (Cunningham & O'Reilly, 2018); with technology similarly being both a process and an outcome of the ecosystem

(Audretsch et al. 2019). As, ecosystems are part of a strategy to develop markets, foster innovation and create environments conducive to firm formation and growth (Mason & Brown, 2014), it is relevant to assess prevailing characteristics, enablers and constraints influencing innovation and technology within a place. In Melbourne, findings suggest that while there is support for developing innovation at sectors such as Life Sciences and Health, there is unbalanced support for other sectors. Furthermore, several participants highlighted improvements needed for R&D transfer and a disconnect between research and potential for commercialisation; soliciting further support from government and universities towards entrepreneurship and innovation initiatives. Established industries are crucial to providing pathways for innovation, since existing technologies and markets facilitate the process, ultimately contributing to the development of the ecosystem (Start-up Genome, 2018; Kuratko et al. 2017).

5.3.3 Institutional Perspective

An institutional perspective emphasises 'how socially constructed environments shape organisational behaviours and outcomes' (p. 3); its association with entrepreneurial ecosystems considers regulative, normative and cultural dimensions of the environment influencing the entrepreneurial process (Sine & David, 2010).

The term 'institution' refers to formal rules, agreements, informal interactions and assumptions that organisations and individuals follow (Bruton et al. 2010). The institutional context considers formal and informal institutions creating the environment that impacts the decision of new venture creation (North, 1990). Formal institutions include education, opportunities, abilities and knowledge for starting up businesses, finance, government policies, government programs, political stability (Gimenez et al. 2015). Additionally, support services and organisations (e.g. mentoring programs, start-up programs, professions such as lawyers, accountants) and support infrastructure (e.g. incubators, accelerators, co-working spaces), as detailed in Chapter 2 (section 2.4). Informal institutions include cultural and social norms and attitudes, the perceived social image of entrepreneurs, perceptions of legitimacy, entrepreneurial role models, fear of failure, peer influences, programs developed to promote and legitimise the role of entrepreneurs, and social networks (Gimenez et al. 2015; Autio et al. 2014). While in developed countries formal institutions are more established and firms are mainly shaped by formal institutions, in developing countries and emerging economies, informal

institutions play a more important role influencing firm's behaviours when formal institutions are underdeveloped (Wang et al. 2019).

These formal rules, agreements and informal assumptions derive from regulatory bodies, governmental agencies, courts, professions and societal and cultural practices that designate conformance, and create the logic and expectations that determine the actions of organisations (Bruton et al. 2010). Formal institutions influence economic outcomes through rules and laws (e.g. IP and regulation of entry) and can also influence entrepreneurial activity (Autio et al. 2014).

Scott (2007) categorises three main types of institutions: regulatory, normative and cognitive. The regulatory pillar relates to incentives and sanctions for organisations and individuals from authoritative bodies (e.g. government) to regulate actions. The normative and cognitive pillars are socially constructed over time and involve values, norms and beliefs, where culture is an important medium by which normative and cognitive structures are transmitted.

'Institutions have a decisive impact on the prevalence and nature of entrepreneurship' (Bosma et al. 2018, p. 483). Although institutional theory has been used in different domains (e.g. institutional economics, political science, organisation theory), its application in entrepreneurship research has been helpful to explain forces shaping entrepreneurial success, aside from organisational and entrepreneurial resources (Bruton et al. 2010). The institutional approach applied to the entrepreneurship field considers that the role of the environment in venture creation is critical, not only regarding formal institutions such as legal aspects, public policy and support services, but also regarding the role of informal institutions through the socio-cultural context (Gimenez et al. 2015; Alvarez et al. 2011), shaping entrepreneurial activity, influencing the decision to become an entrepreneur, and ultimately impacting the birth and the development of new ventures (Fuentelsaz et al. 2018). Accordingly, government policies, entrepreneurial and business skills, socio-economic factors, and financial and non-financial assistance affect each stage of the entrepreneurial process (Urbano et al. 2019).

5.3.4 Network Perspective

This study's perspective of networks is twofold. First, in a macro-level, it recognises that the study of entrepreneurial ecosystems not only comprises the actors and elements

within it, but also the connections and interrelations between them (Motoyama & Watkins, 2014). The interdependencies and interactions between entrepreneurial ecosystem components reproduce the ecosystem (Spigel, 2017). Thus, not only networks are a key component within ecosystems, but ecosystems are also networked structures themselves (Motoyama & Knowlton, 2017). Within regions, advantages of social networks include helping create avenues for knowledge spillovers between firms and universities, information sharing on entrepreneurial opportunities, gathering market and technological knowledge and connecting investors and other financing sources with entrepreneurs (Spigel, 2017). Networks can contribute not only to entrepreneurship but also to innovation. Networks facilitate access to external heterogeneous knowledge, social support, resource sharing, knowledge and information transfer, and joint problem solutions, all of which can enable innovation (Gulati, 1998).

Second, the study utilises social network analysis to investigate interactions occurring at the entrepreneur level (micro-level); specifically, the interactions occurring between entrepreneurs and other ecosystem actors. The study assumes that the institutional environment influences the entrepreneurial ecosystem, and this in turn influences entrepreneurs' actions, attitudes and behaviours. Also, it recognises that these interrelations are not one-way sided, entrepreneurs also influence the environment in which they are immersed (Roundy et al. 2018). The social network perspective is used to analyse relevant research questions concerning entrepreneurial ecosystem dynamics through studying entrepreneurs' interactions and the nature of network relationships (Motoyama & Knowlton, 2017). It is used as a tool to understand linkages between the network structure and network actors, as well as aspects relating to the composition and dynamics of social networks (Hollstein, 2014).

5.4 Integration and Discussion

The following section provides integration and discussion of the findings. First, it discusses the propositions originated as an output of the systematic literature review, guiding the study. Next, regulatory, social and cultural contexts are described, emphasising on macro-level aspects present in the context in which the ecosystem is immersed. Then, elements of the ecosystem's internal dynamics are presented, focusing on actors and elements directly involved in the entrepreneurial ecosystem. And lastly, processes about entrepreneurs' interactions are depicted, focusing on micro-level processes concerning the entrepreneurs and their interactions with other actors.

5.4.1 Propositions

The data analysis provided inferences that there is support for *proposition 1:* the entrepreneurial ecosystem approach adopts a comprehensive view of entrepreneurial activity, comprising the entrepreneur, the interrelations with the environment and diversity of entrepreneurial actors. The combined and adapted entrepreneurial ecosystem framework (Spigel, 2017; Stam, 2015) was instrumental in conducting the investigation. From early beginnings of the study, the framework assisted to generate the methodology guiding the data collection; and at later stages, it helped to frame the analysis, findings and discussion.

Combined with qualitative research, the entrepreneurial ecosystem approach allowed to obtain rich insights particular to the case under study, contributing towards gaining a better understanding of the underdeveloped systemic nature of entrepreneurial activity (Spigel, 2017; Motoyama & Knowlton, 2017). Explaining entrepreneurship from a systemic perspective, the entrepreneurial ecosystem approach considers entrepreneurs are main actors and also relays on relational elements, multi-actor networks and value creation within regions (Brown & Mason, 2017). The framework assisted in adopting a holistic approach to entrepreneurship concerned not only with its elements and actors but also focused on its interrelated aspects (Shwetzer et al. 2019; Cavallo et al. 2019; Alvedalen & Boschma, 2017; Mason & Brown, 2014).

Regrading *proposition 2:* a dynamic entrepreneurial environment can influence actors' perceptions and entrepreneurial efforts to engage in entrepreneurial activities; findings of the present research portrayed that, the majority of the participants recognised that there are numerous activities and supports available within the ecosystem under study, and that such conditions help the entrepreneurial journey. The entrepreneurial infrastructure, support organisations, efforts by entrepreneurs and the start-up community, all contribute towards a vibrant environment, to the exposure to role models and success stories; providing inspiration. In turn, the dynamic environment creates greater awareness towards entrepreneurship, allows for interactions to occur and facilitates the provision of support. In this study, the ecosystem's dynamism was attributed to actors such as entrepreneurs, government bodies (LaunchVic), mentors, investment community, events and competitions, programs and organisations supporting entrepreneurial activity, incubators, accelerators and co-working spaces. Yet, several participants highlighted that

experienced and successful entrepreneurs were needed to nurture the ecosystem. Aspect associated with the spill-over effects (e.g. role models, serial entrepreneurs, angel investors, venture capitalists, board members, advisors, mentors) derived from successful entrepreneurs and 'entrepreneurial recycling' (Mason & Brown, 2014).

Furthermore, efforts from government and universities appear to be still required to contribute towards a dynamic entrepreneurial environment. While the ecosystem's elements are important, so are the interactions between elements and actors, since these are crucial for aligning intentions, outcomes and impact, so that efforts are better channelled, and entrepreneurship and innovation outputs improved. Dynamic ecosystems not only enable firms to have better opportunities to grow. They are also conducive for the development of formal and informal networks, and to develop interactions among entrepreneurs; who also become a source of inspiration for next entrepreneurs, and nurture the ecosystem through mentoring and pro-social behaviours (Brown & Mason, 2017).

Besides allowing access to resources and knowledge sharing, such networks help develop a region's social capital and the generation of a 'local buzz', related to information and communication exchanges through interactions occurring within a certain region or place, allowing for information updates, understanding of new knowledge and technologies, as well as shared traditions within particular technology fields (Brown & Mason, 2017; Bathelt et al. 2004). Findings from this study support the notion that the provision of support through the ecosystem can influence entrepreneurs' perceptions of resources availability deriving from the environment and its dynamism; reducing the perceived risk and influencing entrepreneurs' intentions to engage with the complexities of starting a new venture (Edelman & Yli-Renko, 2010).

Concerning *proposition 3:* examining the composition and interactions of entrepreneurial ecosystems contribute to determining the elements that conform it and how these enhance or hinder entrepreneurship and the dynamics of entrepreneurial activities; it was found that this approach does contribute since the concept of entrepreneurial ecosystems allows to 'zoom out' and consider diverse elements influencing entrepreneurial activity, shifting away from a sole focus on the entrepreneur and the firm, whilst considering other stakeholders involved and the environments in which they interact (Brown & Mason, 2017). By adopting this approach, it was possible to contemplate the perspective

of diverse actors about the topics under study, take into account diverse standpoints and reach to converging considerations. As identified in Chapter 4 (section 4.6.5), the study of the ecosystem's internal attributes and their interactions allowed to identify elements enabling and constraining entrepreneurial activity, as well as aspects to be improved. In this respect, the questions designed for the data collection were critical to being able to uncover the diversity of aspects involved.

Concerning *proposition 4:* the study of entrepreneurial ecosystems can contribute to understanding how context influences entrepreneurship and entrepreneurial activity, is well supported. The business, social, spatial and institutional dimensions considered (Welter, 2011) in this study, and the ecosystem approach *per se*, contributed towards this. The approach allowed to uncover specificities of the place in which entrepreneurial action is taking place, in addition to cultural and societal influences towards entrepreneurship; contributing to the understanding of entrepreneurship in broader contexts (Autio et al. 2014; Zahra et al. 2014; Welter, 2011; Zahra & Wright, 2011). The study of the context in which firms are immersed can help understand characteristics, enablers and constraints influencing entrepreneurial activity within a certain region or place. For instance, in this study, it could be observed that prevailing economic and socio-cultural contexts contribute towards macroeconomic and political stability, transparency, inclusivity and diversity. Which in turn contribute to an enabling business environment, facilitating entrepreneurship. On the other hand, rooted cultural attitudes such as the Tall poppy syndrome undermine it, by negatively influencing the celebration and recognition of success. Aspects addressed in more detail in subsequent sections.

Lastly, regarding *proposition* 5: network and institutional perspectives provide a framework for analysing the composition and interactions among institutions, individuals and organisations within an entrepreneurial ecosystem, resulted in a fruitful approach. The entrepreneurial ecosystem approach has given a shift from a more traditional economic thinking about businesses, to a new focus on people, networks and institutions (Stam, 2015). In this research and in line with Spigel (2017), Stam (2015) and Feld (2012), attention was also placed into the interactions between elements while analysing the ecosystem's internal attributes. It allowed a focus on the dynamics of social structures and their influence on entrepreneurial activity (Hoang & Antoncic, 2003). Additionally, analysing interactions at a micro-level assisted in studying structural and interactional dimensions, ultimately interconnected to broader ecosystem patterns.

The institutional approach applied to the entrepreneurship field considers the role of the environment in firm formation (Alvarez et al. 2011). Accordingly, the institutional perspective assisted in three ways. Frist, emphasising on the institutional context in the form of societal traditions and norms helped understand societal attitudes permeating into the entrepreneurial ecosystem. Second, it provided a lens to consider and identify formal and informal institutions relevant to the entrepreneurial ecosystem (Alvedalen & Boschma, 2017; Autio et al. 2014) and influencing entrepreneurial activity. And third, it assisted to build on previous ecosystems research, allowing insights that derived in the expansion of the conceptual framework.

Regulatory, social and cultural aspects influencing entrepreneurial activity at a macro-level are presented next.

5.4.2 Regulatory Influences on Entrepreneurial Activity

The regulative pillar represents a model of behaviour based on sanctions and conformity. Institutions guide behaviour through rules of the game, monitoring and enforcement (North, 1990). Mainly originating from governmental legislation, industrial agreements and standards, these rules provide guidelines for individuals and organisations to comply (Bruton et al. 2010). The creation of a business-enabling environment is associated with legal and regulatory frameworks that facilitate businesses to get started and grow. Thus, the level of entrepreneurship that develops in a society is directly related to the society's regulations and policies governing the allocation of rewards (Baumol et al. 2009). In this study, the rule of law (formal institution) assists to create a business enabling environment. The rule of law and law enforcement help to create a safe environment favourable for business start-up, capital investment and protected property rights. For instance, hostile external environments may reduce the level of capital investment, place fiscal and regulatory barriers and deter the entrepreneurial spirit (Broadman et al. 2004).
However, participants mentioned that the number of regulations (formal institution) represents challenges. Stifling regulations forcing entrepreneurs to comply with too many rules and requirements and having to spend substantial time and money in fulfilling documentation requirements can also discourage entrepreneurs. A more business-favourable institutional environment, however, will ease such barriers and encourage entrepreneurial potential (Baumol et al, 2009).

The creation of a business-enabling environment also relates to government policies (formal institution) towards entrepreneurship, such as assistance, programs and grants. In this respect, although there are supports in place, findings suggest that further support is needed towards entrepreneurial initiatives. Consistent with national findings reporting that government policies, concerning the promotion and support for entrepreneurship and business start-up, are lower than the average of GEM economies (GEM, 2020).

Bennet (2014) identifies four main areas where the government can assist entrepreneurs through policy 1) institutional capacity building (e.g. legislation, regulation); 2) risk reduction through macroeconomic policy; 3) cost reduction (e.g. taxation, compliance costs, regulatory burdens); and 4) information flow (e.g. mentoring, advisors, education, training). The OECD (2010) also recommends enhancing the business environment by fostering entrepreneurship and an entrepreneurial culture through education and training, access to debt and equity financing, R&D, protection of IP rights and support on firm internationalisation. The WEF (2013) advises that cultural support directed to enable entrepreneurship involves reinforcing the tolerance for risk and failure, promoting self-employment, success stories and role models, a research culture, a positive image of entrepreneurship and the celebration of innovation.

Australia has had longstanding support for SMEs, in line with the global trend supporting and recognising their importance. With 99.8% of all businesses being sole traders, micro, small and medium enterprises, the SME sector is a significant part of the national economy, making important contributions to job employment and economic growth (Australian Government, 2016). The support created around SMEs has contributed to a business enabling environment. However, while related business initiatives can become relevant when new businesses become established and mature, supports and policies needed for entrepreneurship differ from those targeting SMEs.

Although still heavily focused on SMEs, policies towards entrepreneurship in Australia started to emerge in the 1980s. These comprised enterprise incentives and enterprise workshops, school-based enterprise programs and university level courses in small business management and entrepreneurship, and the emergence of venture capitalists. In the 1990s Australia's international competitiveness was analysed. Reports emphasised the need of developing greater innovation, skills development and entrepreneurial growth within Australia's industries, resulting in recommendations to promote the value of

enterprise and entrepreneurial behaviour and the need to foster an 'enterprising culture' through education. Setting the foundations for government initiatives, academic research and education at universities. Government initiatives addressed issues regarding taxation, compliance costs, access to finance (e.g. Innovation Investment Funds), encouraged investment in technology and innovation, and included programs such as R&D Start program and support services from AusIndustry, commercialisation, business development and networking (Mazzarol & Clark, 2016).

By the 2000s initiatives focused on commercialising emerging technologies, business training (Small Business Enterprise Program), enterprise growth (Enterprise Connect), further development of innovation policy and the development of Australia's competitiveness through science and innovation. Towards 2010, alongside with the longstanding efforts allocated to sustain and develop the SME sector, there was a shift from government's support from being more focused in research and innovation to a more holistic one, recognising the need to connect innovation and research with industry, business and government. By 2016, Australia transformed to adopt more holistic national strategies encompassing both small business and entrepreneurship policy approaches. Aspects considered include a business enabling environment, business development services, finance, entrepreneurial culture, innovation and technology and market access (Mazzarol & Clark, 2016).

Thus, over recent decades, entrepreneurship has gained more attention and progress has been made, manifesting through gradual incorporation of entrepreneurship and innovation within government policy (Mazzarol & Clark, 2016), entrepreneurship courses and programs at universities (Maritz et al. 2019; Maritz et al. 2015a), and government initiatives such as LaunchVic, focused in developing the entrepreneurial ecosystem. However, improvements are still needed. In 2019, identified factors constraining Australian entrepreneurs included financial support, government policies, market openness and the capacity for entrepreneurship (GEM, 2020), aspects also aligned with the findings of the present study.

5.4.3 Social Influences on Entrepreneurial Activity

The social aspect relates to the normative pillar, represented in models of organisational and individual behaviour based on dimensions of social, professional and organisational interaction (Bruton et al. 2010). Normative systems comprise values of *what* is

considered appropriate and norms associated with *how* things are to be done, establishing rules through which people conform (Scott, 2007). Societal norms, values and attitudes are informal institutions.

Societal norms towards entrepreneurship relate to the degree individuals admire entrepreneurial activity and value creative and innovative thinking; considering that culture, values, beliefs and norms influence the entrepreneurial orientation of a country's residents (Busenitz et al. 2000). Within Australia, compared to three years ago, the perceived opportunities to start a business reduced. While the perceived skills and knowledge to engage in entrepreneurial activity increased, the perceived fear of failure, deterring entrepreneurial activity, also increased. As seen in Table 5.2, such characteristics are reflected in a decrease of the levels of early-stage entrepreneurial activity, established businesses rate and entrepreneurial employee activity (GEM, 2020, 2017), highlighting the point made earlier, that there is a need for improvement.

On a broader view, regarding values and traits associated with the Australian society, these include civility, equality, inclusivity, democracy, fairness, freedom, 'mateship', easy going attitude, laid-back, openness, acceptance of differences (Moran, 2011).

Table 5.2 Attitudes, Perceptions and Entrepreneurial Activity

Australia	**2017**	**2020**
Attitudes and perceptions	%	%
Perceived opportunities	49.3	45.7
Ease for starting	N/A	66.8
Perceived capabilities/ Skills and knowledge	52.3	56.0
Fear of failure	42.9	47.4
Entrepreneurial intentions	12.3	13.0
Activity		
Total Early-stage Entrepreneurial Activity (TEA)	14.6	10.5
Established Business Ownership rate	11.3	6.5
Entrepreneurial Employee Activity	9.0	8.3

Source: GEM (2020; 2017)

In addition to these characteristics, other salient elements of Melbourne's society include the aspects of cosmopolitanism, progressiveness and multiculturalism, as previously described in Chapter 4. These aspects manifest through the richness of its cultural scene,

creativity, sophistication, variety of events, food culture, quality of education, quality of life (e.g. safety, healthcare, freedom), and diversity; influencing Melbourne's society and its environment. Global circumstances making individuals move from their home countries, combined with the city's attractiveness and quality of life, make of Melbourne a preferred destination for many individuals and families from all over the world.

The current study findings also suggest that Melbourne's environment and characteristics set the conditions for other types of entrepreneurship to emerge. Necessity entrepreneurship can be a pathway, for instance, for migrants and international students, as a way to overcome the lack of local experience while attempting to enter the job market. However, observations from this study suggest that social impact and purpose are also motivations to start a business in Melbourne. In line with this, recent research has found that there is an increased focus on market solutions for social problems and social entrepreneurship. This dual approach of social value creation and financial sustainability are characteristics now present in many social firms (Garrow & Hasenfeld, 2014). Furthermore, the benefits of such firms are not limited to social value as output. A recent study conducted by Kachlami et al. (2020) investigated the regional employment effects of new social firms in Sweden. The authors found that the direct employment effect of social entrants is equal or above that of commercial entrants, contributing also to regional employment creation. This, under the reasoning that social firms operate in less competitive and less profit-oriented environments, that founders are socially motivated and have a strong mission to address social needs that can potentially lead to growth, and, that social entrants have competitive advantages (e.g. partial tax exemptions, part of their personnel being voluntary workers), all elements contributing towards business growth and job creation.

It is well known that businesses and entrepreneurship contribute to the economy and society (Fritsch & Wyrwich, 2017; Acs et al. 2014; Mason & Brown, 2014). Whilst many businesses pursue profits, they also provide significant benefits such as the jobs they create, their products and services (Hollensbe et al. 2014). Other businesses go beyond profits engaging in other approaches. The surge of social, environmental and sustainable entrepreneurship are business approaches that place attention on solving pressing issues (Cohen & Winn, 2007) based on the creation of value for the economy, society, and the environment (Shepherd & Patzelt, 2011). Entrepreneurs driven by purpose are motivated to make social and environmental impact as opposed to the more commonly held view of

seeking profit (Cohen & Muñoz, 2015). A focus on purpose goes beyond profitability and adding shareholder value, it emphasises in connecting at a *core level* with the business's sense of purpose (identity and goals), why it is originated, the entrepreneurs' values and what they want to achieve. It also considers how a sense of purpose relate to the other stakeholders and the context within which they operate, its connection to society and the development of this shared sense of purpose. Broader goals such as 'making a difference' or 'improving lives' become relevant. Although wealth, reward and ambition remain part of human desire for social advancement, coupling purpose with products and services benefiting society can inspire innovation, energy and motivation directed towards achieving purpose, alongside with a financial return (Hollensbe et al. 2014).

Instances of entrepreneurs driven by purpose allocating efforts to make a social and environmental impact rather than a sole focus on a profit-driven approach include, for example, *Changemakers*, a community-led organisation in the UK taking action on social, economic, political and environmental related issues, and *Chiripa* in Argentina, which builds collaboration bridges between cities in Latin America improving transparency and governance systems and fostering grassroots innovation (Cohen & Muñoz, 2015). Another stream is that of purpose-driven urban entrepreneurship. Focusing on local and societal needs fosters alliances between entrepreneurs, private and public sectors actors, to address city challenges, improving the conditions of the society, and opening opportunities for cross-disciplinary interactions (Cohen & Kietzmann, 2014).

As mentioned earlier, societal norms can influence entrepreneurial orientation and perceptions of a country's residents (Busenitz et al. 2000). In the present research, an uncovered aspect concerned perceptions on elements triggering entrepreneurship and an entrepreneurial culture, leading to the following assertion:

> Understanding localised factors that trigger entrepreneurship help uncover economic and socio-cultural elements influencing personal motivations, assist towards the development of strategies to support it, and to allocate efforts conducive to normalising and shifting cultural perceptions on entrepreneurship.

Within Melbourne, while participants recognised that necessity is one of the elements triggering an entrepreneurial culture, they also highlighted other sources of motivation. It may be the case that while necessity entrepreneurship provides pathways for minorities, prevailing local socio-economic and political conditions allow for other drivers to emerge since circumstances are more prosperous compared to other geographical locations. Aspects participants mentioned helping trigger an entrepreneurial culture include creating an impact on society, connecting with personal drivers and personal value system, questioning the status quo and creating change to improve current circumstances, having support (e.g. start-up infrastructure, business support, emotional support, job market to turn to if the venture fails), education and training, role models, access to information, openness, collaboration and diversity.

Purpose and impact, as well as the profit-impact duality, were aspects observed among several participants, being reflected in the motivations of some entrepreneurs within this study, as presented in the following examples 1) a start-up focused towards connecting tertiary education with real start-up and entrepreneurship education, through immersive experiences and the development of new pedagogy delivered in innovative and creative ways; 2) a start-up working on plant-based alternatives to replace single use plastic, in which their solution not only focuses on leaving a positive environmental footprint but also provides employment to farming communities in Asia; 3) a telecommunications social enterprise, concerned by world problems and inequality, believing that doing good is as important as making profit, offers a service and at the same time donates 50% of profits to charities assisting individuals in need and the planet; 4) working towards the problem of employability for international students, another start-up addresses the issue of having local experience to access the job market, placing students into internships, increasing their probabilities of getting a job and increasing international students' support networks, as they are more likely to have less established networks than local students; and 5) a company motivated on one hand in promoting quality Colombian chocolate and attaining profits from this; and on the other, driven by the social purpose to contribute towards training and employment of Colombian farmers dealing with the transition from illegal coca plantations to alternative solutions such as cacao cultivation. Such businesses may generate profits, but their purpose and business models transcend this, for they also add value by creating impact, locally and across borders. As stated by Erina et al. (2017) when value is created in more than one manner, it can be possible to

engage with a variety of stakeholders (contributing to create that value) and potentially create economic and non-economic value in a sustained way.

Thus, the aforementioned characteristics within Melbourne's society, not only provide a prosperous environment for living but also provide significant elements for entrepreneurial activity to thrive, such as the variety of skills and abilities through society's diversity, breadth of knowledge, openness to new ideas, cultural exchanges and creativity. Characteristics both influencing and inspiring entrepreneurs. Government's efforts as well as the society, have both helped to shape Melbourne and the ecosystem as it is today.

5.4.4 Cultural Influences on Entrepreneurial Activity

Culture is another informal institution influencing entrepreneurial activity. The cognitive pillar is associated with culture and taken for granted behaviours (Scott, 2007). These subjective constructed rules and meanings guide beliefs and actions, sometimes limiting their appropriateness (Bruton et al. 2010). As Urbano et al. (2019) explain, 'cognitive elements are directly sensitive to the primary socialisation process, and therefore, those variables associated with this dimension are classified as informal institutions' (p. 28). The cognitive dimension associated with entrepreneurship relates to the knowledge and skills that people have within a region, related to starting and operating a new business, in which certain knowledge and information become part of shared social knowledge (Busenitz et al. 2000). Moreover, this dimension also helps understand societies' acceptance of entrepreneurs, how values are inculcated, and cultural environments created in which entrepreneurship is encouraged and accepted (Bruton et al. 2010). The relationship between culture and entrepreneurship help explain, for instance, how aspects (e.g. social, economic) of the environment influence entrepreneurial behaviour and strategy, how public policies generate values influencing levels of legitimacy in entrepreneurial action (Peris-Ortiz & Merigó-Lindahl, 2015).

Although policies targeted to enhance economic growth through promoting entrepreneurship can be effective, the cultural contexts play an important role in shaping the effectiveness of those policies. For instance, aspects of place-based culture influencing economic performance include the extent to which people interact to create new ideas, the role of leadership at a place, and the identity and image of a place (Audretsch, 2020). In Melbourne's case, the evidence suggests that the vast availability

of spaces allowing interactions (e.g. co-working spaces, meet-ups and events, accelerators), alongside the identity and image of the city attracting start-ups and worker talent fuel and enhance the entrepreneurial ecosystem. However, rooted attitudes (e.g. Tall poppy syndrome) embedded in the society can undermine the effectiveness of entrepreneurial initiatives.

Regarding societal values about entrepreneurship in Australia, the perceptions (per cent of the adult population) attributing high status to entrepreneurs decreased from 71.5% to 68.9%; while entrepreneurship as a good career choice decreased from 54.2% to 53.9% from the year 2017 to 2018, respectively (GEM, 2017a; GEM, 2019). Positioning Australia below the USA (63.1%), the UK (55.6%), and Canada (65.6%), and below the average of developed economies (57.0%), regarding entrepreneurship as a good career choice (GEM, 2019). Reflecting a need for such aspects to be reinforced.

Culture relates to shared values contributing to shaping people's behaviour in a society. Being deeply rooted, unconscious, and continuously reinforced, these values shape political institutions, social and technical systems. Culture shapes an individual's cognitive schemes, programming behavioural patterns consistent with the cultural context (Hofstede, 2003). Culture is developed from a combination of history, art, literature and major social influences. Such elements and events include wars, colonisation, famine, weather, geography, among others (Carroll, 2020).

The Australian culture originates from its indigenous cultural traditions, being some of the oldest surviving cultural traditions on earth, and still present. The European colonisation in the 1780s introduced English traditions and set the foundations for Australia's institutions and laws. However, the Gold Rush in 1850s changed the scenario. Attracting an influx of migrants, the previously established convict colonies transformed into modern cities, giving place to the origins of Australia's multicultural identity. World Wars and other global conflicts resulted in millions of migrants from a variety of nations arriving in Australia, infusing over time into the Australian culture, the diversity of food, lifestyle and cultural practices. Features of the Australian culture include egalitarianism, which supports the idea that everyone deserves equal opportunities and manifests itself not only through publicly funded education and healthcare systems, but also through more nuanced but rooted attitudes and behaviours. The Tall poppy syndrome, which criticises and punishes individuals classified as superior to their peers, and extravagant,

arrogant and boastful people are not appreciated (Carroll, 2020), having implications on entrepreneurship as well. Kirkwood (2007) analyses the impact of the Tall poppy syndrome on New Zealand's entrepreneurs, finding that over half of the 40 participants experienced the phenomenon themselves; adopting strategies such as choosing to 'stay under the radar', in the attempt to manage it. Implications include discouragement of entrepreneurs for starting a business, negative reactions to failure and limiting business growth to diminish attracting attention. Potential paths to reduce the impact of this phenomenon include celebrating entrepreneurial success more visibly, emphasising realistic role models for people to aspire to and emphasising the hard work and risk that entrepreneurs take to achieve success (Kirkwood, 2007). The current study also finds that the majority of participants recognise the presence of the Tall poppy syndrome embedded in the Australian culture, undermining the promotion of success. Findings suggest that more holistic approaches to success (not focusing only on the wins), promoting the different types of impact and value creation that entrepreneurship can be associated to, and government support promoting entrepreneurship, can help shift perceptions in a culture where high achievers face a variety of challenges.

Multiculturalism is another key element within Australia's culture, especially in cities such as Sydney and Melbourne. Australia's national identity shifted from a racially-based white British Australia to a diverse, multiethnic, and officially multicultural Australia since the 1970s. The richness of cultural diversity was embraced and promoted through a series of initiatives such as anti-discrimination policies, the policy statement 'Multiculturalism for All Australians: Our Developing Nationhood', and the ethic of inclusiveness in the National Agenda (cultural identity, social justice, economic efficiency). This derived in integration, the development of a tolerant society, and positive views towards multiculturalism (Moran, 2011).

Findings of this study suggest that cultural elements contributing to Melbourne's entrepreneurial ecosystem include characteristics such as openness, inclusivity, sense of community and diversity. Although the perceptions about entrepreneurs seem to be improving, incentives are still needed towards supporting entrepreneurship to increase its legitimation and social recognition. A culture promoting pro-entrepreneurial values can foster within society attitudes consistent with entrepreneurship, leading to more positive attitudes and intentions by individuals (Liñán et al. 2015). Accordingly, the direct actions of government towards maintaining a supportive environment for entrepreneurship as

well as societal norms that reinforce it, constitute institutional factors impacting entrepreneurial efforts (Bruton et al. 2010). Considering aspects that have been institutionalised (i.e. activities, beliefs and attitudes acquiring a rule-like status) and those that have not, help to identify aspects enabling or constraining entrepreneurial activity within a particular environment (Bruton & Ahlstrom, 2003). However, it should be considered that focusing on improving only individual ecosystem elements (e.g. entrepreneurial culture or financial support) is not sufficient to increase the number of start-ups and high-growth firms (Muñoz et al. 2020). Findings of the present research suggest that although initiatives are in place, improvements and further support to entrepreneurship and innovation are required. Therefore, policies and incentives are necessary to sustain and further develop the ecosystem. Such efforts would be beneficial since nurturing a culture of entrepreneurship stimulates awareness, perceived capabilities and is conducive to entrepreneurial activity (Bosma et al. 2018).

5.4.5 Ecosystem Internal Dynamics

Entrepreneurial actors and elements are not static, since there are strong interrelationships among ecosystem elements (Stam & Van de Ven, 2019). Thus, while the composition (configuration) of the ecosystem was analysed, the interactions between the elements were also considered.

5.4.5.1 Interactions and dynamics

Interactions occurring within the ecosystem, comprise formal and informal networks. Birley (1985) distinguishes formal from informal networks, based on the premise that during entrepreneurs' interactions with the local environment, they not only seek resources such as money and space but also advice, information and reassurance. Formal networks comprise connections with the university, government, professional and support services (e.g. accountants, lawyers, consultants, suppliers, mentors), finance (e.g. venture capitalists, business angels, banks), talent, corporations, support infrastructure (e.g. accelerators, co-working space). Informal networks comprise friends, family, colleagues, peers. Although this group may be less informed about options for the entrepreneur, is more likely to be willing to listen and to give advice. As depicted in Figure 5.4 an entrepreneurial ecosystem can be highly interconnected. The degree and efficiency with which these interactions between actors occur influence the development and success of an entrepreneurial ecosystem (Adams, 2020). Creating opportunities for

innovation (Stam, 2015) among actors, and developing integrated learning initiatives (Pugh et al. 2019) can assist to enhance interactions and develop an entrepreneurial ecosystem.

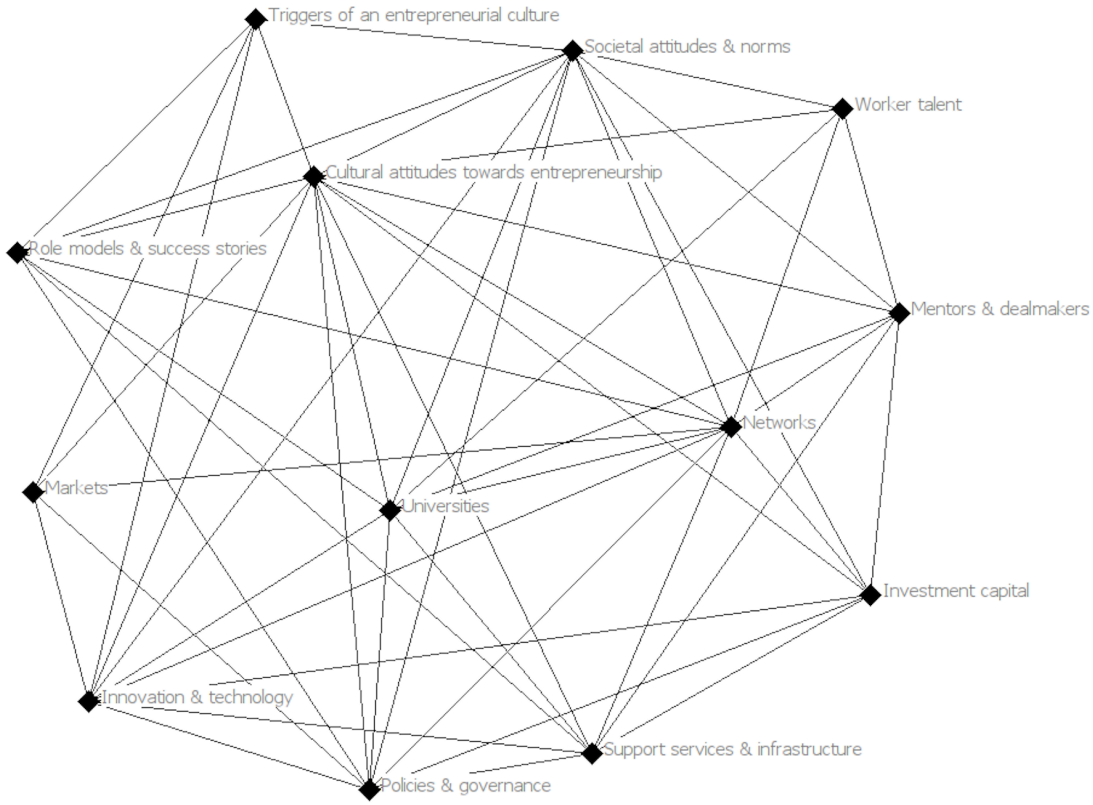


Figure 5.4 Entrepreneurial Ecosystem Interactions

The following section describes some of the interactions occurring within Melbourne's entrepreneurial ecosystem.

University

Universities interact with the ecosystem through 1) the provision of qualified talent, for instance, students engaging in entrepreneurial activities, either starting a business, working at a start-up or being entrepreneurial within firms; 2) entrepreneurship education, providing knowledge and generating awareness; 3) accelerators, providing significant benefits for start-ups; 4) research, technology and innovation, supported by research commercialisation offices and collaborations with industry and businesses; 5) conferences and networking events; 6) showcasing entrepreneurial alumni success stories, among other.

According to participants, regarding talent, there is great diversity and breadth of knowledge, yet start-ups struggle to acquire it (e.g. competitive salaries, visa issues). Regarding entrepreneurship education, although mostly valued, many participants mentioned that when provided at universities, more relevant approaches are required (better balance of theory and practice), highlighting a need for improvement. Entrepreneurship education and training programs positively influence individual entrepreneurial orientation and entrepreneurial skills. Furthermore, entrepreneurship education enhances competencies and capabilities, contributing to the development of autonomy and facilitating the creation of new businesses (Galvão et al. 2020). Due to the significance of entrepreneurship education and training, enhancing it becomes fundamental to convey more effectively such benefits. Accelerators are valued for the many benefits entrepreneurs obtain. However, participants stressed that students interested in entrepreneurship could benefit from participating in accelerators, in combination with entrepreneurship education.

Regarding research, technology and innovation, participants suggest a need for incentives supporting research impact, applicability and transfer; support for research commercialisation (e.g. options for academics' and researchers' work allocation interested to engage in entrepreneurial activities, improve the connection and effectiveness between research and potential for commercialisation); greater university-industry-business collaborations; and greater collaboration and cooperative behaviours within departments to facilitate entrepreneurial projects. Findings regarding entrepreneurship education and R&D transfer are similarly portrayed at the national level; where there is insufficient support, with only 28% of HEIs presenting high levels of support towards entrepreneurship education (Maritz et al. 2019), and entrepreneurship education and R&D transfer presenting lower values in respect to other entrepreneurial framework conditions (GEM, 2020).

Government

Some of the means through which the government interacts with the ecosystem include 1) establishing policies that support and encourage entrepreneurship and innovation (e.g. removing barriers, decreasing bureaucratic procedures, tax incentives); 2) regulatory framework and rule of law enabling a healthy business environment and market dynamics; 3) contractual relations allowing interactions and exchange; 4) funding; 5) start-up infrastructure and support organisations (e.g. innovation hub, entrepreneurship

programs, networking events); 6) public programming; 7) university and research collaborations; 8) influencing cultural attitudes towards entrepreneurship and innovation; 9) physical and services infrastructure (e.g. roads, transportation, internet).

Regarding support, policies and initiatives, the longstanding support to SMEs, business initiatives and programs at all levels (federal, state and local), research institutions, grants and linkage projects, they all provide a foundation for businesses to prosper and leverage from. Additional government efforts influencing the ecosystem include public programming offering plenty of activities, festivals, events and the city's infrastructure, all contributing to Melbourne's attractiveness. The gradual recognition of entrepreneurship as a driver for job creation and economic development has more recently been reflected in initiatives directly supporting entrepreneurial activity and the entrepreneurial ecosystem (Mazzarol & Clark, 2016). Initiatives fuelling the ecosystem include, for example, bodies such as LaunchVic, the Victorian Innovation Hub and Knowledge week.

Aspects identified to improve include further support for entrepreneurship and innovation. A situation also perceived nationally, with government policies concerning support and relevance lowly ranked among the entrepreneurial framework conditions (GEM, 2020). As Barrett (2016) states, although it is recognised that innovation and science are critical for growth, a lack of leadership for innovation has derived in lower levels of network and collaborative innovation (compared to other OECD countries), and mid-sized businesses not significantly investing in innovation. Nationally, not only entrepreneurial activity has decreased compared to previous years (Table 5.2), but also there is a decline in innovation (Table 5.3).

Table 5.3 Australian Businesses Engaged with Product Innovation

Australian Businesses	**2014**	**2017**
Micro-businesses	19%	15%
Small businesses	31%	20%
Medium-sized businesses	34%	22%
Large businesses	35%	27%

Source: Australian Government (2019b, 2016).

In the present study, the following improvements are needed. Regarding grants and incentives, although some support is already in place (e.g. R&D Tax incentive), participants indicated that it is still heavily inclined towards research-industry collaborations and SMEs, limiting the applicability and accessibility for start-ups. Regarding LaunchVic, individual start-ups face challenges to access financial support due to their funding strategy; although their support is perceived as significantly contributing in diverse aspects (e.g. supporting start-ups through other programs such as accelerators, facilitating interactions, learning though their events and programming). Thus, further support in the early stages is needed. For instance, more availability of grants allocated for business start-up and business growth, and support for accessing and acquiring talent at an early stage, where ventures struggle to pay competitive salaries to start-up employees. Additional aspects generating positive effects towards entrepreneurship comprise regulations around credit, labour and 'friendly' regulations for entrepreneurs (Bosma et al. 2018).

Finance

Financial providers interact with the ecosystem through 1) the provision of different sources of funding (e.g. angel investors, venture capital, private equity, banks, crowdfunding and equity crowdfunding, accelerators, corporate venture capital); 2) networking events; 3) mentors and dealmakers; 4) support organisations, among other.

Findings of this study suggest that financial options are available in the ecosystem; which does not translate into being easy to access it. Although the connection between the start-up community and investment community has been improving, there are funding gaps, particularly at earlier stages of venture creation. The angel community, more apt for early-stage investment, is slowly growing but there seems to be an apparent need to provide further education at both sides of this relationship; start-up education to investors and investment education for entrepreneurs. This could derive in better understanding among these actors, for example, regarding changes in early-stage finance due to technological advancements, influencing both investment behaviours and financial institutions (Shane & Nicolau, 2018); or regarding the rapidly evolving digital infrastructures and their influence on business model innovation (Autio et al. 2018). Potentially resulting, on the one hand, in a better understanding of the nature of start-ups and requirements involved in funding them; and on the other, in a better understanding of investors' behaviours and attitudes towards funding start-ups, since investments on safer

options have traditionally predominated locally (e.g. stock exchange, property). Entrepreneurs also highlighted a need for further financial and nonfinancial government support. For instance, more initiatives supporting entrepreneurship and innovation, for albeit the progress made through the years, there is an unbalance concerning support and credibility between SMEs and the start-up community; early-stage support to acquire competitive talent; and, more efforts targeted towards business start-up and business growth initiatives, rather than merely focusing on funding the ecosystem through LaunchVic's channel or grants being heavily focused on industry and research.

Support services and infrastructure

This component interacts with the ecosystem through 1) support professionals specialised for early-stage firms (e.g. accounting, investment advisors, lawyers, R&D); 2) start-up infrastructure and support organisations enabling access to networks, resources and activities (e.g. innovation hub, accelerators, incubators, co-working spaces, entrepreneurship programs, networking events, start-up communities); 3) mentors providing support, expertise and experience; 4) city infrastructure enabling businesses interactions and exchanges, access to markets and the development of ideas, among other.

Support services concern specialised assistance for firms, whereby firms can access capabilities they do not internally possess, and facilitate the important access to networks. Such services are important facilitators of entrepreneurial activity and often a key node of an ecosystem (Spigel, 2017). Accordingly, this study found that the numerous benefits associated with support services and infrastructure supporting businesses are a key component not only for the services and support provided but also for facilitating interactions and the development of a vibrant environment. Frequent interactions and embeddedness in social networks can foster an innovative culture and encourage horizontal collaboration. Such is the case with support infrastructure, particularly with accelerators, co-working spaces and makerspaces, which facilitate interactions and associated horizontal knowledge spillovers (Autio et al. 2018). Incubators can also promote interactions and network building among ecosystem actors through field-building (i.e. incubator deliberately introduces incubated start-ups to their peers outside the incubator) and through activities such as workshops, coaching and events, allowing for a diversity of actors to network and connect (Rijnsoever, 2020).

Previous research and findings of the present research allowed the development of the following assertion:

> Support mechanisms such as support services (e.g. specialised assistance), support infrastructure (e.g. accelerators, incubators, co-working spaces) and events, generate a dynamic environment conducive to entrepreneurial activity and help encourage entrepreneurs.

Findings suggest that accelerators are valued for the numerous benefits they provide. Education, monitoring, mentoring, pitch training and enabling connections with experienced entrepreneurs, venture capitalists, angel investors and corporate executives are some of such benefits (Hausberg & Korreck, 2020). Within this study, aspects valued include the learning gained through the practical side of entrepreneurship education; access to information and basic understanding about starting a business; assistance to the venture's validation. Participants mentioned that the program completion contributes to a start-up's reputation and legitimisation process, access to funding, access networks of potential investors, mentors and professional services. Value was also perceived from receiving guidance on structuring the business and benefits gained through the like-minded cohort (e.g. networks, emotional support, information).

Accelerators' constraints include their limited accessibility and a matter of quantity over quality dominating the entrepreneurial scene. Co-working spaces appear to be also significantly valued. More than just being a place to work, these spaces provide broader benefits such as accessibility and flexibility, fewer costs when compared to paying for bigger office space, access to networks, resources and emotional support from peers. Mentors are another element valued. Not only they provide guidance through their experience, specialisations and specific skills, but also access to different perspectives, inspiration, accountability and different types of supports (e.g. connections, building resilience, emotional support). Main constraints in this area include mentors' availability and accessibility, as well as achieving an adequate start-up-mentor alignment.

Regarding the overall ecosystem's performance, producing high rates of entrepreneurship is a desirable outcome of an entrepreneurial ecosystem. Yet, ecosystems should also be considered successful through the extent of how the interaction between the attributes of the ecosystem create support for that region, increasing the competitiveness of new

ventures (Spigel, 2017). Nevertheless, this represents challenges since ecosystem interactions include both cooperative and competitive relationships with actors pursuing collective and individual interests; adding to the complexity of the system (Stam & Van de Ven, 2019). Colombelli et al. (2019) argue that central actors fuel the emergence of an ecosystem and initially govern the dynamics of collaboration. For instance, the active role that LaunchVic and organisations such as Sartup Victoria have within Melbourne's ecosystem. The authors elaborate that as an entrepreneurial ecosystem consolidates, the interactions between ecosystem actors increase, and central actors become players along with other actors, jointly contributing towards creating an environment conducive to new venture creation and entrepreneurial dynamism. However, cultural and social attributes deriving in cooperative practices are a necessary complement for such circumstances to occur.

5.4.6 Micro-Level Networks and Interactions

Taking into account that entrepreneurs are core actors of the entrepreneurial ecosystem concept (Acs et al. 2017; Brown & Mason, 2017; Isenberg, 2010), it was deemed relevant to study entrepreneurs' networks and relationships with other actors, at the different stages of start-up and growth, observing aspects of their interactions within the entrepreneurial ecosystem.

5.4.6.1 Entrepreneurs' networks and interactions

Focusing on entrepreneurs' networks composition and dynamics, the following section describes aspects concerning network structure, influential actors and the content and nature of network relationships during interactions with other ecosystem actors.

Network structure at start-up and growth

As established in Chapter 4, the networks were formed by actors important for the entrepreneurs and entrepreneurs' ventures, rather than attempting to capture their entire network. The difficulty of gathering complete network data results in the utilisation of network measures used as proxies (Hoang & Antoncic, 2003). The network structure is created by the relationships between actors. In this case, each network was connected by cognitive ties or acquaintanceship ties (Borgatti et al. 2018). That is, by the entrepreneur indicating 'who knows whom' within his or her network. Network size, density and bridging ties are measures concerning network structure (Hoang & Antoncic, 2003).

Regarding *network size (range)*, networks of entrepreneurs at growth stage were larger, on average, than networks of entrepreneurs at start-up. Network size relates to the number of direct links between the central actor and other actors; as such, it can represent the extent to which entrepreneurs access resources (Aldrich & Reese, 1993). Following this line, entrepreneurs at growth can access a greater amount of resources than entrepreneurs at start-up. Thus, stressing the relevance that support services and support infrastructure can have for businesses at the start-up stage.

The network graphs presented next (Figure 5.5 and 5.6), illustrate the entrepreneurs with a maximum number of alters at each of the stages addressed.

Network density (i.e. the number of ties as a proportion of the total number of ties possible amongst a set of actors), depicts network cohesion or level of connectedness (Borgatti et al. 2018). Entrepreneurs at start-up were more connected on average, compared to those at growth (an effect also observed in Figure 5.5 and 5.6).

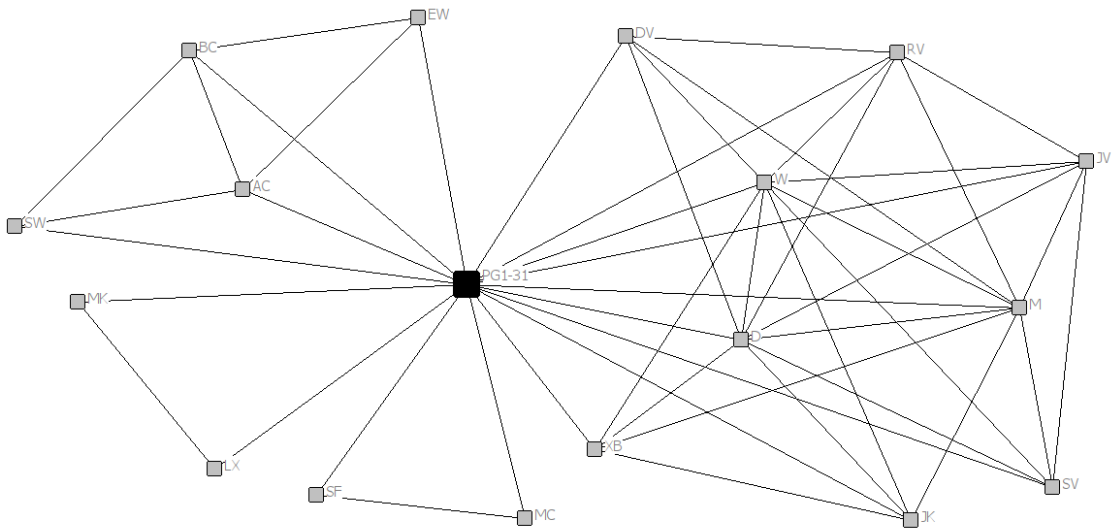


Figure 5.5 Entrepreneur's Network (start-up stage, PG1-31)

Although this can be associated with greater access to information, resources and trust (Coleman, 1988), it is also linked to greater levels of information redundancy (Burt, 1992). Thus, lower density levels suggest more non-redundant networks. Diversity in information and knowledge flow is a desired characteristic within firm networks (Hoang & Antoncic, 2003), influencing aspects such as the variety of information and resources, impacting business growth (Stearns, 1996).

The former relates to the notion of structural holes. A *structural hole* (measured through efficiency and constraint), is the lack of a tie between two alters within an ego network (Burt, 1992). Structural holes are related to the potential for brokerage (e.g. control on information flow) and non-redundant ties. While network size delimits the number of resources an actor can access, the presence of structural holes challenges the ability of actors to gain access to the diversity of resources (Hoang & Antoncic, 2003).

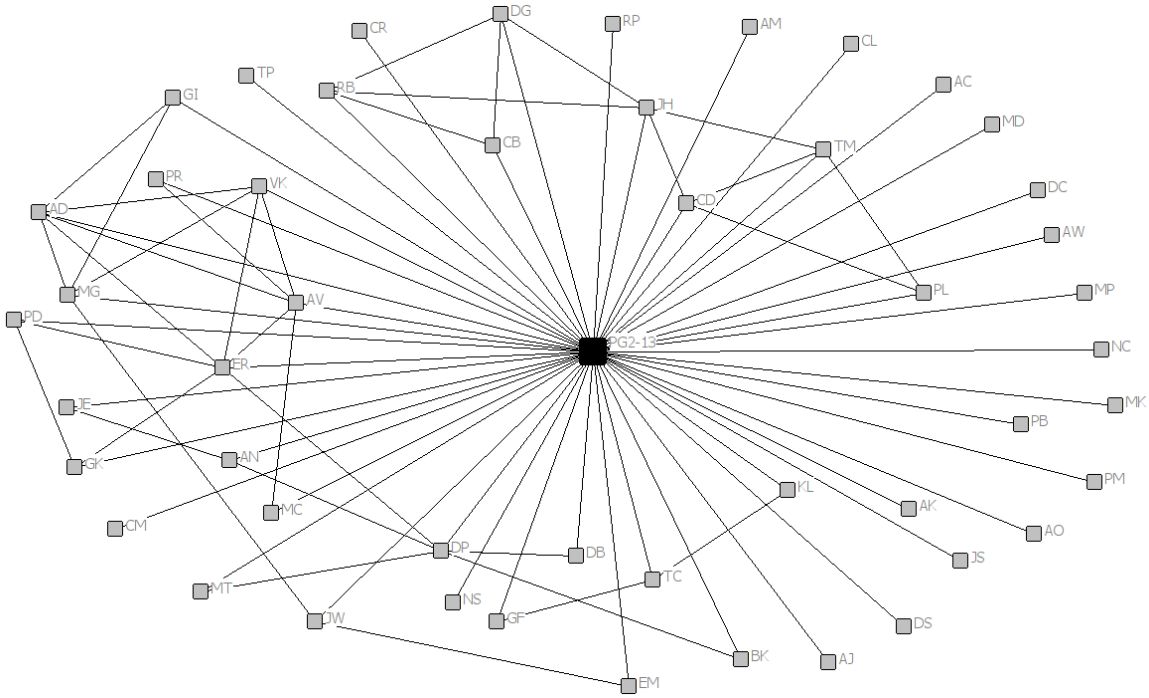


Figure 5.6 Entrepreneur's Network (growth stage, PG2-13)

Entrepreneurs at start-up and growth both resulted with similar mean ego efficiency and constraint values, depicting similar potential of access to information and control benefits. Unconnected alters are more likely to offer ego different points of view or more novel information. Thus, if ego is connected to different pools of information, ego is likely to receive more non-redundant information, providing the capability of performing better or being perceived as the source of new ideas (Borgatti & Halgin, 2011). In the case of entrepreneurs at growth, a slightly lower value of constraint indicates fewer connections were redundant and the presence of more structural holes, suggesting more diversity in interactions and connections, deriving in more access to social capital and opportunities (Burt, 1992).

Social capital derives from social networks and refers to relationships and contacts between and among firms potentially providing new opportunities for business growth;

in which relationships are based on elements of trust within the social environment (Burt, 1992). Social capital is an important resource within an entrepreneurial ecosystem. It allows overcoming the liability of start-ups' newness and smallness (Coleman, 1988). Benefits from social networks include:

- Access to reliable and sometimes exclusive information and resources
- Decrease of transaction costs through the developed trust among members (such as monitoring contracts)
- Enable collective social action, serving as an action mechanism
- Provide learning opportunities through the relationship

Such benefits contribute to the ecosystem. Social networks enable interactions and connections among a broad diversity of actors, allowing them to build trust for exchanges to occur (Muldoon et al. 2018).

Network interactions and the nature of network relationships

The interactional dimension addressed the aspects of tie durability (i.e. duration of the relationship), tie content regarding to the nature of the relationship (i.e. social, economic or both), and multiplexity (i.e. social, relational, other). Concerning *tie durability*, both groups (entrepreneurs at start-up and growth) showed a similar pattern. The majority of the interactions were long term ongoing relationships, followed by medium term, and lastly, short term (one-off/few) relationships.

Among these three categories of duration, long term relationships depicted greater difference, in average, between the two groups, with entrepreneurs presenting 60% of long term relationships at the start-up stage and 67% at the growth stage. Tie durability is associated with the stability of the network (Larson & Starr, 1993). Hence, entrepreneurs at growth seem to have more stable networks.

In respect to the *nature of the relationship,* interactions of entrepreneurs at start-up firstly comprise, in average, business ties (53%), followed by dichotomous relationships composed of family/friend-business ties (24%), and lastly by family/friend ties (23%). In the case of entrepreneurs at growth interactions firstly comprised family/friend-business ties (45%), then ties being only business-related (42%) and lastly, family/friend ties (13%).

Results show firstly, that economic ties predominate in entrepreneurs at start-up, whilst dichotomous economic-social relationships predominate at growth. Secondly, entrepreneurs at start-up rely more on family/friend ties than their counterparts at growth. Figure 5.7 shows the network of one entrepreneur (PG1-9) at the start-up stage with a majority of ties located in the business category.

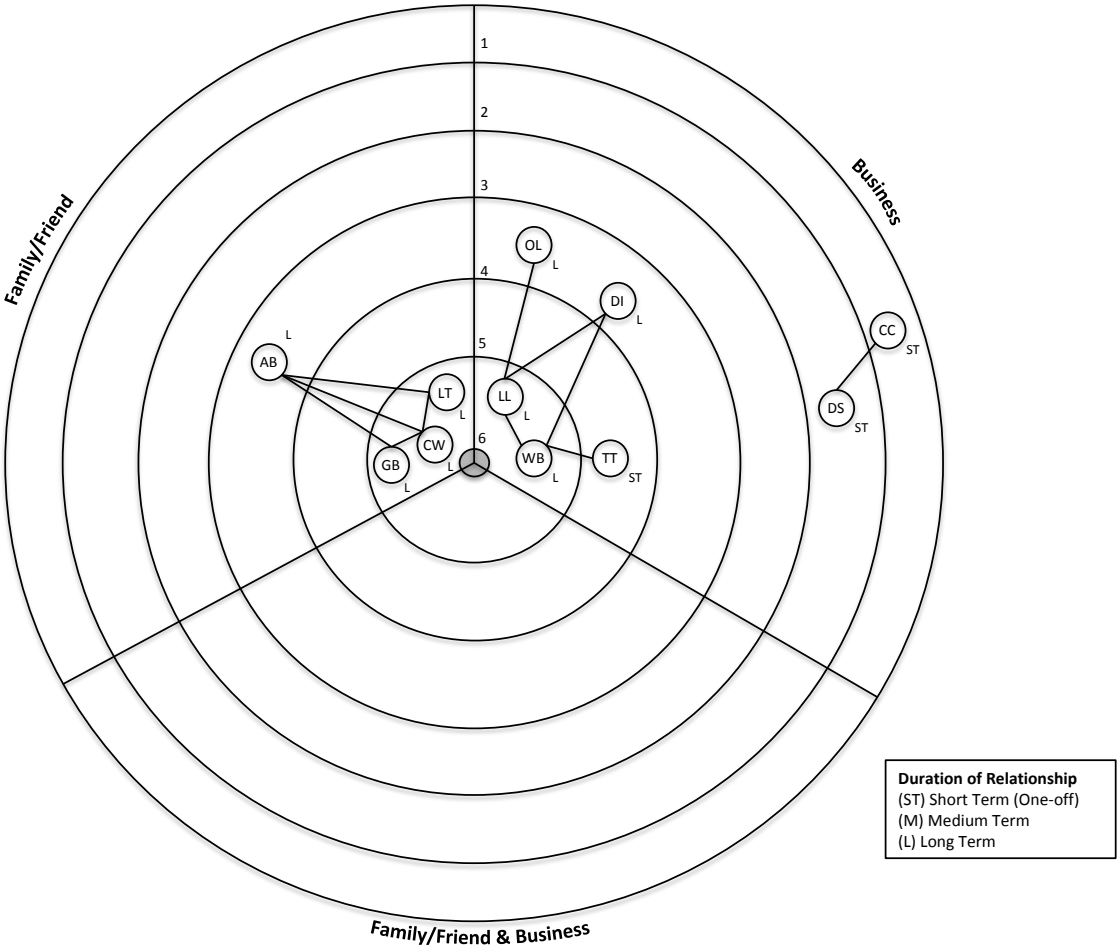


Figure 5.7 Entrepreneur's Network Chart (start-up stage, PG1-9)

Figure 5.8 shows the network chart of an entrepreneur (PG2-22) at growth stage with a majority of ties located in the family/friend-business category.

Business ties not only strengthen the relationship between social and human capital but also can influence innovation through cooperation (e.g. suppliers, distributors, customers, business networks). Social capital is positively related to information and resource exchange, and innovative capability accumulation, contributing to organisational performance (Liu et al. 2020).

Regarding family social capital, it is also positively associated with the scope of start-up activities; and family cohesiveness amplifies this effect (Edelman et al. 2016).

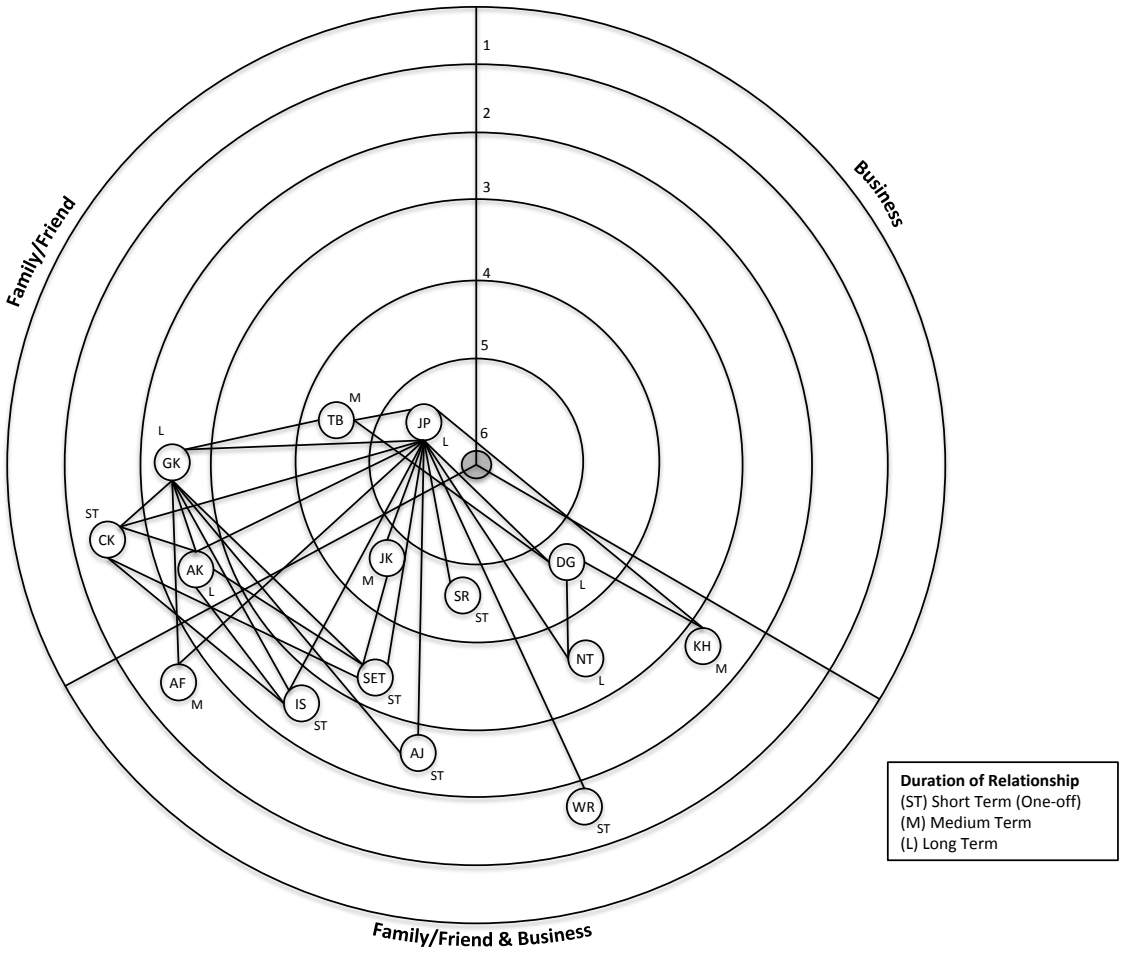


Figure 5.8 Entrepreneur's Network Chart (growth stage, PG2-22)

Multiplexity considers the multidimensional nature of business relationships and is defined as the 'layering of different types of exchanges within the same relationship' (Hoang & Antoncic 2003, p. 169). Bliemel et al. (2016) classify multiplexity in four levels of dynamism: social, relational, strategic and closed. Each level representing increased levels of interdependence with increasing relationships within an entrepreneur's network.

This research focuses only on the first two. *Social multiplexity* is the more common dichotomous layering of business and social relations within a single relationship. In such relationships, a simple business exchange is enhanced by friendship and trust, being relationships relatively easy to manage. Entrepreneurs at growth present higher social multiplexity (26%), on average, compared to start-up entrepreneurs (22%). Higher levels

of social multiplexity can entail greater levels of dynamism within the network (e.g. bouncing ideas, seeking information). *Relational multiplexity* consists of multiple interdependent layers of business and social exchanges in a single relationship. For instance, an entrepreneur interacting with a business partner (exchange 1), involving also advice (exchange 2) and friendship (exchange 3).

Results portrayed that relational multiplexity was similar at both groups, depicting multidimensional relationships present among both entrepreneurs at start-up and growth. Aggregated layers of exchanges derive in relationships with higher levels of interdependence that evolve into more stable relationships (less turnover) and present moderate dynamism. However, entrepreneurs should be mindful that high levels of relational multiplexity could also entail inefficiencies, for instance, if content flows conflict or when engaging in synergies requiring too much time and effort, thus decreasing value creation (Bliemel et al. 2016).

Key actor's impact within their network

Centrality measures were used to analyse the importance of actors within egos' network. Such measures address aspects of actors' position within the network and the flow of information and resources as outcomes of the interactions. *Degree* displays the level of connectedness of a node to others, *closeness* depicts how close a node is to any other node within the network and *betweenness* captures the node's role as a connector or bridge.

It could be observed that key alters in entrepreneurs' networks at start-up are more connected, on average, than key alters at growth. As such, key alters in entrepreneurs' networks at start-up can more easily reach other actors in the network through intermediaries (Hoang & Antoncic 2003), than those at growth. Key alters at start-up present higher closeness levels, in average, than their counterparts at growth, indicating a more central position, thus, quicker and easier access to other actors in the network, influencing information flow. Key alters in entrepreneurs' networks at start-up show higher levels of betweenness than those at growth. This suggests that key alters within entrepreneurs' network at start-up stage have higher levels of brokerage, acting as gatekeepers in the network and thus, presenting greater control of the flow of information and resources (Borgatti et al. 1998).

Concerning *durability*, long term relationships predominate within both, key alters at entrepreneurs' networks at start-up and growth. Concerning the *nature of the relationship*, whilst business ties are more common within key alters at the start-up stage, dichotomous social-economic ties (social multiplexity) predominate within key alters at growth. Concerning *relationship* type among entrepreneurs and key alters, immediate family members interactions are higher at start-up than growth; friendship and emotional support are more prevalent in growth than in start-up; while (understandably) mentorship exchanges are more predominant at start-up, advice and knowledge exchanges predominate at growth; lastly, business partner/Co-founder interactions between entrepreneurs and key alters are more prevalent at growth than at start-up. The top tree interactions involved among entrepreneurs and key alters at start-up are 1) advice and knowledge exchanges, 2) friendship and emotional support, and 3) immediate family members interactions. While the top tree interactions involved among entrepreneurs and key alters at growth are 1) advice and knowledge exchanges, 2) friendship and emotional support, and 3) business partner/Co-founder interactions.

Anderson et al. (2005) study the role of family members in entrepreneurial networks. The authors explain that entrepreneurs' networks tend to contain a mix of business, friendship and kin ties, containing affective and instrumental elements bonded by trust. Aspects deriving from family relations—often not formally employed—that help the entrepreneur comprise: initial capital, strong ties with high levels of trust, commitment and reliability, support (e.g. advertising and promotion, finding new customers, emotional support), advice (e.g. business growth, management and operations); being particularly relevant while starting the business, but still important at later stages of the business whilst providing continuing support. The authors highlight that although the literature on network theory suggests that, same as the characteristics of strong ties, these type of relationships present liabilities regarding lack of diversity (homogeneity) and variety of resource provision, family assistance offers entrepreneurs important advantages. Benefits include the high quality of help provided, the heterogeneity of resources and available viewpoints, and the rapidity or services provided at a low or non-existent cost.

Regarding *organisation type* or ecosystem actor, within start-ups, the majority of key alters comprise members at entrepreneur's start-up (e.g. business partner, co-founder, employee), professional/businesses providing services (e.g. website development, brand design) and other (e.g. providing economic support, emotional support, mentorship).

Fewer key alters were members of the government (10%), university (7%), support services (6%) or financial organisations (5%). In the case of key alters at the growth stage, the majority also form part of entrepreneurs' businesses. Other key alters include professional/business, mainly providing service and business support, mentorship and advice. Regarding other ecosystem actors at entrepreneurs' networks at the growth stage, only university is present as a key alter (11%). Neither of other ecosystem actors (e.g. financial organisations, government, support services) was represented as key alters at the growth stage. Macro-level behaviours both emerge from and influence the micro-level interactions of the elements of the system (Roundy et al. 2018).

The evidence of the key alter analysis suggests that start-ups are engaging in more interactions with the ecosystem than their counterparts at growth. Although, the ecosystem can be instrumental for start-ups, ecosystems foster innovation and create environments conducive to business formation and growth (Mason & Brown, 2014). Businesses at the growth stage could potentially leverage from the ecosystem if they develop their connections further. However, openness and collaboration from other actors (e.g. universities, large companies) are also required.

The resources being exchanged between actors include both tangible (e.g. funding, co-working space) and intangible resources (e.g. advice, connections, credibility in the marketplace, information, knowledge, friendship, referral, ideas), with multiplexity being present in many of the relationship exchanges. However, it is important to recall that the key alters analysis only comprise the most important actors according to their position and roles (e.g. as connectors or bridges) within entrepreneurs' networks, corresponding to the above-described centrality measures (i.e. degree, closeness, betweenness). In other words, more ecosystem actors were generally present within entrepreneurs' networks, however, this analysis focuses on salient features within key alters.

The following section addresses aspects concerning immigrants and networks. Considering that Melbourne is represented with a highly culturally diverse community, composed of a wide variety of cultures, the link between social networks and immigrants is presented next.

5.4.6.2 Immigrants and social networks

Immigrants compose much of Melbourne's society. The individuals comprising the sample of this study is a reflection of this. Although purposive and snowball sampling was used, in the case of entrepreneurs, the emphasis was placed on gathering participants from diverse industry sectors, in addition to fulfilling the established definitions for business stage (start-up and growth). In the case of other ecosystem actors, the emphasis was placed on recruiting participants based on their expertise to access information pertaining to the diverse ecosystem areas. Under such circumstances, the resulting sample of 36 participants (entrepreneurs and other ecosystem actors), was a diversified one, with almost 50% of the sample comprising individuals from other countries, including Botswana, Colombia, India, Malaysia, Mexico, New Zealand, Portugal, Singapore, Sri Lanka, UK, US and Vietnam. Hence, the logic to address this aspect.

Immigrant entrepreneurship relates to individuals building a venture in a foreign nation (Aldrich & Waldinger, 1990). Both institutions and networks play a role in this area. Whilst immigrant entrepreneurs possess social cognitions from their home country, they also have to adapt to social norms and regulations from the host country, deriving in idiosyncratic interpretations and ultimately in the type of actions they take (Griffin-EL et al. 2018). Within this adaptation process, social identity also comes into play. As immigrants often experience social and cultural dissonance in the host nation, collective or group-based identity becomes more meaningful. It enables self-continuity, a means to gain self-esteem and belongingness within the host society (Carpentier & de la Sablonnière, 2013). Not only constructing social identity helps on reducing perceived uncertainty, but also when engaging in collective identity, a sense of unity is generated enhancing cohesiveness among group members (Dheer & Lenartowicz, 2018). Under these considerations and observed findings from the conducted research, the next assertion was developed:

> In the particular case of Melbourne, immigrants and international students would have less established networks compared to locals or individuals living in Melbourne for longer periods of time. The perceived value from networking and networking events can be increasingly so within less established groups.

Engaging in social networks not only enables access to new relations but also to other benefits such as access to resources, opportunities, social support, information, trust, increasing an individual's social survival and economic prospects (Uzzi, 1996). Furthermore, embeddedness in both ethnic and host society places immigrants in existing structural holes (Burt, 1993), providing immigrants with benefits, reflected as complementary resources and competencies. Whilst ties with the ethnic society can enable access to social, emotional and financial capital, the host society can provide knowledge, goodwill and experiential capital. Frequent interaction with multiple cultures enables immigrants to make sense of culturally diverse contexts, integrate and transfer ideas across cultures, increasing creativity and information search.

In addition to cognitive benefits, dual embeddedness (i.e. ethnic and host society), is associated with increased social flexibility. In particular, weak ties and structural holes can increase the number of choices immigrants have, allowing them to have more control and exploit brokerage opportunities derived from different information and resources. As such, culturally diverse network ties can derive in more non-redundant social and informational resources, diversity in knowledge helping to identify opportunities, and the creation of new ideas as well as the transferability of ideas across cultures (Dheer & Lenartowicz, 2018).

Transnationalism and transnational entrepreneurship are related concepts to immigrant entrepreneurship. Transnationalism refers to the process by which immigrants connect their country of origin with their host country through the creation of transnational social fields that cross national borders (Glick Schiller et al. 1992). Transnational entrepreneurship refers to immigrants' participation in border-crossing entrepreneurial activities, operating between the host country and either the home country and/or a third country (Sommer & Gamper, 2017). Unlike immigrant entrepreneurs in general, scholars (Von Bloh et al. 2020) suggest that transnational entrepreneurs are more driven by opportunity motivations (rather than necessity), thus relevant for entrepreneurial ecosystems due to their growth orientation.

Acting as potential bridging agents between their country and the host country, transnational entrepreneurs could connect ecosystems and play crucial roles in maintaining and developing the ecosystem. Associated benefits with this type of entrepreneurs include higher levels of self-efficacy (than non-transnationals), pushing

opportunity driven entrepreneurship, enhancing the ecosystem's social capital through connecting actors in different ecosystems and through the provision of their own cultural and human capital (e.g. multilingualism, international management experience, knowledge of overseas markets) and economic capital (different sources of funding or access to multiple national financial systems).

5.5 Research Strengths, Limitations and Suggestions for Future Research

The next section addresses the study's strengths, its limitations and presents suggestions for future research.

5.5.1 Research Strengths

First, one of the strengths of the present study is the conducted systematic literature review. Such an approach allowed access to rich information from diverse sources and helped towards reducing article selection bias, conveying rigour to the literature review process and overall research (Tranfield et al. 2003). Second, the multi-level approach used to gain an understanding of entrepreneurial ecosystem dynamics and the influence on entrepreneurial activity (Audretsch & Belitski, 2017; Zahra et al. 2014). Third, the use of case methodology as research strategy allowed the incorporation of the context into the research and facilitated the use of diverse sources of evidence, helping to inform the different research questions and sub-questions involved. Fourth, the concept of entrepreneurial ecosystems offers both a theoretical and practical perspective (Brown & Mason, 2017), contributing to a better understanding of what occurs in practice; adding to the efforts of bringing closer theory with practice (Fayolle, 2013). Lastly, the frameworks used allowed rich insights into the phenomenon under investigation. Building on previous research from Spigel (2017) and Stam (2015), the frameworks employed and developed were instrumental for studying an entrepreneurial ecosystem. Additionally, the institutional and network approaches contributed to gain depth and integrate interrelated aspects relevant to the study of entrepreneurial ecosystems and entrepreneurial activity.

5.5.2 Research Limitations

A limitation specific to the systematic literature review is the utilisation of one database. Although the Web of Science is a comprehensive database frequently used in systematic reviews, it is not exhaustive (Hausberg & Korreck, 2020). As such, some relevant work

could have been excluded. Limitations concerning case study methodology, include first, views of case studies as a less desirable research method than, for instance, experiments. Second, being confused with 'non-research' case studies, such as teaching-practice case studies or popular case studies, which may not follow conventional social science procedures. Third, the limitation of representation, since case studies allow to expand and generalise theories (analytic generalisations) but not to extrapolate probabilities to populations (statistical generalisations) (Yin, 2018). Although case study methodology is a useful approach for the relatively underdeveloped field of entrepreneurial ecosystems, findings should not be considered generalisable since each region's ecosystem would be influenced by its particular historical and economic processes (Spigel, 2017).

Regarding the network analysis section, a limitation relates to the data collection process, since collecting network data can be challenging (Hoang & Antoncic, 2003). Part of the reason concerns the retrieval of information, as it may vary according to participants' memory. Moreover, the time and effort needed from participants can result in a rather tiresome process (McCarty et al. 2007). However, in the attempt to reduce the number of possible omissions and reduce respondents' burden, when participants were asked to place at the network chart people/actors relevant for them and their business at the stage they were at (start-up or growth), there was no intention to capture their complete networks. Instead, the focus was on trying to capture top of mind actors within their networks. Another limitation related to ego-centred network data collection is that of Ego (entrepreneur) being the only source of information for this section of the study (Bernardi et al. 2007). Richer data could be attained if the alters (other ecosystem actors) would also provide data from their perspective, attaining mutual perspectives of the dyads.

5.5.3 Areas for Future Research

This research supports the notion that qualitative or combined methods help capture the richness and diversity of context(s) in which entrepreneurship occurs (Welter, 2011). Additionally, studying the diversity of contexts of entrepreneurship help to understand better the nature and dynamics of entrepreneurship (Zahra & Wright, 2011). The conceptual framework of entrepreneurial ecosystems, adapted from Spigel (2017) and Stam (2015) and further developed through this research, can help future research to study entrepreneurial activity within different locations or boundaries, taking into account the influence of the context and prevailing ecosystem dynamics. The developed methodology and guiding questions (Appendix F) generated for this investigation can

also help towards this task. This to identify significant actors within an ecosystem, elements enabling and constraining entrepreneurial activity, as well as political, economic and socio-cultural forces influencing the entrepreneurial scene.

This research expanded previous work on entrepreneurial ecosystems and identified characteristics enabling and constraining entrepreneurial activity within Melbourne. Future research may identify other factors and explore their impact within the ecosystem, contributing to the conceptual advancement of the entrepreneurial ecosystem construct, and the development of appropriate theoretical frameworks in order to understand the processes through which ecosystems emerge, function and change over time (Brown & Mason 2017; Spigel 2017).

Another possible avenue for further research includes the investigation of effective interventions to build, sustain and grow the ecosystem. This relates to aspects concerning the creation, governance and sustainability of entrepreneurial ecosystems (Audretsch et al. 2019). For instance, how are ecosystems created? In this regard, although new venture creation is one of the main focus of entrepreneurial ecosystems (Cavallo et al. 2019), assuming that ecosystems are only about start-ups can be misleading (Mason & Brown, 2014; Isenberg, 2011). Brown and Mason (2017) argue that fostering innovative new businesses and scale-ups, enhancing firms' dynamic capabilities, building upon existing agglomerative forces based on particular industries (rather than a sole focus on technology based firms), and avoiding single-actor interventions, are some aspects also to be considered. Accordingly, the authors state that gaining a better understanding of these complex systems can derive not only in adopting systemic approaches for policy interventions but also in the development of adequate measurement mechanisms.

Furthermore, whilst ecosystems tend to organically evolve (Isenberg, 2010), interventions can support their development, but should consider the diversity of actors involved. As such, further research is needed on interventions required according to the entrepreneurial ecosystem's life cycle (e.g. Colombelli et al. 2019). Colombo et al. (2019) also call for further research on theoretical and conceptual development regarding entrepreneurial ecosystems' governance models and their evolutionary paths once they become established since there is a need for developing entrepreneurial ecosystem frameworks of governance processes, mechanisms, relationships and practices. As such, research is needed to advance appropriate evaluation tools and methodologies to evaluate

the performance, stability and resilience of these systems (Audretsch et al. 2019). For example, what are the different policy instruments and interventions needed to support emergent, developing and established ecosystems? As it is important to find a balance between policy intervention and self-regulating mechanisms, research in this area can contribute towards the development of policy interventions that enable, support and grow entrepreneurial ecosystems (Cavallo et al. 2019; Audretsch et al. 2018).

As ecosystems are a complex phenomenon, comprising dynamic multi-level, multi-actor (Brown & Mason, 2017) interactions, Roundy et al. (2018) suggest that a promising area for future research involves analysing these systems through a complex adaptive systems (CAS) lens, which can assist to connect macro- and micro-level research and help to better understand features present in entrepreneurial ecosystems such as nonlinearity, self-organisation, cross-scale interactions and aspects of their emergence. Complex adaptive systems refer to systems in which individual components interact and react among each other (and with their environment) across levels, modifying the system, that in response, changes and adapts (Schindehutte & Morris, 2009). Therefore, Roundy et al. (2018) suggest that research undertaking this path could benefit from mix-methods approaches that leverage both quantitative and qualitative techniques. Methods the authors recommend consist of qualitative comparative analysis, agent-based modelling and interpretivist qualitative research.

At the micro-level analysis, the present research focused on entrepreneurs' networks, interactions with other ecosystem actors and resources enclosed to those interactions. Research could be extended to analyse other actors' networks and interactions (e.g. government, university, financial organisations, mentors, research institutions, support organisations), in respect to their engagement with entrepreneurial activities and the ecosystem. This could complement the understanding of the nature of the relationships, composition and interactions enabling or constraining entrepreneurial activity, from other ecosystem actors' perspectives. Such micro-level analysis can provide further understanding into how diverse actors and resources can be organised sustainably and optimally to achieve better outcomes; for example, what role do the diverse actors play in shaping the creation, evolution and sustainability of entrepreneurial ecosystems? (Audretsch et al. 2019); what resources are the diverse actors contributing to nurturing the ecosystem?

Universities have an important role as contributors to entrepreneurial ecosystems through the provision of access to knowledge, development of new technologies, development of human capital and development of entrepreneurial mindsets (Spigel, 2017) through entrepreneurship education. Gradual shifts have been occurring in the role of universities from traditional academic roles and certified knowledge generation to a greater focus in fostering innovation and playing an important part in society and economic growth (Audretsch, 2014). Partnerships and collaborations with other institutions and organisations (e.g. industry-government-business), the creation of commercialisation offices, the concept of the entrepreneurial university, and university accelerators are efforts allocated towards this shift.

Despite the efforts and the gradual transitions taking place within universities, findings within the context of the present research suggest that there is still a need for greater collaborations, that more support is needed for encouraging entrepreneurial activity within universities and that entrepreneurship education needs to be closer to what occurs in practice. Furthermore, there is a need to improve the connection between research and potential opportunities for commercialisation. That stronger linkages between researchers and businesses are needed, in which on one hand, research could become more aware on solving immediate problems that businesses are pitching, and on the other, businesses could benefit from clever research.

Further research could address questions involving how to improve universities' connectedness with the entrepreneurial ecosystem? Which theoretical aspects of entrepreneurship education are crucial and provide value, and which aspects need to change to be more relevant to what occurs in practice? And, considering that start-ups and the ecosystem could benefit from employees holding certain characteristics (e.g. multi-tasking, able to also take a certain amount of risk, flexible), which competencies could help and contribute when engaging with start-ups, as start-up employees? And lastly, concerning knowledge transfer and research commercialisation, how to improve the collaboration and effectiveness between research projects and entrepreneurial opportunities?

5.6 Implications of Findings and Contributions to Theory and Practice

The concept of entrepreneurial ecosystems is associated with being a strategy that facilitates regional economic development, based around creating supportive environments that foster innovative start-ups (Spigel & Harrison, 2018). The current research contributes to understanding aspects of the dynamics of entrepreneurial activity through an entrepreneurial ecosystem approach. Main contributions to entrepreneurship and entrepreneurial ecosystems literature, as well as implications for practice, are listed below.

Firstly, the incorporation of context allows a perspective that considers economic and socio-cultural influences into the study of entrepreneurship and entrepreneurial activity. This view led to the interactive and systemic entrepreneurial ecosystem approach. The area of entrepreneurial ecosystems presents theoretical limitations; with viable theory and empirical evidence still evolving (Spigel, 2017; Brown & Mason, 2017; Motoyama & Knowlton, 2017). Accordingly, the literature on entrepreneurial ecosystems predominantly presents characteristics of those found at the nascent stage of a field of research (Edmondson & McManus, 2007); with recent studies presenting features of the intermediate stage (e.g. Stam & Van de Ven, 2019; Liguori et al. 2019; Szerb et al. 2019).

The current study allowed to investigate entrepreneurial activity locally and expand previous work on ecosystems through 1) the integration of aspects from Spigel (2017) and Stam (2015) in an adapted and developed framework; 2) the adoption of an institutional and networks perspective, and 3) the incorporation of additional elements to the initial framework. As an outcome, this research contributes to the entrepreneurial ecosystems literature by providing a suggestive model from an evolved conceptual framework of entrepreneurial ecosystem elements and interactions.

The suggestive model and the comprehensive set of guiding questions addressing ecosystem elements developed based on Spigel (2017) and Isenberg (2010), can facilitate the study of entrepreneurial activity within specific spatial boundaries (e.g. in a region or city), where geographical proximity allows the interchange of knowledge, interactions and network formation between actors (Brown & Mason, 2017; Welter, 2011). The

proposed model and methodology can be useful for researchers pursuing entrepreneurial ecosystem investigations and theory development.

Secondly, the study contributes to the entrepreneurial ecosystem literature by considering not only elements that form it but also interactions and dynamics occurring between them (Motoyama & Knowlton, 2017; Spigel, 2017; Mack & Mayer, 2016; Stam, 2015; Motoyama & Watkins, 2014). The identification of ecosystem elements and interactions are based on 1) a macro view including an institutional perspective, ecosystem internal attributes and interactions; and 2) a micro view employing network analysis on entrepreneurs' interactions with other ecosystem actors. While the first section allows the identification of additional components, in addition to formal and informal institutions influencing entrepreneurial activity (Alvedalen & Boschma, 2017), the second section provides insights into composition, interactions and associated resources within an entrepreneurial ecosystem (Motoyama & Knowlton, 2017; Motoyama & Watkins, 2014).

Lastly, the present research contributes to identifying rich insights specific to the case of Melbourne. Specific entrepreneurial ecosystem characteristics and interrelations are identified, as well as elements enhancing and hindering the dynamics of entrepreneurial activities. Findings provide insights about the ecosystem's benefits and constraints for entrepreneurs, assisting for the design of policies and contributing to a better understanding of the entrepreneurial ecosystem to foster entrepreneurial activity and develop the ecosystem further.

Recommendations for policymakers

Aspects in need for improvement within Melbourne's ecosystem have been presented in Table 4.15, including elements that enhance or hinder entrepreneurial activities within the local context. Additional observations concerning the diverse ecosystem actors have been described in detail throughout this Chapter. The following discussion presents a summary of such findings and recommendations.

Entrepreneurial culture. Fostering an entrepreneurial culture through public policy and universities is essential for the development of the ecosystem. Although measures are already in place, more efforts are needed to promote and support entrepreneurship. For instance, incentives that reward entrepreneurial action within universities (e.g. academic entrepreneurship, coupling innovative research with entrepreneurial opportunities more

efficiently) and incentives for the entrepreneurial community (e.g. improved grant schemes, visas supporting entrepreneurs). Furthermore, entrepreneurship education assists in developing entrepreneurial mindsets (Spigel, 2017), allow for better informed entrepreneurial initiatives (Coduras et al. 2008) and help create positive attitudes towards entrepreneurship (Isenberg, 2011). As such, at the same time that its significance should be promoted, efforts should be allocated to enhance its content and delivery to improve its impact and applicability; for instance, by working closely with university accelerators, connecting theory and practice. Fostering an entrepreneurial culture that promotes the positive aspects and advantages of entrepreneurship (e.g. economic, technological, social and environmental impacts), can potentially nurture the ecosystem, improve negative associations with entrepreneurship and attitudes undermining the celebration of success.

Innovation culture. Greater efforts to support innovation are also needed. A combination of a conservative culture, risk aversion, stifling regulations, deliberateness in adopting new technologies and the ability of universities to transfer their innovation capabilities, appears to be influencing the implementation of innovation. Measures that can assist in ameliorating this include improving incentives for innovation in established businesses, providing support for entrepreneurs and addressing regulations that inhibit the development and implementation of innovation. Furthermore, enhancing the interactions among ecosystem actors could potentially benefit the implementation of innovation since interactions between players can be crucial for aligning intentions, outcomes and impact so that efforts are better channelled and innovation outputs improved. However, a culture of innovation is essential for such actions to be promoted and sustained.

Ecosystem. A better understanding of entrepreneurial ecosystems and the particularities of place to design better aligned and effective strategies. For instance, identifying the roles of the different actors and their involvement with entrepreneurial activity. Enhancing initiatives that foster interactions between ecosystem actors. Constant and strategic interactions between actors influence the development and success of an entrepreneurial ecosystem (Adams, 2020). Also, creating opportunities for entrepreneurs to come together will be reflected in the level of development of an entrepreneurial ecosystem (Spigel & Harrison, 2018). Moreover, attempting to get more experienced entrepreneurs into the community (critical mass of founders).

Considering the different types of start-ups and stages of development. Although all start-ups are associated with the liabilities of newness and smallness, which could lead to higher failure rates compared with more established firms (Audretsch et al. 2020), identifying the different types of start-ups help to understand better the types of supports needed. For instance, recognising the different start-up types (e.g. tech start-up, academic start-up, social start-up), their different needs (e.g. financial, education and training, talent, network building) at the different stages of development (e.g. pre-start-up, start-up, growth). Furthermore, enhancing the mechanisms in place for idea validation processes and proof of concept (e.g. pre-accelerators, proof-of-concept centres). Support provided to start-ups within a region not only relate to tangible resources (e.g. financial) but also intangible resources (e.g. learning and knowledge spillovers, development and integration into local networks, coordination between local support organisations). Thus, the effectiveness and impact of the support not only influences firm survival rates, employment and investment. The support also influences the intangible resources within a region affecting the interactions of local networks and supporting organisations (Motoyama & Knowlton, 2016).

Collaboration. Industry-business-university interactions need to improve. Collaboration appears to be present within the start-up community. However, while analysing the ecosystem's internal dynamics, collaboration is less evident among other ecosystem actors; for instance, between universities and start-ups, and corporates and start-ups. A way to improve this is through innovation. Projects involving innovation are an opportunity for fostering collaborations between ecosystem actors. Furthermore, through the engagement of the different players in events that allow for the ecosystem to connect; emulating, to some extent, what occurs within the start-up community, where attitudes and behaviours (e.g. inclusiveness, supportive community, accessibility) enable collaborations and interactions and potentially assist in decreasing competitive behaviours. Interactions between ecosystem actors not only influence access to resources (e.g. talent, services, capital), but cooperation also increases possibilities for innovation, knowledge exchanges (Stam, 2015) and the development of trust between community members (Audretsch & Belitski, 2017).

Table 5.4 presented next, illustrates and summarises the study's theoretical gaps, research sub-questions, data analysis employed and the research's contribution.

Table 5.4 Study's Theoretical Gaps, Research Sub-Questions, Methods and Analysis and Research Contributions

Theoretical Gap	Research Sub-question	Research Objective	Methods & Analysis	Research Contribution
Understand entrepreneurship in broader contexts (Welter, 2011; Autio et al. 2014; Zahra et al. 2014; Zahra & Wright, 2011), through an interactive and systemic entrepreneurial ecosystem approach (Mason & Brown, 2014; Alvedalen & Boschma, 2017; Motoyama & Knowlton, 2017)	How is the specific context in Melbourne influencing entrepreneurial ecosystem dynamics? What are the characteristics of the local environment?	To analyse the influence of context in entrepreneurship and entrepreneurial activity	*Method:* Case study methodology Observation, Documents, Semi-structured interviews *Analysis:* Description, Thematic analysis	Contextualisation of entrepreneurship through the study of Melbourne's entrepreneurial ecosystem.
Formal and informal institutions to determine relevant elements and characteristics of EEs and the influence of context in the configuration of EEs (Autio et al. 2014; Alvedalen & Boschma, 2017)	How do the attributes, formal and informal institutions influence the entrepreneurial ecosystem?	To analyse the influence of context in entrepreneurship and entrepreneurial activity	*Method:* Case study methodology Observation, Documents, Semi-structured interviews *Analysis:* Description, Thematic analysis	Identification of formal and informal institutions influencing entrepreneurial activity in Melbourne's context. Institutional perspective allowed insights to incorporate additional elements and expand the conceptual framework.
A social network perspective could contribute to gain better understanding of the dynamics, interactions,	How are the different elements of the entrepreneurial ecosystem interacting?	To analyse the conformation and ways in which different actors of the entrepreneurial ecosystem interact with	*Method:* Network perspective Network chart & network grid	Structural and interactional analysis describing the content and nature of network relationships among

patterns and influential actors involved in entrepreneurial activities within entrepreneurial ecosystems (Alvedalen & Boschma, 2017; Motoyama & Knowlton, 2017)		each other at the specific stages of start-up and growth To identify key actors within the ecosystem	*Analysis:* Social network analysis	entrepreneurial ecosystem actors.
Associated resources involved the process (Edelman & Yli-Renko, 2010)	What are the associated resources involved between entrepreneurs and other ecosystem actors' interactions?	To identify the resources attached to those interactions	*Method:* Network perspective Network chart & network grid *Analysis:* Social network analysis	Identification of tangible and intangible resources exchanged during interactions.
Elements influencing entrepreneurship and the dynamics of entrepreneurial activities (Alvedalen & Boschma, 2017; Audretsch et al. 2018)	How do the different elements enhance or hinder entrepreneurial activity?	To determine elements that enhance or hinder entrepreneurship and the dynamics of entrepreneurial activities	*Method:* Case study methodology Observation, Documents, Semi-structured interviews *Analysis:* Description, Thematic analysis	Identification of elements that enhance and hinder the dynamics of entrepreneurial activities, as well as aspects to improve.

5.7 Concluding Remarks and Reflections

The research investigated how the context, composition and interactions within an entrepreneurial ecosystem influence entrepreneurial activity. Findings suggest that entrepreneurial activity within Melbourne is greatly influenced by formal institutions (laws and regulations, education, support services and support infrastructure), and informal institutions (culture, social networks, role models). In particular, results portray the impact of ecosystem strengths such as diversity and inclusivity and ecosystem limitations such as the rooted Tall poppy syndrome and conservative approaches. Interestingly, while studying values, beliefs and motivations triggering an entrepreneurial culture, although necessity entrepreneurship was acknowledged, other motivations were identified; such as the duality of profit-impact; and purpose driven ventures, coupling purpose with products and services benefiting society, alongside with a financial return.

The research contributed towards a better understanding of contextual interactions, institutional characteristics and dynamics of entrepreneurial ecosystems. Linking economic, social and cultural influences to the study of entrepreneurial ecosystems help understand entrepreneurship research and practice not only to identify key elements and interactions but also to allow insights into aspects that have been institutionalised and aspects that have not. That is, the prevailing activities, beliefs and attitudes enabling and constraining entrepreneurship in a particular environment (Bruton & Ahlstrom, 2003). Considering that entrepreneurial ecosystems are characterised by cooperation, and are less focused on individual or firm level profit maximisation (Audretsch et al. 2019), fostering this approach can help towards increasing the level of interactions and collaboration among actors. These aspects are beneficial for entrepreneurs and other actors involved and crucial for the ecosystem to move forward and evolve. This investigation attempted to advance further understanding of entrepreneurship, but not only at an individual level, but also considering the significance of other interrelated elements and the dynamics involved. Environmental, social and economic prosperity will not only come from start-ups, but also from the collective of new, growing and established innovative enterprises, high-growth start-ups, entrepreneurial organisations and the variety of entrepreneurial actors involved, all allocating efforts to drive the ecosystem forward. After all, as one participant (PG1-7) eloquently mentioned:

"It's not one tree, it's a forest of trees."

Appendix A. Systematic Literature Review Search Strings

Database: Web of Science; Time span: 1997-2017

	Overall Topic	Set	Search terms & Boolean operators	Field Tags	No. Articles
	Entrepreneurs	#1	(TS= (Entrepreneur*)) AND LANGUAGE: (English)	TS= Topic	34,706
	Ecosystems	#2	(TS=(Ecosystem* OR Network* OR "Entrepreneur* environment*" OR "Support* system*")) AND LANGUAGE: (English)	TS= Topic	1,713,193
		#3	#2 AND #1		5,249
1	Antecedents	#4	(TI=(antecedent* OR definition* OR conceptuali?ation OR concept OR ontology OR evolution OR emergence)) *AND* LANGUAGE: (English)	TI= Title	329,175
		#5	#4 AND #3		159
2	Education	#6	(TS=(education* OR institution* OR universit* OR "experiential learning" OR pedagogy OR "higher education" OR "academic entrepreneur*" OR "knowledge commerciali?ation")) *AND* LANGUAGE: (English)	TS= Topic	1,232,850
		#7	#6 AND #3		1,817
3	Components	#8	(TS=(component* OR stakeholder* OR elements OR interaction* OR linkage* OR relationship*)) *AND* LANGUAGE: (English)	TS= Topic	5,735,050
		#9	#8 AND #3		1,889
4	Partnerships	#10	(TS=(partnership* OR collaboration* OR "university-industry" OR "university-industry-government")) *AND* LANGUAGE: (English)	TS= Topic	176,301
		#11	#10 AND #3		613
5	National Innovation Systems	#12	(TS=("National innovation system*" OR "National entrepreneurship system*" OR innovation OR culture OR polic*)) *AND* LANGUAGE: (English)	TS= Topic	1,577,147
		#13	#12 AND #3		2,661
6	Best practice	#14	(TI=("best practice" OR performance OR "success factors" OR enablers)) *AND* LANGUAGE: (English)	TI= Title	486,064
		#15	#14 AND #3		303
7	Theory	#16	(TS=("institutional theory" OR "network theory")) *AND* LANGUAGE: (English)	TS= Topic	8,587
		#17	#16 AND #3		171
8	Geographical dimensions	#18	(TS=(nation* OR region* OR "region* development") *AND* LANGUAGE: (English)	TS= Topic	2,789,887
		#19	#18 AND #3		1,341
8	Geographical dimensions	#20	(TS=(Australia* OR Australasia)) *AND* LANGUAGE: (English)	TS= Topic	245,561
		#21	#20 AND #3		89

Appendix B. Systematic Literature Review Process

Approach adopted from Belitski & Heron (2017), based on Hart (1998) & Tranfield et al. (2003).

Overview

Broad literature research on general aspects of entrepreneurship, innovation and entrepreneurship education for a topic overview and to guide next steps.

Stage 1

Aim of the literature review:

- Previous research on entrepreneurship, innovation and entrepreneurship education
- Form a knowledge-base obtaining information and insights

Scope:

- Entrepreneurship
- Entrepreneurship education

Stage 2

Aim of the literature review:

- Gain understanding of the entrepreneurial ecosystem
- Previous research on entrepreneurial ecosystems
- Composition and interactions
- Network and institutional theory in relation to entrepreneurial ecosystems

Establishing search strings:

- Obtained through the previous literature research and highly cited related publications

Coarse-grained inclusion/exclusion criteria:

- Identification of potential review publications that comply with these search restrictions

Decision variables	Inclusion criteria	Exclusion criteria
Subject areas	Entrepreneurship, general management, strategy, innovation, education, economics of science (economics of scientific knowledge), industrial economics	Finance, corporate social responsibility, specific sectors (e.g. IT, hospitality, etc.)
Publication type	Peer-refereed journals, Books, Book chapters, special issues	Conference papers except for relevant ones such as Isenberg (2011), reports except for relevant sources such as the Australian Chief Scientist, GEM and OECD thematic and background papers, internet publications except of policy relevant resources and *Harvard Business Review* publications
Period of coverage	1997-2017	
Type of research	Quantitative and qualitative empirical research, conceptual, theoretical	Opinion
Electronic databases	Web of Science	NA
Geographic coverage	All regions and Australia specific	NA

Stage 3

Key terms definitions
Fine-grained inclusion/exclusion criteria:

Decision variables	Inclusion criteria	Exclusion criteria
Entrepreneurship	The process of discovery (or creation), evaluation and exploitation of opportunities, leading to recombining resources in innovative ways, in the process of business start-up and growth, for the creation of new value	Small business research
Entrepreneurial ecosystem	A set of interconnected entrepreneurial actors, entrepreneurial organisations, institutions and entrepreneurial processes, which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment (Mason & Brown, 2014), involving a dynamic and systemic nature (Brown & Mason, 2017) within a supportive environment	Topic present in the title, but barely addressing it within the content

Stage 4

Selection of final review publications:

- Application of fine-grained criteria to identify the publications to be reviewed

Stage 5

Data extraction:

- Pre-determined dimensions for abstracting the data from articles

Title	Methodology
Author(s)	Main ideas
Year	Argument
Journal	Entrepreneurial ecosystems definition and components
Key words	Findings
Approach	Themes and trends
Origin of data	Theoretical frameworks
Geographic scope	Contribution
Objective	Further research

Appendix C. Streams of Institutional Theory—Connection to Entrepreneurship and Entrepreneurial Ecosystem Research

Construct	Tenets and representative works	Strengths	Weaknesses	Relation to Entrepreneurship & Ent Ecosystems
Institutional theory	Focuses on rules, norms, and beliefs that influence organisations and their members and can vary widely across countries and cultures. Deals with how groups and organisations secure their positions and legitimacy by conforming to the rules and norms of the institutional environment.	Broad reach across the social sciences dealing with environmental effects on organisations. Any political, social and economic issues are linked to institutions.	Deficit of not situating actors in a societal context.	Examines how the regulative, normative, and cultural-cognitive dimensions of the environment influence the entrepreneurial process (e.g. identification, creation and exploitation of opportunities, firm founding, growth, exit) (Sine & David, 2010).
	It deals with formal (political and economy-related rules) and informal (norms and attitudes) institutions as 'rules of the game' in a society.	Focuses on both structure of social systems at various levels (e.g. organisation, society, world) and he effect of institutional processes.		Institutional economics help understand environmental factors that influence entrepreneurial activity in a region (Guerrero et al. 2016), such as legal aspects, culture, economic incentives and the history of an industry (Bruton et al. 2010).
	North (1990); Scott (2007); Meyer and Rowan (1991)	Allows analysis at both macro (society) and micro (individual behaviour) level.		Considers the formal and informal institutions that create the environment that impacts the decision of new venture creation (North, 1990).
Structuration	Analyses the dynamics of how institutions are reproduced and changed, considering both structure and agents. Theorises about the sources of both social structure and social change. Studies the duality of social structure and action. Individual actors are constrained and enabled by existing social structures.	Allows theorisation of the sources of both social structure and social change.	Limited capacity to explain what influences actors' self-interest, and the meanings individuals' attach to their own and others' behaviours. No conception of the social system.	Effect of social structures on entrepreneurial activity, for instance regarding resource availability or constraint (Jack & Anderson, 2002).
	Giddens (1984)			
Neoinstitutional theory	Concepts and theories explaining environmental effects on organisational and cultural homogeneity. Studies structural effects on organisations.	The influence of macro structures and culture on organisations.	Limited capacity to explain agency, micro-foundations of institutions, institutions heterogeneity and change. Deficit of not situating actors in a societal context.	Considers the influence of culture and the environment.
	Meyer and Rowan (1977); DiMaggio and Powell (1983)			

Construct	Tenets and representative works	Strengths	Weaknesses	Relation to Entrepreneurship & Ent Ecosystems
Institutional entrepreneurship	Concept introduced into the framework of institutional theory, putting more emphasis on the role of actors and agency in institutional change processes. Explains not only how institutions influence actors' behaviour, but also how these actors might, in turn, influence, and possibly change institutions. Institutional entrepreneurs are actors who initiate changes that contribute to transforming existing, or creating new institutions. DiMaggio (1988)	Addresses agency linking ideas with interests.	Limitations include explanations of how institutional entrepreneurs discover their ideas.	At the micro-level can help understand which agents are responsible for institutional change (Alvedalen & Boschma, 2017).
Institutional logics	Perspective developed from neoinstitutional theory that includes the interrelationships between individuals, organisations and society. It includes organisations and explains both homogeneity and heterogeneity. Society and social relations consist not only of the diffusion of the material structures but also about the culture and symbolic. Friedland and Alford (1991); Thornton, Ocasio and Lounsbury (2012)	Capacity of theorisation of material (practice-based) and cultural (symbolic-based) aspects of institutions. Addresses organisational and cultural homogeneity and heterogeneity. Integrates macrostructure, culture and agency, through multi-level processes including society, institutions, organisations, individuals and interactions, aiming to explain how institutions, enable and constrain action.		Framework for analysing the interrelationships between individuals, institutions, organisations and society. Allows multiple levels of analysis and captures cross-level effects. Incorporates the effects of culture (through the material and symbolic aspects) to analyse the dynamics of institutions. Views society as an interinstitutional system (Thornton et al. 2012).

Source: Self-made

Appendix D. Interview Protocol- Introduction

Entrepreneurs Participant Group

Thank you for taking time to talk with me today. As we discussed in setting up this interview, the purpose of this study is to better understand the dynamics of entrepreneurial ecosystems. In particular, the study aims to explore the ways in which the context, composition and interactions between ecosystem's actors influence entrepreneurial activity, and elements that enhance or hinder these entrepreneurial activities.

There are no correct answers and I assure you that your answers will remain completely anonymous, so please respond as honestly as possible. Some personal information like gender and age will be collected but will not be used to identify anyone. The interview will take about 60 to 90 minutes to complete. The interview will be audio recorded so that I can more accurately reflect your thoughts and experiences.

The first part of the interview is about aspects of Melbourne's business environment and different elements of the entrepreneurial ecosystem. The second part of the interview is about your network and the interactions that you engage with while operating your business.

Ecosystem Actors Participant Group

Thank you for taking time to talk with me today. As we discussed in setting up this interview, the purpose of this study is to better understand the dynamics of entrepreneurial ecosystems. In particular, the study aims to explore the ways in which the context, composition and interactions between ecosystem's actors influence entrepreneurial activity, and elements that enhance or hinder these entrepreneurial activities.

There are no correct answers and I assure you that your answers will remain completely anonymous, so please respond as honestly as possible. Some personal information like gender and age will be collected but will not be used to identify anyone. The interview will take about 60 minutes to complete. The interview will be audio recorded so that I can more accurately reflect your thoughts and experiences.

The interview is about aspects of Melbourne's business environment and different elements of the entrepreneurial ecosystem.

Appendix E. Main Areas Addressed at Interviews

[Appendix F: *Discussion Guides*, provides more complete supporting questions and additional sample questions based on availability of time.]

The following questions comprise broad areas addressed, according to the type of ecosystem actor.

Interviews with Entrepreneurs
1. What is your perception on the City's business environment?
2. Are there visible success stories that inspire you and potential entrepreneurs?
3. Are there social networks in Melbourne and do you participate in them?
4. How easy it was to get the best financial options and conditions for your business and why?
5. During the process (setting up/ growing your business), did you have knowledgeable mentors?
6. Was it difficult or costly to find the required talent for your business and why?
7. Did you get support from any of the local universities? If yes, in which area?
8. Have you used support services while (setting up/ growing) your business?
9. Was the process of permits and paperwork requirements to start your business efficient? If not, what has to be improved?
10. How did you identify the opportunity for your venture? (What problem/need did you helped to solve?)

Interviews with Entrepreneurial actors: University
1. What is your perception on the City's business environment?
2. Within Melbourne's entrepreneurial activities, are there visible success stories that could inspire entrepreneurs?
3. Does the university promote social network events?
4. According to your perception, what are the best financial options available to entrepreneurs for start-up activities within Melbourne and why?
5. Does the university offer mentorship services to entrepreneurs?
6. How does the university identify the skills and knowledge required by entrepreneurs to elaborate entrepreneurship courses and programs?
7. What key benefits could entrepreneurs gain through entrepreneurship education before or during setting-up/ growing their venture?
8. What are the different services the university offer entrepreneurs for starting their business?
9. Does the university receive government incentives to support entrepreneurship or entrepreneurial activity? If yes, what type?
10. Does the university help entrepreneurs to interact with local markets in order to either identify opportunities, make early sales or build capabilities?

Interviews with Entrepreneurial actors: Government
1. What is your perception on the City's business environment?
2. Does government promote entrepreneurial success stories diffusion and experience sharing forums? If yes, how?
3. Which are key challenges for networking within Melbourne's environment?
4. What are the main financial support options government offer entrepreneurs for start-up activities within Melbourne?
5. Does the government offer mentorship services to entrepreneurs? Which ones?
6. How does the government support talent development and training for entrepreneurs?
7. Which are key government initiatives supporting entrepreneurship within universities?
8. Are there any other support services government offer entrepreneurs that have not been mentioned?

9. Which are main government incentives to other entrepreneurial actors (e.g. financial bodies, start-up communities, research institutes), in order to support entrepreneurship or entrepreneurial activity?
10. How does government help entrepreneurs to identify potential markets?

Interviews with Entrepreneurial actors: Finance

1. What is your perception on the City's business environment?
2. Is there promotion and diffusion of entrepreneurial success stories and experience sharing forums? If yes, how?
3. In Melbourne, are there networks helping entrepreneurs find the best financial options available according to their particular needs?
4. What are the main financial options offered to entrepreneurs for start- up activities within Melbourne?
5. Are there local financial institutions that offer mentorship support to entrepreneurs at non or low cost? If yes, which?
6. What services do you offer entrepreneurs that are starting a business?
7. Do you collaborate with government in order to support entrepreneurship or entrepreneurial activity?
8. How do you help entrepreneurs to identify potential market opportunities?

Interviews with Entrepreneurial actors: Support services

1. What is your perception on the City's business environment?
2. Is there promotion and diffusion of entrepreneurial success stories and experience sharing forums? If yes, how?
3. Which are key challenges for networking within Melbourne's environment?
4. How do you help to find investment capital options according to the specific characteristics of each venture for starting a venture?
5. Do you offer mentorship services to entrepreneurs? Which ones?
6. How do you support entrepreneurs to find the required talent for their venture?
7. How do you collaborate with universities so that entrepreneurs can have easy access to resources?
8. What are the services you offer to entrepreneurs?
9. In what ways are government initiatives supporting your operation to help entrepreneurs?
10. How do you help entrepreneurs to identify market opportunities?

Appendix F. Discussion Guides

Discussion guides based on the Entrepreneurial Ecosystem Elements Framework

Source: Developed for the current research based on Spigel, 2017 and Isenberg, 2010

Questionnaire 1- Entrepreneurs: *Start-up phase (S), Growth phase (G)*

Attribute	Elements	Description	Questions and sub-questions
Cultural	Cultural attitudes	Underlying beliefs and attitudes about entrepreneurship within regions (e.g. supportive culture toward entrepreneurship, tolerance to risk, innovation)	1. What is your perception on the City's business environment? For instance, to what extent does it tolerate honest mistakes, failure, risk taking and contrarian thinking? (S) (G) 1.1 Do you consider Melbourne's environment supports entrepreneurs and why? (S) (G) 1.2 Do you think Melbourne has a collaborative or cooperative environment that can help you as an entrepreneur? Please explain. (S) (G) 1.3 In your opinion, what characteristics of Melbourne's environment are essential to entrepreneurial initiatives and why? (S) (G) 1.4 Have you perceived any significant changes in Melbourne's entrepreneurial culture within the past 5 years? Please explain why. (S) (G) 1.5 What would you think triggers a culture of entrepreneurship? (S) (G) 1.6 What have you identified is missing and if it was available could be a key enabler? (S) (G) 1.7 How important has been Melbourne's environment to achieve your venture's objectives? (S) (G) 1 (not at all important) to 5 (very important)
	Histories of entrepreneur-ship	Entrepreneurs inspiring younger entrepreneurs, benefits and possibilities of a potential career path, possibility of policy makers promoting these stories (e.g. role models, successful local entrepreneurial ventures)	2. Are there visible success stories that inspire you and potential entrepreneurs? (S) (G) 2.1 Are there events that show ordinary people that they too can become entrepreneurs? (S) (G) 2.2 Which entrepreneurs are your role models (if any)? (S) (G) 2.3 How did having this role model(s) help your venture? (S) (G)
Social	Networks	Social networks that connect entrepreneurs, advisors, investors, and workers allowing the free flow of knowledge and skills (e.g. networks allowing market and technological knowledge, resource acquisition, access to customers and suppliers)	3. Are there social networks in Melbourne and do you participate in them? For instance, networks connecting entrepreneurs, advisors, investors, universities, government and workers, allowing the free flow of knowledge and skills? (S) (G) 3.1 Which ones have been the most valuable for your venture at your current stage and why (how did it help your venture)? (S) (G) 3.2 How important networks have been to achieve your venture's objectives? (S) (G) 1 (not at all important) to 5 (very important) 3.3 Are there formal or informal groups that link entrepreneurs within the region with local and/or International opportunities? (S) (G) 3.4 When thinking about networking, which strategies would you say can be more effective than others? (S) (G) 3.5 In your perception, what could be the best way in which entrepreneurs could start to connect with Melbourne's entrepreneurial ecosystem? (S) (G)

	Investment capital	Critical for start-up and necessary for start-up growth, investors can also act as advisors to firms, connection between local investors and the local entrepreneurial community is fundamental for the growth of entrepreneurial firms (e.g. venture capitalists, angel investors, family and friends)	4. How easy it was to get the best financial options and conditions for your business and why? (VCs, angel investors, family and friends, banks, crowdfunding) (S) (G) 4.1(a) How easy/difficult was the process to justify investing in your venture at a pre-sales stage and why? (S) 4.1(b) How easy/difficult was the process to justify investing in your business to make it grow and why? (G) 4.2 Did you use government funds available for entrepreneurs? If yes, which one? (S) (G) 4.3 Regarding local available financial options, what do you consider should improve to better suit your needs? (S) (G)
	Mentors and dealmakers	Can improve entrepreneurs' performance, firm formation and survival rates, dealmakers proactively build new connections between entrepreneurial actors (e.g. contribute to firm formation and growth within regions, assist in developing new business skills, develop their own social capital; such as successful business people or philanthropists)	5. During the process (setting up/ growing your business), did you have knowledgeable mentors? (board members, experience in creating organisations, hiring, building organisation's structures, systems and controls, marketing, finance, R&D) (S) (G) 5.1 If yes, in which areas did you have them? (S) (G) 5.2 Now that you have experienced this stage, in which areas do you consider crucial to have them? (S) (G) 5.3 How important mentors have been to achieve your venture's objectives? (S) (G) 1 (not at all important) to 5 (very important) 5.4 Have you had any other key connector in critical areas that helped you to reduce risk or/and mistakes? (identify new customers, suppliers, financial sources, advisors) (S) (G)
	Worker talent	Skilled employees used to the specific demands of working in small firms and with certain tolerance for risk in the chaotic environment of a start-up, necessary precursor for success and key component for the competitiveness of new ventures; key resource for new ventures (e.g. technical workers but also experienced managers who can help entrepreneurs as firms grow and mature, can help find good matches adding to the value of dense social networks)	6. Was it difficult or costly to find the required talent for your business and why? For instance, skilled and prepared employees (technical workers but also experienced managers) (S) (G) 6.1 Was it difficult or costly to find employees willing to work in a chaotic start-up environment (taking some risk) (S) (G) 6.2 Did you rely on a specific service or tools (e.g. databases) to help you have access to the talent needed? If yes, was it easy? (S) (G) 6.3 Did you pay and was it worth it? (S) (G)
Material	Universities	Where the development of new technologies take place creating entrepreneurial opportunities, access to knowledge, development of human capital of a region and development of entrepreneurial mindsets in students (e.g. academic entrepreneurs, firms approaching universities (commissioning research, hiring graduates, informal connections such as public talks or discussions with faculty))	7. Did you get support, for you or your co-workers, from any of the local universities? If yes, in which area? (R&D, Technical aspects, Training, Internships/ Industry placements) (S) (G) 7.1 How important universities have been to achieve your venture's objectives? (S) (G) 1 (not at all important) to 5 (very important) 7.2 Did universities helped you to build networking relationships, be in the form of formal connections (technical, suppliers, product development), or informal connections (discussions with faculty, public talks)? (S) (G) 7.3 How important universities have been to help you with effective relationships to solve key issues in your (start-up/growth process)? (S) (G) 7.4 In overall, regarding universities' support, what have you identified is missing and if it was available could be a key enabler? (S) (G) 7.5 According to your experience so far, do you think it is relevant for new entrepreneurs to get entrepreneurship education before or during they start their new venture? Why? (S) (G)

Support services and facilities – physical infrastructure	Specialised assistance for early-stage firms, firms can access capabilities they do not possess internally, plus the important access to networks; important facilitators of entrepreneurial activity – often a key node of an ecosystem (e.g. accountants, patent lawyers, human resource advisors. Incubation, acceleration, coworking facilities)	8. Have you used support services while (setting up/ growing) your business? (S) (G) That is, services such as: a) Venture oriented professionals (specialised assistants for early stage firms/ cover capabilities firms do not possess internally) e.g. lawyers, accountants, market and technical consultants, administration, finance b) Start-up community groups c) Incubators d) Accelerators e) Co-working facilities 8.1 How important support services have been to achieve your venture's objectives? (S) (G) 1 (not at all important) to 5 (very important) 8.2 Regarding support services, what have you identified is missing and if it was available could be a key enabler? (S) (G) 8.3 Is public City infrastructure sufficient to support your venture? (e.g. Transportation -roads, airport, shipping, etc. Communication- digital, broadband, mobile) (S) (G) 8.4 Regarding City infrastructure, what have you identified is missing and if it was available could be a key enabler? (S) (G)
Policies and governance	Government rules and regulations, policies can create publicly funded support programs and encourage entrepreneurship, key elements of the economic and political contexts in which entrepreneurship takes place (e.g. tax benefits, investment of public funds, reductions in bureaucratic regulation, networking and incubation programs)	9. Was the process of permits and paperwork requirements to start your business efficient? If not, what has to be improved? (S) 9.1 What have you found to be main incentives available to entrepreneurs? (S) (G) 9.2 Has the government helped to remove structural barriers for an easy start-up process, such as onerous bankruptcy legislation or poor contract enforcement? (S) 9.3 Has the government provided incentives or tax reductions? (tax benefits or exemptions) (S) (G) 9.4 How important government regulations and policies have been to achieve your venture's objectives? (S) (G) 1 (not at all important) to 5 (very important)
Strong local markets – open markets	Entrepreneurs can identify opportunities through the interaction with the local markets, make early sales and build capabilities, crucial for the development of entrepreneurial ecosystems (e.g. presence of local customers with specialised needs, particular industries within regions)	10. How did you identify the opportunity for your venture? (What problem/need did you helped to solve?) (S) (G) 10.1 How did you add value to your product/service in order to compete within the existing market? (e.g. price, quality, innovation, other) (S) (G) 10.2 What have been the greatest challenges to acquire customers? (S) (G) 10.3 How important Melbourne market has been to achieve your venture's objectives? (S) (G) 1 (not at all important) to 5 (very important) 10.4 What have you identified is missing and if it was available could be a key enabler? (S) (G)

Questionnaire 2- Entrepreneurial actors: *University*

Attribute	Elements	Description	Questions and sub-questions
Cultural	Cultural attitudes	Underlying beliefs and attitudes about entrepreneurship within regions (e.g. supportive culture toward entrepreneurship, tolerance to risk, innovation)	1. What is your perception on the City's business environment? For instance, to what extent does it tolerate honest mistakes, failure, risk taking and contrarian thinking? 1.1 Do you consider Melbourne's environment supports entrepreneurs and why? 1.2 In your opinion, what characteristics of Melbourne's environment are essential to entrepreneurial initiatives and why? 1.3 Have you perceived any significant changes in Melbourne's entrepreneurial culture within the past 5 years? Please explain why. 1.4 What would you think triggers a culture of entrepreneurship? 1.5 Regarding the City's business environment and according to your perception, what is missing and if it was available could be a key enabler?
	Histories of entrepreneur-ship	Entrepreneurs inspiring younger entrepreneurs, benefits and possibilities of a potential career path, possibility of policy makers promoting these stories (e.g. role models, successful local entrepreneurial ventures)	2. Within Melbourne's entrepreneurial activities, are there visible success stories that could inspire entrepreneurs? 2.1 Within the university, are there visible success stories that inspire entrepreneurs and potential entrepreneurs?
Social	Networks	Social networks that connect entrepreneurs, advisors, investors, and workers allowing the free flow of knowledge and skills (e.g. networks allowing market and technological knowledge, resource acquisition, access to customers and suppliers)	3. Does the university promote social network events? For instance, events connecting entrepreneurs with advisors, investors, other universities, government, allowing the free flow of knowledge and skills? 3.1 According to your perception, how important are networks for start-up activities? 1 (not at all important) to 5 (very important) 3.2 Which could be key resources gained through networking at the start-up phase? 3.3 According to your perception, how important are networks for growth activities? 1 (not at all important) to 5 (very important) 3.4 Which could be key resources gained through networking at the growth phase? 3.5 According to your perception, does the university engage in networking activities with other Australian universities? (e.g. Go8) 3.6 In your perception, what could be the best way in which entrepreneurs could start to connect with Melbourne's entrepreneurial ecosystem?
	Investment capital	Critical for start-up and necessary for start-up growth, investors can also act as advisors to firms, connection between local investors and the local entrepreneurial community is fundamental for the growth of entrepreneurial firms (e.g. venture capitalists, angel investors, family and friends)	4. According to your perception, what are the best financial options available to entrepreneurs for start-up activities within Melbourne and why? (VCs, angel investors, family and friends, banks, crowdfunding) 4.1 Regarding growth, what are the best financial options available to entrepreneurs for this stage and why? (VCs, angel investors, family and friends, banks, crowdfunding) 4.2 Regarding local available financial options, what do you consider should improve and why?

	Mentors and dealmakers	Can improve entrepreneurs' performance, firm formation and survival rates, dealmakers proactively build new connections between entrepreneurial actors (e.g. contribute to firm formation and growth within regions, assist in developing new business skills, develop their own social capital; such as successful business people or philanthropists)	5. Does the university offer mentorship services to entrepreneurs? 5.1 If yes, what type of mentoring services does the university offer? (experience in creating organisations, hiring, building organisation's structures, systems and controls, marketing, finance, R&D) 5.2 What are the most frequent mentorship services entrepreneurs seek from universities? 5.3 How important do you consider mentors are for entrepreneurs to achieve venture's objectives? 1 (not at all important) to 5 (very important) 5.4 In which areas do you consider crucial that entrepreneurs should have mentorship?
	Worker talent	Skilled employees used to the specific demands of working in small firms and with certain tolerance for risk in the chaotic environment of a start-up, necessary precursor for success and key component for the competitiveness of new ventures; key resource for new ventures (e.g. technical workers but also experienced managers who can help entrepreneurs as firms grow and mature, can help find good matches adding to the value of dense social networks)	6. How does the university identify the skills and knowledge required by entrepreneurs to elaborate entrepreneurship courses and programs?
Material	Universities	Where the development of new technologies take place creating entrepreneurial opportunities, access to knowledge, development of human capital of a region and development of entrepreneurial mindsets in students (e.g. academic entrepreneurs, firms approaching universities (commissioning research, hiring graduates, informal connections such as public talks or discussions with faculty))	7. What key benefits could entrepreneurs gain through entrepreneurship education before or during setting-up/ growing their venture? 7.1 What actions does universities have in place to improve the effectiveness of access to knowledge for entrepreneurs? 7.2 What would you say is the overall perception of research students towards entrepreneurship? What about the university's academic staff and faculty (teachers, professors and lecturers)? 7.3 How could universities improve the collaboration and effectiveness between research projects and entrepreneurs/entrepreneurial opportunities? 7.4 Does the university allow faculty to take sabbaticals to join start-ups? 7.5 Does the university support academic entrepreneurship (i.e. academic or technology based spin-off, consulting, commercialisation activities outside university's duties of basic research and teaching)? How? 7.6 Is the university incorporating aspects concerning the entrepreneurial university? How? 7.7 Does the university actively collaborate with Technology Associations, Science Parks, CSIRO? How?

Support services and facilities – physical infrastructure	Specialised assistance for early-stage firms, firms can access capabilities they do not possess internally, plus the important access to networks; important facilitators of entrepreneurial activity – often a key node of an ecosystem (e.g. accountants, patent lawyers, human resource advisors. Incubation, acceleration, coworking facilities)	8. What are the different services the university offer entrepreneurs for starting their business? That is, services such as: a) Venture oriented professionals (specialised assistants for early stage firms/ cover capabilities firms do not possess internally) e.g. lawyers, accountants, market and technical consultants, administration, finance b) Start-up community groups c) Incubators d) Accelerators e) Co-working facilities 8.1 Are there other services offered in specific for start-up growth? 8.2 How does the university facilitate and communicate the variety of services they have to offer to entrepreneurs? 8.3 According to your perception, how important support services are to entrepreneurs? 1 (not at all important) to 5 (very important) 8.4 How important is entrepreneurship within the university's priorities? 1 (not at all important) to 5 (very important) 8.5 Regarding the university's support to entrepreneurs, what have you identified is missing and if it was available could be a key enabler?
Policies and governance	Government rules and regulations, policies can create publicly funded support programs and encourage entrepreneurship, key elements of the economic and political contexts in which entrepreneurship takes place (e.g. tax benefits, investment of public funds, reductions in bureaucratic regulation, networking and incubation programs)	9. Does the university receive government incentives to support entrepreneurship or entrepreneurial activity? If yes, what type? 9.1 According to your perception is it contributing to make a significant impact?
Strong local markets – open markets	Entrepreneurs can identify opportunities through the interaction with the local markets, make early sales and build capabilities, crucial for the development of entrepreneurial ecosystems (e.g. presence of local customers with specialised needs, particular industries within regions)	10. Does the university help entrepreneurs to interact with local markets in order to either identify opportunities, make early sales or build capabilities? 10.1 According to your perception, what are key challenges entrepreneurs face within Melbourne's market?

Questionnaire 3- Entrepreneurial actors: *Government*

Attribute	Elements	Description	Questions and sub-questions
Cultural	Cultural attitudes	Underlying beliefs and attitudes about entrepreneurship within regions (e.g. supportive culture toward entrepreneurship, tolerance to risk, innovation)	1. What is your perception on the City's business environment? For instance, to what extent does it tolerate honest mistakes, failure, risk taking and contrarian thinking? 1.1 Do you consider Melbourne's environment supports entrepreneurs and why? 1.2 In your opinion, what characteristics of Melbourne's environment are essential to entrepreneurial initiatives and why? 1.3 Have you perceived any significant changes in Melbourne's entrepreneurial culture within the past 5 years? Please explain why. 1.4 What would you think triggers a culture of entrepreneurship? 1.5 What specific actions or policies help to foster an entrepreneurial environment?/ Would you know what efforts do government allocate to build an entrepreneurial culture? 1.6 Regarding the City's business environment and according to your perception, what is missing and if it was available could be a key enabler?
	Histories of entrepreneur-ship	Entrepreneurs inspiring younger entrepreneurs, benefits and possibilities of a potential career path, possibility of policy makers promoting these stories (e.g. role models, successful local entrepreneurial ventures)	2. Does government promote entrepreneurial success stories diffusion and experience sharing forums? If yes, how?
Social	Networks	Social networks that connect entrepreneurs, advisors, investors, and workers allowing the free flow of knowledge and skills (e.g. networks allowing market and technological knowledge, resource acquisition, access to customers and suppliers)	3. Which are key challenges for networking within Melbourne's environment? 3.1 How important are networks for start-up activities? 1 (not at all important) to 5 (very important) 3.2 Which could be key resources gained through networking at the start-up phase? 3.3 How important are networks for growth activities? 1 (not at all important) to 5 (very important) 3.4 Which could be key resources gained through networking at the growth phase? 3.5 How does the government promote networking to help entrepreneurs establish key alliances with suppliers, customers, investors and other entrepreneurial actors? 3.6 Does the government integrates/collaborates with other government agencies to promote entrepreneurial activities? 3.7 When thinking about networking, which strategies would you say can be more effective than others? 3.8 In your perception, what could be the best way in which entrepreneurs could start to connect with Melbourne's entrepreneurial ecosystem?
	Investment capital	Critical for start-up and necessary for start-up growth, investors can also act as advisors to firms, connection between local investors and the local entrepreneurial community is fundamental for the growth of entrepreneurial firms (e.g. venture capitalists, angel investors, family and friends)	4. What are the main financial support options government offer entrepreneurs for start-up activities within Melbourne? 4.1 Regarding growth, what are the main financial support options government offer entrepreneurs within Melbourne? 4.2 Which are the main pathways for entrepreneurs to reach government financial support and how do you communicate this? / What is the best and easiest way to access them? (e.g. department, key person, key website) 4.3 Regarding local available financial options, do you consider there is something that should improve and why?

	Mentors and dealmakers	Can improve entrepreneurs' performance, firm formation and survival rates, dealmakers proactively build new connections between entrepreneurial actors (e.g. contribute to firm formation and growth within regions, assist in developing new business skills, develop their own social capital; such as successful business people or philanthropists)	5. Does the government offer mentorship services to entrepreneurs? 5.1 If yes, what type of mentoring services does the government offer? 5.2 What are the most frequent mentorship services entrepreneurs seek from government? 5.3 How important do you consider mentors are for entrepreneurs to achieve venture's objectives? 1 (not at all important) to 5 (very important) 5.4 In which areas do you consider crucial that entrepreneurs should have mentorship?
	Worker talent	Skilled employees used to the specific demands of working in small firms and with certain tolerance for risk in the chaotic environment of a start-up, necessary precursor for success and key component for the competitiveness of new ventures; key resource for new ventures (e.g. technical workers but also experienced managers who can help entrepreneurs as firms grow and mature, can help find good matches adding to the value of dense social networks)	6. How does the government support talent development and training for entrepreneurs?
Material	Universities	Where the development of new technologies take place creating entrepreneurial opportunities, access to knowledge, development of human capital of a region and development of entrepreneurial mindsets in students (e.g. academic entrepreneurs, firms approaching universities (commissioning research, hiring graduates, informal connections such as public talks or discussions with faculty))	7. Which are key government initiatives supporting entrepreneurship within universities? 7.1 What have you identified is missing and if it was available could be a key enabler?
	Support services and facilities – physical infrastructure	Specialised assistance for early-stage firms, firms can access capabilities they do not possess internally, plus the important access to networks; important facilitators of entrepreneurial activity – often a key node of an ecosystem (e.g. accountants, patent lawyers, human resource advisors. Incubation, acceleration, coworking facilities)	8. Are there any other support services government offer entrepreneurs that have not been mentioned? (e.g. start-up community groups, incubators, accelerators, co-working facilities) 8.1 Are there services targeted in specific for start-up growth? What kind? 8.2 How does the government facilitate and communicate the variety of services they have to offer to entrepreneurs? 8.3 According to your perception, how important support services are to entrepreneurs? 1 (not at all important) to 5 (very important) 8.4 How important are entrepreneurship and innovation within the government's priorities? 1 (not at all important) to 5 (very important) 8.5 Regarding government's support to entrepreneurs, what have you identified is missing and if it was available could be a key enabler?

Policies and governance	Government rules and regulations, policies can create publicly funded support programs and encourage entrepreneurship, key elements of the economic and political contexts in which entrepreneurship takes place (e.g. tax benefits, investment of public funds, reductions in bureaucratic regulation, networking and incubation programs)	9. Which are main government incentives to other entrepreneurial actors (e.g. financial bodies, start-up communities, research institutes), in order to support entrepreneurship or entrepreneurial activity? 9.1 According to your perception are they contributing to make a significant impact? Why?
Strong local markets – open markets	Entrepreneurs can identify opportunities through the interaction with the local markets, make early sales and build capabilities, crucial for the development of entrepreneurial ecosystems (e.g. presence of local customers with specialised needs, particular industries within regions)	10. How does government help entrepreneurs to identify potential markets? 10.1 How does government help to promote local products or companies? 10.2 How does government support the participation of local businesses to promote their products according to regional, national or international needs? 10.3 What are key challenges entrepreneurs face within Melbourne's market?

Questionnaire 4- Entrepreneurial actors: *Finance*

Attribute	Elements	Description	Questions and sub-questions
Cultural	Cultural attitudes	Underlying beliefs and attitudes about entrepreneurship within regions (e.g. supportive culture toward entrepreneurship, tolerance to risk, innovation)	1. What is your perception on the City's business environment? For instance, to what extent does it tolerate honest mistakes, failure, risk taking and contrarian thinking? 1.1 Do you consider Melbourne's environment supports entrepreneurs and why? 1.2 In your opinion, what characteristics of Melbourne's environment are essential to entrepreneurial initiatives and why? 1.3 Have you perceived any significant changes in Melbourne's entrepreneurial culture within the past 5 years? Please explain why. 1.4 What would you think triggers a culture of entrepreneurship? 1.5 Regarding the City's business environment and according to your perception, what is missing and if it was available could be a key enabler?
	Histories of entrepreneur-ship	Entrepreneurs inspiring younger entrepreneurs, benefits and possibilities of a potential career path, possibility of policy makers promoting these stories (e.g. role models, successful local entrepreneurial ventures)	2. Is there promotion and diffusion of entrepreneurial success stories and experience sharing forums? If yes, how?
Social	Networks	Social networks that connect entrepreneurs, advisors, investors, and workers allowing the free flow of knowledge and skills (e.g. networks allowing market and technological knowledge, resource acquisition, access to customers and suppliers)	3. In Melbourne, are there networks helping entrepreneurs find the best financial options available according to their particular needs? 3.1 Which could be key benefits obtained through financial networking? 3.2 Which are key challenges for networking within Melbourne's environment?
	Investment capital	Critical for start-up and necessary for start-up growth, investors can also act as advisors to firms, connection between local investors and the local entrepreneurial community is fundamental for the growth of entrepreneurial firms (e.g. venture capitalists, angel investors, family and friends)	4. What are the main financial options offered to entrepreneurs for start-up activities within Melbourne? (VCs, angel investors, family and friends, banks, crowdfunding) 4.1 Regarding growth, what are the main financial options offered to entrepreneurs within Melbourne? 4.2 Which are the main pathways for entrepreneurs to reach financial support and how do you communicate this? / What is the best and easiest way to access them? 4.3 Are the financial options available in Melbourne competitive with other Australian cities? 4.4 Regarding local available financial options, do you consider there is something that should improve and why?
	Mentors and dealmakers	Can improve entrepreneurs' performance, firm formation and survival rates, dealmakers proactively build new connections between entrepreneurial actors (e.g. contribute to firm formation and growth within regions, assist in developing new business skills, develop their own social capital; such as successful business people or philanthropists)	5. Are there local financial institutions that offer mentorship support to entrepreneurs at non or low cost? If yes, which? 5.1 Do you offer mentorship services to entrepreneurs? 5.2 If yes, what type of mentoring services do you offer? 5.3 What are the most frequent mentorship services entrepreneurs tend to seek from financial bodies? 5.4 How important do you consider mentors are for entrepreneurs to achieve venture's objectives? 1 (not at all important) to 5 (very important) 5.5 In which areas do you consider crucial that entrepreneurs should have mentorship?

	Worker talent	Skilled employees used to the specific demands of working in small firms and with certain tolerance for risk in the chaotic environment of a start-up, necessary precursor for success and key component for the competitiveness of new ventures; key resource for new ventures (e.g. technical workers but also experienced managers who can help entrepreneurs as firms grow and mature, can help find good matches adding to the value of dense social networks)	
Material	Universities	Where the development of new technologies take place creating entrepreneurial opportunities, access to knowledge, development of human capital of a region and development of entrepreneurial mindsets in students (e.g. academic entrepreneurs, firms approaching universities (commissioning research, hiring graduates, informal connections such as public talks or discussions with faculty))	
	Support services and facilities – physical infrastructure	Specialised assistance for early-stage firms, firms can access capabilities they do not possess internally, plus the important access to networks; important facilitators of entrepreneurial activity – often a key node of an ecosystem (e.g. accountants, patent lawyers, human resource advisors. Incubation, acceleration, coworking facilities)	6. What services do you offer entrepreneurs that are starting a business? 6.1 Are there services targeted in specific for start-up growth? What kind? 6.2 What are key barriers for growth within Melbourne's financial environment? 6.3 What are key criteria needed from an entrepreneur in order to provide financial support? 6.4 How do you facilitate and communicate the variety of services to entrepreneurs? 6.5 Regarding services offered to entrepreneurs, what have you identified is missing and if it was available could be a key enabler?
	Policies and governance	Government rules and regulations, policies can create publicly funded support programs and encourage entrepreneurship, key elements of the economic and political contexts in which entrepreneurship takes place (e.g. tax benefits, investment of public funds, reductions in bureaucratic regulation, networking and incubation programs)	7. Do you collaborate with government in order to support entrepreneurship or entrepreneurial activity? 7.1 According to your perception are these initiatives contributing to make a significant impact? Why? 7.2 What have you identified is missing and if it was available could be a key enabler?

	Strong local markets – open markets	Entrepreneurs can identify opportunities through the interaction with the local markets, make early sales and build capabilities, crucial for the development of entrepreneurial ecosystems (e.g. presence of local customers with specialised needs, particular industries within regions)	8. How do you help entrepreneurs to identify potential market opportunities? 8.1 What are key challenges entrepreneurs face within Melbourne's market?

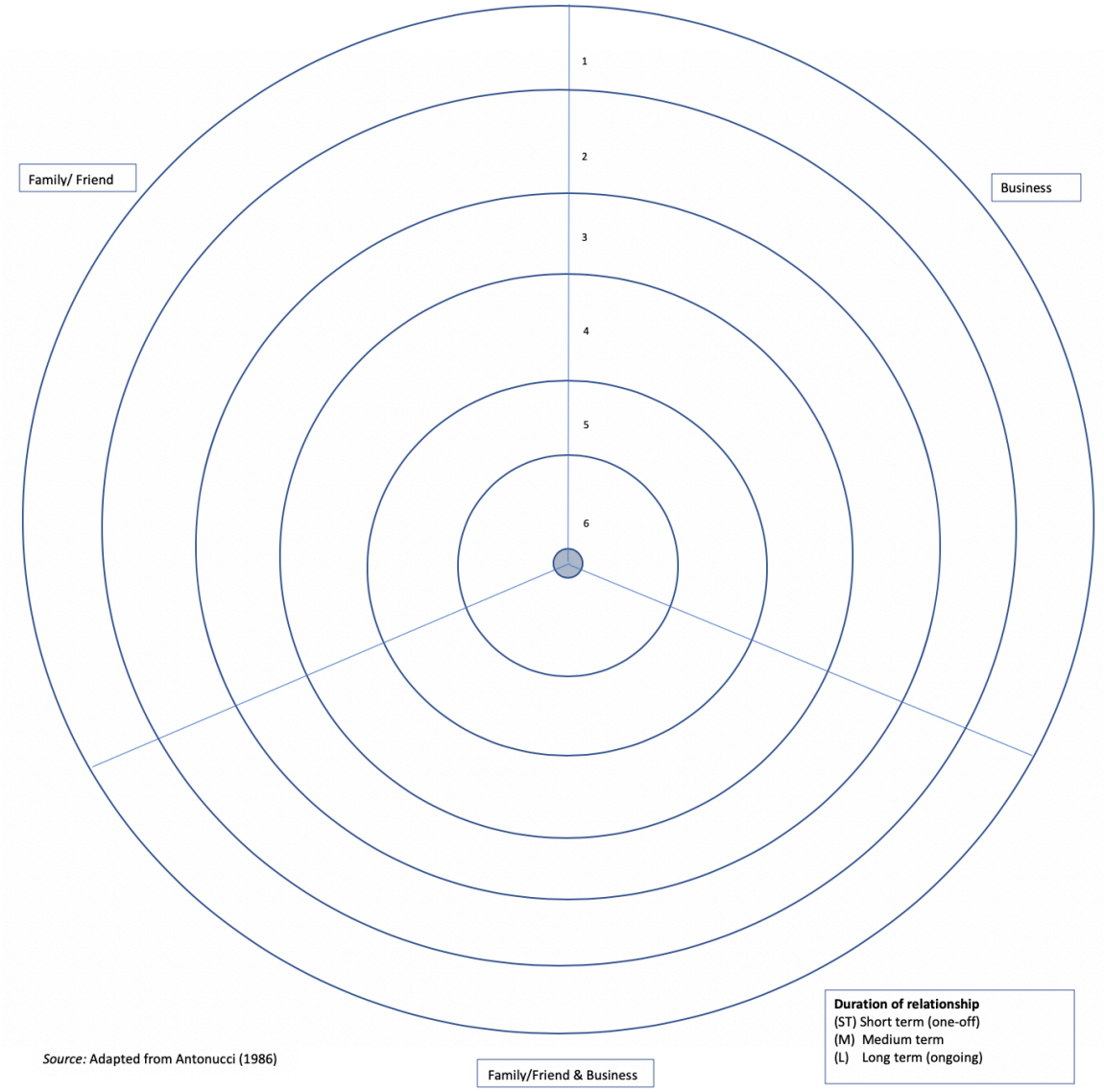
Questionnaire 5- Entrepreneurial actors: *Support services*

Attribute	Elements	Description	Questions and sub-questions
Cultural	Cultural attitudes	Underlying beliefs and attitudes about entrepreneurship within regions (e.g. supportive culture toward entrepreneurship, tolerance to risk, innovation)	1. What is your perception on the City's business environment? For instance, to what extent does it tolerate honest mistakes, failure, risk taking and contrarian thinking? 1.1 Do you consider Melbourne's environment supports entrepreneurs and why? 1.2 Do you think Melbourne has a collaborative or cooperative environment that can help entrepreneurs? Please explain. 1.3 In your opinion, what characteristics of Melbourne's environment are essential to entrepreneurial initiatives and why? 1.4 Have you perceived any significant changes in Melbourne's entrepreneurial culture within the past 5 years? Please explain why. 1.5 What would you think triggers a culture of entrepreneurship? 1.6 Regarding the City's business environment and according to your perception, what is missing and if it was available could be a key enabler?
	Histories of entrepreneur-ship	Entrepreneurs inspiring younger entrepreneurs, benefits and possibilities of a potential career path, possibility of policy makers promoting these stories (e.g. role models, successful local entrepreneurial ventures)	2. Is there promotion and diffusion of entrepreneurial success stories and experience sharing forums? If yes, how?
Social	Networks	Social networks that connect entrepreneurs, advisors, investors, and workers allowing the free flow of knowledge and skills (e.g. networks allowing market and technological knowledge, resource acquisition, access to customers and suppliers)	3. Which are key challenges for networking within Melbourne's environment? 3.1 How important are networks for start-up activities? 1 (not at all important) to 5 (very important) 3.2 Which could be key resources gained through networking at the start-up phase? 3.3 How important are networks for growth activities? 1 (not at all important) to 5 (very important) 3.4 Which could be key resources gained through networking at the growth phase? 3.5 How do you participate to create the necessary and effective networks to help entrepreneurs establish key alliances with suppliers, customers, investors and other entrepreneurial actors? 3.6 When thinking about networking, which strategies would you say can be more effective than others? 3.7 In your perception, what could be the best way in which entrepreneurs could start to connect with Melbourne's entrepreneurial ecosystem?
	Investment capital	Critical for start-up and necessary for start-up growth, investors can also act as advisors to firms, connection between local investors and the local entrepreneurial community is fundamental for the growth of entrepreneurial firms (e.g. venture capitalists, angel investors, family and friends)	4. How do you help to find investment capital options according to the specific characteristics of each venture for starting a venture? 4.1 When the start-up is planning to grow, what are the investment capital options then? 4.2 Regarding local available financial options, do you consider there is something that should improve and why?

	Mentors and dealmakers	Can improve entrepreneurs' performance, firm formation and survival rates, dealmakers proactively build new connections between entrepreneurial actors (e.g. contribute to firm formation and growth within regions, assist in developing new business skills, develop their own social capital; such as successful business people or philanthropists)	5. Do you offer mentorship services to entrepreneurs? 5.1 If yes, what type of mentoring services does you offer? 5.2 What are the most frequent mentorship services entrepreneurs seek? 5.3 How important do you consider mentors are for entrepreneurs to achieve venture's objectives? 1 (not at all important) to 5 (very important) 5.4 In which areas do you consider crucial that entrepreneurs should have mentorship? 5.5 How do you access mentors with the right set of skills and expertise to effectively support entrepreneurs' needs? Has it proven to be accessible and effective?
	Worker talent	Skilled employees used to the specific demands of working in small firms and with certain tolerance for risk in the chaotic environment of a start-up, necessary precursor for success and key component for the competitiveness of new ventures; key resource for new ventures (e.g. technical workers but also experienced managers who can help entrepreneurs as firms grow and mature, can help find good matches adding to the value of dense social networks)	6. How do you support entrepreneurs to find the required talent for their venture?
Material	Universities	Where the development of new technologies take place creating entrepreneurial opportunities, access to knowledge, development of human capital of a region and development of entrepreneurial mindsets in students (e.g. academic entrepreneurs, firms approaching universities (commissioning research, hiring graduates, informal connections such as public talks or discussions with faculty))	7. How do you collaborate with universities so that entrepreneurs can have easy access to: a) training b) mentors c) required talent d) other services 7.1 According to your experience, how important do you think it is for entrepreneurs to get entrepreneurship education before or during starting/growing their business? Why? 1 (not at all important) to 5 (very important) 7.2 Regarding universities support, what have you identified is missing and if it was available could be a key enabler?
	Support services and facilities – physical infrastructure	Specialised assistance for early-stage firms, firms can access capabilities they do not possess internally, plus the important access to networks; important facilitators of entrepreneurial activity – often a key node of an ecosystem (e.g. accountants, patent lawyers, human resource advisors. Incubation, acceleration, coworking facilities)	8. What are the services you offer to entrepreneurs? 8.1 Are there services targeted in specific for start-up growth? What kind? 8.2 How do you facilitate and communicate the variety of services available to entrepreneurs? 8.3 According to your perception, how important support services are to entrepreneurs? 1 (not at all important) to 5 (very important) 8.4 What are the main enablers you have found for your successful operation? 8.5 What are the main barriers you have found for your successful operation? 8.6 Regarding the ventures you have supported, can you mention the top 3 most frequent barriers and top 3 enablers they face?

Policies and governance	Government rules and regulations, policies can create publicly funded support programs and encourage entrepreneurship, key elements of the economic and political contexts in which entrepreneurship takes place (e.g. tax benefits, investment of public funds, reductions in bureaucratic regulation, networking and incubation programs)	9. In what ways are government initiatives supporting your operation to help entrepreneurs? 9.1 What do you consider should be improved?
Strong local markets – open markets	Entrepreneurs can identify opportunities through the interaction with the local markets, make early sales and build capabilities, crucial for the development of entrepreneurial ecosystems (e.g. presence of local customers with specialised needs, particular industries within regions)	10. How do you help entrepreneurs to identify market opportunities? 10.1 Does government help to promote local products or companies? How? 10.2 What are key challenges entrepreneurs face within Melbourne's market?

Appendix G. Network Chart



Source: Adapted from Antonucci (1986)

Appendix H. Network Grid

Person's Initials	**Position**	**Area**	**Organisation/ Institution type**	**Main purpose of the interaction** role or service	**Other material resources obtained**	**Non-material / intangible support**	**Importance of the contribution of each ecosystem actor in achieving venture's objectives** 1 – not at all important 2 – of little importance 3 – moderately important 4 – important 5 – very important
NA	Manager	Innovation & Commercialisation	University	IP service	Office space	Networks	
TG	Engineering Director	Design and manufacturing	Automotive	Support	Equipment	Successful local entrepreneur, Friendship	
LW	Co-founder & Managing Director	Business operation	Employment Services	Business partner	Financial	Mentorship and advise	
MC	Advisor	Strategy	Co-working space	Mentorship		Information	

Appendix I. Network Chart Instructions and Discussion Guide

Instructions- Network Chart

This interview focuses on investigating aspects about interactions and composition of those interactions. *Interactions* here refer to those occurring between you and other ecosystem actors.

1. To map interactions I will pose some questions and this diagram will help to map and guide the discussion about the network.
2. In the diagram, consider yourself at the centre. Each of the circles represents different levels of the perceived relevance of the network partner (in this case, other ecosystem actors). They are rated numerically from the outside of the chart, labelled 1 (of little importance), to the inside of the chart, labelled 6 (highly important). The generated names will be allocated in the chart according to their relevance (for you and your venture).
3. To name the interactions, write the initials of the person you interact with, and circle each of them to create a boundary with each person. Each of them should be located according to the nature of the relationship (Family/friend, Business, or both). If you normally interact with more than one person at the same organisation or service, please write them too.

Composition refers to the content of those interactions, with a focus on resources (material and non- material).

4. Composition aspects will be addressed at a later stage, after mapping ecosystem actors and interactions.

Guiding questions- Network Chart

1. According to the stage the venture is at, (*start-up stage:* ventures under 3-years old; OR *growth stage:* ventures operating for 3 years or longer), please think about the players or people you interact with. (Examples of ecosystem actors. Only a guide and can include others)
2. Locate them on the circles according to their relevance and the nature of the relationship.
3. Are there any other actors or players that you would like to add? Would you like to change any of them to a different place within the chart?
4. At the grid, we will now proceed to talk about key resources or supports obtained through these interactions for each of the people you interact with. (Examples of type of support and resources. Only a guide and can include others)
5. In the map, please connect the actors with a line if they know each other.
6. Indicate in each connection the duration of the relationship (ST) Short term (one-off/few), (M) Medium term, (L) Long term (ongoing).
7. Are there any other actors or support that you could think of, that could be important for your venture, but with whom currently you don't have any links with?
8. Why haven't you been able to connect with them? What could be improved?

Appendix J. Ethics Approval

Subject: HEC19089 - New Application - Approved
Date: Tuesday, 16 April 2019 at 11:26:11 am Australian Eastern Standard Time

From: humanethics@latrobe.edu.au
To: Alex Maritz
CC: Claudia Shwetzer Herrera, Quan Nguyen

** This is an automatically generated email, please do not reply. Contact details are listed below.**

Dear Phoebus Maritz,

The following project has been assessed as complying with the National Statement on Ethical Conduct in Human Research. I am pleased to advise that your project has been granted ethics approval and you may commence the study.

Application ID: HEC19089
Application Status/Committee: Arts, Social Sciences & Commerce College Human Ethics Sub-Committee

Project Title: Entrepreneurial Ecosystem Dynamics: the influence of context, composition and interactions on entrepreneurial activity

Chief Investigator: Phoebus Maritz
Other Investigators: Anh Nguyen, Claudia Shwetzer Herrera

Date of Approval: 16/04/2019
Date of Ethics Approval Expiry: 16/04/2024

The following standard conditions apply to your project:
- Limit of Approval. Approval is limited strictly to the research proposal as submitted in your application.

- Variation to Project. Any subsequent variations or modifications you wish to make to your project must be formally notified for approval in advance of these modifications being introduced into the project.

- Adverse Events. If any unforeseen or adverse events occur the Chief Investigator must notify the UHEC immediately. Any complaints about the project received by the researchers must also be referred immediately to the UHEC.

- Withdrawal of Project. If you decide to discontinue your research before its planned completion, you must inform the relevant committee and complete a Final Report form.

- Monitoring. All projects are subject to monitoring at any time by the University Human Ethics Committee.

- Annual Progress Reports. If your project continues for more than 12 months, you are required to submit a Progress Report annually, on or just prior to 12 February. The form is available on the Research Office website. Failure to submit a Progress Report will mean approval for this project will lapse.

- Auditing. An audit of the project may be conducted by members of the UHEC.
- Final Report. A Final Report (see above address) is required within six months of the completion of the project. You may log in to ResearchMaster (https://rmenet.latrobe.edu.au) to view your application.
Should you require any further information, please contact the Human Research Ethics Team on:

Should you require any further information, please contact the Human Research Ethics Team on:

T: +61 3 9479 1443| E: humanethics@latrobe.edu.au.

Warm regards,

Human Research Ethics Team
Ethics, Integrity & Biosafety, Research Office

Appendix K. Invitation to Participate in the Study- Entrepreneurs & Ecosystem Actors

Entrepreneurs

Research Study Title: Entrepreneurial Ecosystem Dynamics: the influence of context, composition and interactions on entrepreneurial activity

I am writing to let you know about a research study that you have the option to take part in. The research is being conducted by La Trobe University. I am contacting you because you are an entrepreneur and your experience and insights are valuable for this study.

This research is being done to learn more about entrepreneurial ecosystems and gain understanding about the dynamic processes involved in entrepreneurship. This is being done, not only to advance entrepreneurship research, but also with the aim to provide greater support to entrepreneurs, policy makers and wider public involved.

The reason we want to know more about entrepreneurial ecosystems' dynamics is because in a rapidly changing environment, in which what might work in one place, might not work in another, research on this topic can be an important tool in developing better understanding on the overall process of entrepreneurship and of how Melbourne's entrepreneurial ecosystem could better support entrepreneurs and enhance entrepreneurial activity.

Taking part in this research study is optional. We are looking for people who want to take part in this research and who are:

- Entrepreneurs at start-up stage (ventures under 3-years old, all sizes considered) or;
- Entrepreneurs at growth stage (ventures operating for 3 years or longer, all sizes considered)

If you decide to take part in the research we would:

- Ask you to participate in two interviews of approximately one hour each. The first interview related to your experiences during the entrepreneurship process and the second one related to networking activities. The second interview could take place either close to the date of the first interview, according to your next available time, or on the same day if preferred.
- Please see the attached document (Information Statement and Consent Form) for further details.

If you would like more information about the research study, please contact:

Name:	Professor Alex Maritz
Email:	a.maritz@latrobe.edu.au
Phone:	03 9479 5176

Taking part in this research study is voluntary. You may choose not to take part. If you decide not to take part in this research, your decision will not affect your relationship with La Trobe University.

This research has been reviewed and approved by The La Trobe University Human Research Ethics Committee. If you have any complaints or concerns about the research study please email humanethics@latrobe.edu.au or phone +61 3 9479 1443 quoting the following number HEC19089.

Yours sincerely,

Claudia Shwetzer
PhD Candidate

Ecosystem Actors

Research Study Title: Entrepreneurial Ecosystem Dynamics: the influence of context, composition and interactions on entrepreneurial activity

I am writing to let you know about a research study that you have the option to take part in. The research is being conducted by La Trobe University. I am contacting you because you are an ecosystem actor involved with entrepreneurship or entrepreneurial activities, and your experience and insights are valuable for this study.

This research is being done to learn more about entrepreneurial ecosystems and gain understanding about the dynamic processes involved in entrepreneurship. This is being done, not only to advance entrepreneurship research, but also with the aim to provide greater support to entrepreneurs, policy makers and wider public involved.

The reason we want to know more about entrepreneurial ecosystems' dynamics is because in a rapidly changing environment, in which what might work in one place, might not work in another, research on this topic can be an important tool in developing better understanding on the overall process of entrepreneurship and of how Melbourne's entrepreneurial ecosystem could better support entrepreneurs and enhance entrepreneurial activity.

Taking part in this research study is optional. We are looking for people who want to take part in this research and who are:

- Ecosystem actors involved with entrepreneurship or entrepreneurial activities, either within a university, government, financial or support service (e.g. venture oriented professionals, start-up community groups, incubators, accelerators, co-working facilities).

If you decide to take part in the research we would:

- Ask you to participate in one interview of approximately one hour. The interview will be related to your experiences while interacting with entrepreneurs and/or entrepreneurial activities.
- Please see the attached document (Information Statement and Consent Form) for further details.

If you would like more information of the research study please contact:

Name:	Professor Alex Maritz
Email:	a.maritz@latrobe.edu.au
Phone:	03 9479 5176

Taking part in this research study is voluntary. You may choose not to take part. If you decide not to take part in this research, your decision will not affect your relationship with La Trobe University.

This research has been reviewed and approved by The La Trobe University Human Research Ethics Committee. If you have any complaints or concerns about the research study please email humanethics@latrobe.edu.au or phone +61 3 9479 1443 quoting the following number HEC19089.

Yours sincerely,

Claudia Shwetzer
PhD Candidate

Appendix L. Invitation to Participate in the Study-Observation Process

Research Study Title: Entrepreneurial Ecosystem Dynamics: the influence of context, composition and interactions on entrepreneurial activity

I am writing to let you know about a research study that you have the option to take part in. The research is being conducted by La Trobe University. I am contacting you because of your involvement with entrepreneurship and entrepreneurial activities within Melbourne's ecosystem.

This research is being done to learn more about entrepreneurial ecosystems and gain understanding about the dynamic processes involved in entrepreneurship. This is being done, not only to advance entrepreneurship research, but also with the aim to provide greater support to entrepreneurs, policy makers and wider public involved.

The reason we want to know more about entrepreneurial ecosystems' dynamics is because in a rapidly changing environment, in which what might work in one place, might not work in another, research on this topic can be an important tool in developing better understanding on the overall process of entrepreneurship and of how Melbourne's entrepreneurial ecosystem could better support entrepreneurs and enhance entrepreneurial activity.

Taking part in this research study is optional. We are looking for people who want to take part in this research and who are:

- Engaged in entrepreneurship and entrepreneurial activities within Melbourne's ecosystem by actively providing programs, co-working space, support services and/or networking opportunities to entrepreneurs and other ecosystem actors involved.

If you decide to take part in the research we would:

- Request your permission to gather information through the process of observation and note taking, about activities and interactions taking place at co-working places, and/or events, programs and networking activities taking place within Melbourne. The observations gathered at the premises where events are taking place, will complement other sources of information, that together will inform this research.
- Please see the attached document (Information Statement and Consent Form) for further details.

If you would like more information or are interested in being part of the research study please contact:

Name:	Professor Alex Maritz
Email:	a.maritz@latrobe.edu.au
Phone:	03 9479 5176

Taking part in this research study is voluntary. You may choose not to take part. If you decide not to take part in this research, your decision will not affect your relationship with La Trobe University.

This research has been reviewed and approved by The La Trobe University Human Research Ethics Committee. If you have any complaints or concerns about the research study please email humanethics@latrobe.edu.au or phone +61 3 9479 1443 quoting the following number HEC19089.

Yours sincerely,

Claudia Shwetzer
PhD Candidate

Appendix M. Participant Information Statement and Consent Form- Interviews

The research is being carried out in partial fulfilment of PhD Entrepreneurship & Innovation under the supervision of Professor Alex Maritz and Dr. Quan Nguyen. The following researchers will be conducting the study:		
Role	**Name**	**Organisation**
Chief Investigator	Alex Maritz	La Trobe Business School
Associate Investigator	Quan Nguyen	La Trobe Business School
Student	Claudia Shwetzer Herrera	La Trobe Business School
Research funder	This research is supported by in kind support by La Trobe University.	

1. **What is the study about?**
   You are invited to participate in a study of Entrepreneurial ecosystems. We hope to learn about the influence that context can have in entrepreneurial activity (specifically within the context of Melbourne), the composition and interactions between actors within the entrepreneurial ecosystem, and about elements that enhance or hinder these entrepreneurial activities.

2. **Do I have to participate?**
   Being part of this study is voluntary. If you want to be part of the study we ask that you read the information below carefully and ask us any questions.

   You can read the information below and decide at the end if you do not want to participate. If you decide not to participate this won't affect your relationship with La Trobe University or any other listed organisation.

3. **Who is being asked to participate?**
   You have been asked to participate because:
   - You are an entrepreneur, that could provide valuable insights about activities, processes and interactions occurring within Melbourne's entrepreneurial ecosystem.

4. **What will I be asked to do?**
   If you want to take part in this study, we will ask you to participate in two interviews. The first interview will take approximately one hour of your time. The second follow-up interview will also take approximately one hour and will be scheduled close to the date of the first interview, according to your next available time, or on the same day if preferred.
   Recording of the interviews will be needed for analysis purposes.

5. **What are the benefits?**
   The benefit of you taking part in this study is that your participation could contribute for gaining better understanding towards a more comprehensive view of the dynamic interactions and processes involved within Melbourne's entrepreneurial ecosystem. The expected benefits to society in general are advancing the understanding of the activities, interactions and processes involved within entrepreneurial ecosystems, as supportive mechanisms for entrepreneurs and other entrepreneurial actors with the ultimate goal of enhancing entrepreneurial activity.

6. **What are the risks?**
   With any study there are (1) risks we know about, (2) risks we don't know about and (3) risks we don't expect. If you experience something that you aren't sure about, please contact us immediately so we can discuss the best way to manage your concerns.

Name/Organisation	Position	Telephone	Email
Alex Maritz	Professor of Entrepreneurship	03 9479 5176	a.maritz@latrobe.edu.au

We do not foresee any risks associated with this study.

7. **What will happen to information about me?**
We will **collect** information about you in ways that *will* reveal who you are.

We will **store** information about you in ways that *will not* reveal who you are.

We will **publish** information about you in ways that *will not* be identified in any type of publication from this study.

We will **keep** your information for 5 years after the project is completed. After this time we will destroy all of your data.

The storage, transfer and destruction of your data will be undertaken in accordance with the Research Data Management Policy https://policies.latrobe.edu.au/document/view.php?id=106/.

The personal information you provide will be handled in accordance with applicable privacy laws, any health information collected will be handled in accordance with the Health Records Act 2001 (Vic). Subject to any exceptions in relevant laws, you have the right to access and correct your personal information by contacting the research team.

8. **Will I hear about the results of the study?**
We will let you know about the results of the study upon request, through a report of the overall findings. If you would like to read a copy of your own interview transcript, please contact the Chief Investigator to request a copy. Transcripts will contain de-identifiable information. The findings from the research will be documented in a doctoral thesis and could be potentially used for journal articles and/or conference papers.

9. **What if I change my mind?**
You can choose to no longer be part of the study. You can let us know by:
1. Completing the 'Withdrawal of Consent Form' (provided at the end of this document);
2. Calling us; or
3. Emailing us

Your decision to withdraw at any point will **not** affect your relationship with La Trobe University or any other organisation listed.

When you withdraw we will stop asking you for information. Any identifiable information about you will be withdrawn from the research study. However, you can only withdraw your information up to 28 days after the data has been collected.

10. **Who can I contact for questions or want more information?**
If you would like to speak to us, please use the contact details below:

Name/Organisation	Position	Telephone	Email
Claudia Shwetzer Herrera	PhD Candidate	NA	C.ShwetzerHerrera@latrobe.edu.au

11. **What if I have a complaint?**
If you have a complaint about any part of this study, please contact:

Ethics Reference Number	Position	Telephone	Email
HEC19089	Senior Research Ethics Officer	+61 3 9479 1443	humanethics@latrobe.edu.au

Consent Form – Declaration by Participant

I (the participant) have read (or, where appropriate, have had read to me) and understood the participant information statement, and any questions have been answered to my satisfaction. I agree to participate in the study, I know I can withdraw within a period of 28 days, since the date the information was gathered. I agree information provided by me or with my permission during the project may be included in a thesis, presentation and published in journals on the condition that I cannot be identified.

I would like my information collected for this research study to be:
☐ Only used for this specific study.

☐ I agree to have my interview audio recorded.
☐ I would like to receive a copy of the results via email or post. I have provided my details below and ask that they only be used for this purpose and not stored with my information or for future contact.

Name	Email (optional)	Postal address (optional)

Participant Signature
☐ I have received a signed copy of the Participant Information Statement and Consent Form to keep

Participant's printed name	
Participant's signature	
Date	

Declaration by Researcher
☐ I have given a verbal explanation of the study, what it involves, and the risks and I believe the participant has understood;
☐ I am a person qualified to explain the study, the risks and answer questions

Researcher's printed name	
Researcher's signature	
Date	

* All parties must sign and date their own signature

Withdrawal of Consent

I wish to withdraw my consent to participate in this study. I understand withdrawal will not affect my relationship with La Trobe University of any other organisation or professionals listed in the Participant Information Statement. I understand that once the information has been collected, a period of 28 days is allowed for the participants to decide and inform the researchers in case they opt to withdraw from the study.

I understand my information will be withdrawn as outlined below:

- ✓ Any identifiable information about me will be withdrawn from the study
- ✓ The researchers cannot withdraw my information once it has been analysed, and/or collected as part of a focus group

I would like my already collected and unanalysed data
☐ Destroyed and not used for any analysis
☐ Used for analysis

Participant Signature

Participant's printed name	
Participant's signature	
Date	

Please forward this form to:

CI Name	Professor Alex Maritz
Email	a.maritz@latrobe.edu.au
Phone	03 9479 5176
Postal Address	La Trobe Business School, Department of Entrepreneurship, Innovation & Marketing La Trobe University, Bundoora, Vic 3086 Australia

Appendix N. Participant Information Statement and Consent Form- Observation Process

The research is being carried out in partial fulfilment of PhD Entrepreneurship & Innovation under the supervision of Professor Alex Maritz and Dr. Quan Nguyen. The following researchers will be conducting the study:		
Role	**Name**	**Organisation**
Chief Investigator	Alex Maritz	La Trobe Business School
Associate Investigator	Quan Nguyen	La Trobe Business School
Student	Claudia Shwetzer Herrera	La Trobe Business School
Research funder	This research is supported by in kind support by La Trobe University.	

1. **What is the study about?**
   You are invited to participate in a study of Entrepreneurial ecosystems. We hope to learn about the influence that context can have in entrepreneurial activity (specifically within the context of Melbourne), the composition and interactions between actors within the entrepreneurial ecosystem, and about elements that enhance or hinder these entrepreneurial activities.

2. **Do I have to participate?**
   Being part of this study is voluntary. If you want to be part of the study we ask that you read the information below carefully and ask us any questions.

   You can read the information below and decide at the end if you do not want to participate. If you decide not to participate this won't affect your relationship with La Trobe University or any other listed organisation.

3. **Who is being asked to participate?**
   You have been asked to participate because:
   - This part of the study comprises the observation of activities occurring within Melbourne's entrepreneurial ecosystem, such as entrepreneurship related events and networking events. In order to learn about the nature of events taking place within the ecosystem, we are contacting you because of your active status either organising events, programs or providing space and services for conducting regular entrepreneurship-related activities, while providing support and information for entrepreneurs and other related actors.

4. **What will I be asked to do?**
   If you want to take part in this study, we would like to ask for your permission so that the postgraduate student (Claudia Shwetzer) can do observations of events taking place within your establishment or program while attending and participating in such events. The postgraduate student's identity will be revealed while interactions with people involved or participants are taking place.
   The period of observations ranges between two to six months. Aspects to observe include the description of the physical setting, approximate number of event participants, activities, interactions, topics being addressed, and the student's personal reflections and insights. Interaction between the postgraduate student and participants might occur while taking part of the events, to attempt to perceive reality from the viewpoint of someone inside the situation being observed, and gain rich insights. When/if the postgraduate student asks questions to participants to enhance understanding or if participants decide to inform further by their own choice, the postgraduate student will ask verbally the participants' permission to include the information in the study, anonymously.
   The observational research will be recorded through hand-written notes during and after visiting the establishment (co- working space) or the events and de-identified information will be collected. The observations gathered will then be used to fill in an observational protocol for further analysis and incorporation to other sources of information that will compose the overall research on Melbourne's entrepreneurial ecosystem.

5. **What are the benefits?**
The benefit of you taking part in this study is that your participation could contribute for gaining better understanding towards a more comprehensive view of the dynamic interactions and processes involved within Melbourne's entrepreneurial ecosystem. The expected benefits to society in general are advancing the understanding of the activities, interactions and processes involved within entrepreneurial ecosystems, as supportive mechanisms for entrepreneurs and other entrepreneurial actors with the ultimate goal of enhancing entrepreneurial activity.

6. **What are the risks?**
With any study there are (1) risks we know about, (2) risks we don't know about and (3) risks we don't expect. If you experience something that you aren't sure about, please contact us immediately so we can discuss the best way to manage your concerns.

Name/Organisation	Position	Telephone	Email
Alex Maritz	Professor of Entrepreneurship	03 9479 5176	a.maritz@latrobe.edu.au

We do not foresee any risks associated with this study.

7. **What will happen to information about me?**
We will **collect** information (hand-written notes) about the events/program/co-working space in ways that *will not* reveal who you are.

We will **store** information about the events/program in ways that *will not* reveal who you are.

We will **publish** information about the events/program in ways that *will not* be identified in any type of publication from this study.

We will **keep** your information for 5 years after the project is completed. After this time we will destroy all of your data.

The storage, transfer and destruction of your data will be undertaken in accordance with the Research Data Management Policy https://policies.latrobe.edu.au/document/view.php?id=106/.

The personal information you provide will be handled in accordance with applicable privacy laws, any health information collected will be handled in accordance with the Health Records Act 2001 (Vic). Subject to any exceptions in relevant laws, you have the right to access and correct your personal information by contacting the research team.

8. **Will I hear about the results of the study?**
If you would like to read the description of the observations conducted within your program or setting, please contact the Chief Investigator to request a copy. The findings from the research will be documented in a doctoral thesis and could be potentially used for journal articles and/or conference papers.

9. **What if I change my mind?**
You can choose to no longer be part of the study. You can let us know by:
1. Completing the 'Withdrawal of Consent Form' (provided at the end of this document);
2. Calling us; or
3. Emailing us

Your decision to withdraw at any point will **not** affect your relationship with La Trobe University or any other organisation listed.

When you withdraw we will stop asking you for information. Any identifiable information about you will be withdrawn from the research study. However, you can only withdraw your information up to 28 days after the data has been collected.

10. **Who can I contact for questions or want more information?**
If you would like to speak to us, please use the contact details below:

Name/Organisation	Position	Telephone	Email
Claudia Shwetzer Herrera	PhD Candidate	NA	C.ShwetzerHerrera@latrobe.edu.au

11. What if I have a complaint?

If you have a complaint about any part of this study, please contact:

Ethics Reference Number	Position	Telephone	Email
HEC19089	Senior Research Ethics Officer	+61 3 9479 1443	humanethics@latrobe.edu.au

Consent Form – Declaration by Participant

I (the participant) have read (or, where appropriate, have had read to me) and understood the participant information statement, and any questions have been answered to my satisfaction. I agree to participate in the study, I know I can withdraw within a period of 28 days, since the date the information was gathered. I agree information provided by me or with my permission during the project may be included in a thesis, presentation and published in journals on the condition that I cannot be identified.

I would like my information collected for this research study to be:

☐ Only used for this specific study.

☐ I agree that the researcher proceeds conducting observations.
☐ I would like to receive a copy of the results via email or post. I have provided my details below and ask that they only be used for this purpose and not stored with my information or for future contact.

Name	Email (optional)	Postal address (optional)

Participant Signature

☐ I have received a signed copy of the Participant Information Statement and Consent Form to keep

Participant's printed name	
Participant's signature	
Date	

Declaration by Researcher

☐ I have given a verbal explanation of the study, what it involves, and the risks and I believe the participant has understood;
☐ I am a person qualified to explain the study, the risks and answer questions

Researcher's printed name	
Researcher's signature	
Date	

* All parties must sign and date their own signature

Withdrawal of Consent

I wish to withdraw my consent to participate in this study. I understand withdrawal will not affect my relationship with La Trobe University of any other organisation or professionals listed in the Participant Information Statement. I understand that once the information has been collected, a period of 28 days is allowed for the participants to decide and inform the researchers in case they opt to withdraw from the study.

I understand my information will be withdrawn as outlined below:

- ✓ Any identifiable information about me will be withdrawn from the study
- ✓ The researchers cannot withdraw my information once it has been analysed, and/or collected as part of a focus group

I would like my already collected and unanalysed data
☐ Destroyed and not used for any analysis
☐ Used for analysis

Participant Signature

Participant's printed name	
Participant's signature	
Date	

Please forward this form to:

CI Name	Professor Alex Maritz
Email	a.maritz@latrobe.edu.au
Phone	03 9479 5176
Postal Address	La Trobe Business School, Department of Entrepreneurship, Innovation & Marketing La Trobe University, Bundoora, Vic 3086 Australia

Appendix O. Document Analysis- Coding Scheme

Code	Description
Value	Objectives and value of the report
Melbourne's strengths	Strengths as a City and/or as entrepreneurial ecosystem (e.g. sense of community, cultural diversity, integration, etc)
Melbourne's weaknesses	Issues, challenges that hinder entrepreneurial activity
Ecosystem missing aspects	Aspects identified as missing or needed within Melbourne's ecosystem, including issues with support
Ecosystem development & improvements	Ecosystem's origins, evolution, growth; ecosystem's aspects that have been improving
Ecosystem properties & success factors	Characteristics, properties, attributes identified as important for an ecosystem's functionality/operation e.g. information flow, systemic nature
Ecosystem recommendations	Aspects to improve within Melbourne's ecosystem to provide better support
Entrepreneurs' support	Support as perceived within Melbourne's environment in general and/or as experienced by the entrepreneur e.g. entrepreneurs' perceived support from other ecosystem actors, perception of collaboration, cooperation, city infrastructure, incentives supporting entrepreneurship
Government's strengths	Positive aspects considered, in which government is performing well/ providing support
Immigrant entrepreneurship	Individuals building a venture in a foreign nation
Entrepreneurial culture	Underlying beliefs about entrepreneurship
Innovation-Technology	Views on technology, innovation, creativity and its relation to entrepreneurship
Entrepreneurship programs	Entrepreneurship programs' development and improvements
Events/Meet-ups practices	About networking events, start-up meet-ups, Industry meet-ups/ exhibitions
Start-ups' nature	Start-ups' characteristics and significance
Growth	Strategies and support for growth
Entrepreneurial success stories	Successful local (or international) entrepreneurs who found start-ups that went on to become large, global market leaders; views on promotion of success and success stories
Co-working spaces strengths	Positive aspects of co-working spaces

Appendix P. Observational Protocol

Event No. 8	**Place:** Co-working space 1	**Date:** 8 Aug 2019 **Time:** 10:30am **Duration:** 2hrs
Main topic(s): Business related topics on doing business in Australia.		
Descriptive notes: physical setting, participants, activities, interactions, topics being addressed, personal reflections and insights First floor was calm, as normally is. Second and third floor were almost at full capacity, with around 20 and 30 people working in each of these two levels. The space felt like a vibrant environment to work. The age group varied, although a young mix of internationals predominated. People present included international students, people guiding the teams, young and mature people, staff and the two owners. Main activities were founder and co-founder leading meetings with teams, people working on their own projects, small business meetings and people working in teams. Training was happening with many of the teams, preparing students for placements in different industries. Some start-ups were working on their business. Interactions taking place included friendly staff at entrance, mentoring and training interactions with teams, teams interacting with each other, students chatting with other students. Entrepreneurs catching up with other entrepreneurs. Topics included accounting training. Progression of a start-up to acquire investment and mechanisms involved. Scanning and exploiting ideas. Prototypes.		

Reflective notes: personal reflections, insights, ideas, initial interpretations, breakthroughs and learnings Besides the designated area for co-working, the space is providing access to events and activities towards alternative pathways for employment for international students, gain local experience and develop some skills. Events and activities occurring periodically in that space are also conducive to engage with the start-up ecosystem. It is interesting to see the level of engagement of both the founder and the co-founder during their interactions. It really feels like a friendly and energetic area to work. It seems people are getting used to my presence. Until now, some of them started to become 'inside informers', and approach more freely to talk about what they are working on.

Source: Adapted from Creswell & Poth (2018) and Eisenhardt (1989)

Appendix Q. Thematic Analysis- Coding Scheme

Code	Description
Local characteristics	Characteristics within Melbourne's context
Business environment	About the perception of entrepreneurship, failure, risk taking, tolerance for mistakes, ease of starting a business within the ecosystem
Entrepreneurs' support	Support as perceived within Melbourne's environment in general and/or as experienced by the entrepreneur e.g. entrepreneurs' perceived support from other ecosystem actors, perception of collaboration, cooperation, city infrastructure, incentives supporting entrepreneurship
Melbourne's strengths	Strengths as a City and/or as entrepreneurial ecosystem (e.g. sense of community, cultural diversity, integration, etc)
Melbourne's weaknesses	Issues, challenges that hinder entrepreneurial activity
Ecosystem development & improvements	Ecosystem's origins, evolution, growth. Ecosystem's aspects that have been improving
Ecosystem properties & success factors	Characteristics, properties, attributes identified as important for an ecosystem's functionality/operation e.g. information flow, systemic nature
Ecosystem leader/advocate	Individuals or organisations as champions or promoters of Melbourne's ecosystem
Comparisons related to Sydney	Comparisons between Melbourne and Sydney ecosystems
Ecosystem recommendations	Aspects to improve within Melbourne's ecosystem to provide better support
Societal attitudes, traditions, norms	Social and cultural norms guiding behaviour, shared beliefs
Preconceived ideas	Preconceived opinions or assumptions, including misconceived perceptions about entrepreneurs/ entrepreneurship
Societal change	Perceived changes occurring within Melbourne and the broader society influencing entrepreneurship
Cultural values	Aspects that the Australian/Melbourne society value. Predominating attitudes, behaviours, beliefs
Cultural differences	Differences influencing entrepreneurial behaviour, perceptions and the way things occur differently depending on the country
Historical conditions/historical influences	Historical influences on entrepreneurship
Entrepreneurial culture	Underlying beliefs about entrepreneurship
Triggers of an Entrepreneurial Culture	Aspects (motivations/drivers) that influence individuals/groups to engage in entrepreneurial activity
Entrepreneurship & Entrepreneurial thinking	Views/ beliefs about entrepreneurship, entrepreneurial thinking, entrepreneurial mindset. Important things for entrepreneurs, entrepreneurs' characteristics
Innovation-Technology	Views on technology, innovation, creativity and its relation to entrepreneurship
Entrepreneurial success stories	Successful local (or international) entrepreneurs who found start-ups that went on to become large, global market leaders; views on promotion of success and success stories

Immigrant entrepreneurship	Individuals building a venture in a foreign nation
Role models	Local/ international successful entrepreneurs, business people, or other successful people that are source of inspiration, and their characteristics; ways participants 'connect' with them e.g. reading biographies
Ecosystem Issues	Issues within the ecosystem (e.g. access to funding, competitive practices)
Cultural barriers	Practices undermining/hindering entrepreneurial activity (e.g. issues with promoting success, tall poppy syndrome)
Collaboration issues	Issues on aspects of collaboration within ecosystem actors
Ecosystem missing aspects	Aspects participants identify as missing or needed within Melbourne's ecosystem, including issues with support
Start-up/Business concept	About the start-up/ business concept/idea. Entrepreneurs' description about their business
Start-up	
Key resources for start-ups through networks	Tangible (financial, physical infrastructure, etc) or intangible (skills/talent, experience, networks, information, etc)
Success factors	Important/key aspects for start-up success; key resources; enablers; perspectives on success
Start-up challenges & barriers	Perceived challenges and barriers for start-ups
Growth	
Growth strategies	Strategies, recommendations for growth
Key resources for growth through networks	Tangible (financial, physical infrastructure, etc) or intangible (skills/talent, experience, networks, information, etc)
Growth challenges & barriers	Challenges and barriers related to business growth
Value creation	Entrepreneurs' and actors' views on value creation and their value proposition
Market	
Market characteristics	Melbourne's market characteristics, positive aspects and challenges
Market recommendations	Improvements needed within Melbourne's market
International markets	International perspective, global thinking, potential markets
University actor's role	About participants' role within the University and the ecosystem
Government actor's role	About participants' role within Government and the ecosystem
Financial organisation actor's role	About participants' role within financial organisations and the ecosystem
Support org/service actor's role	About participants' role within support org/services and the ecosystem (Accelerators, co-working spaces, mentors, start-up communities, incubators)

Other interactions	
University-industry-government	University-industry-government interactions and collaborations
University system	Focus and priorities influencing entrepreneurial outcomes
University's role in the ecosystem	
University's strengths	Positive aspects considered, in which universities are performing well/ providing support e.g. mentor-related activities, support for start-ups
University's weaknesses	Issues, challenges associated with universities' performance
University's recommendations	Aspects to improve within universities to provide better support
Research	
Research practices & engagement	Research relevance, focus / Engagement such as academic entrepreneurship (i.e. academic or technology based spin-off, consulting, commercialisation activities outside university's duties of basic research and teaching)
Technology transfer & Commercialising research	Positive and/or negative aspects on commercialising research at universities
Research recommendations	Aspects to improve
Entrepreneurship programs	
Development and current status	Evolution, improvements and challenges
Entrepreneurship Education	Perceived relevance of Entrepreneurship Education, to generate more rational and well developed initiatives, with more possibilities to survive and grow
Entrep. Educ/ Programs strengths	Positive aspects about Ent. Educ, programs, learning and teaching practices
Entrep. Educ/ Programs weaknesses	Issues, challenges, negative aspects about Ent. Educ, programs, learning and teaching practices (e.g. issues with experiential learning)
Entrep. Educ/ Programs recommendations	Aspects to improve within Ent. Educ. Ent. Programs, learning and teaching practices
Work Integrated Learning	Views on placements and internships; positive aspects and challenges
Accelerators (University)	
Accelerators' strengths	Enablers and positive aspects perceived in relation to University accelerators
Accelerators' weaknesses/issues and recommendations	Issues perceived and recommendations
Accelerators & Entrep programs (other)	
Accelerators' strengths	Positive aspects perceived in relation to accelerators outside University
Accelerators' weaknesses/issues and recommendations	Issues perceived and recommendations

Events/ Meet-ups	
Events/Meet-ups practices	About networking events, start-up meet-ups, Industry meet-ups/ exhibitions
Events/Meet-ups strengths	Positive aspects perceived
Events/Meet-ups weaknesses and recommendations	Issues perceived and recommendations
Networking	
Networks & Networking practices	How entrepreneurs develop their network, build connections; networks they value; network strengths and challenges
Networking strategies/recommendations	Recommendations for networking, building connections/relations in general, and while attending events
Connecting with the ecosystem	Ways and aspects considered to start connecting with the ecosystem
Mentors & Advisors	
Mentorship practices, strengths & areas	Practices, areas of mentorship and positive aspects and outcomes about giving or receiving mentorship
Mentorship weaknesses	Negative aspects associated to giving or receiving mentorship
Mentorship recommendations	Recommendations on obtaining mentorship, practices and areas
Co-working spaces	
Co-working spaces' strengths	Positive aspects of co-working spaces
Co-working spaces' weaknesses and recommendations	Issues and aspects to improve
Support services (other)	Start-up community groups, venture oriented professionals, incubators, etc.; diversity of services used; challenges
Government's role in the ecosystem	
Government's regulations and policies	Regulations (local or state) that directly support or hinder entrepreneurial activity (e.g. tax benefits, publicly funded support programs); general aspects of political (e.g. government stability, politicians decisions, etc.) and economic (e.g. economic growth, taxes, unemployment, etc.) environment influencing/ impacting entrepreneurial activity
Government's strengths	Positive aspects considered, in which government is performing well/ providing support
Government's weaknesses	Issues, challenges with government's performance associated to entrepreneurial activity
Government's recommendations	Aspects to improve within government to provide better support
Grants practices and effectiveness	About effectiveness and practices, including aspects about availability, accessibility, selection process, etc.
Industry	Aspects of Industry within the ecosystem positive or negative
Funding	Acquiring/raising capital
Funding availability	Views concerning availability and access to different types of funding

Funding practices	Views on different types of funding (e.g. angel investors, venture capital investors, self-funding, banks, grants, foreign investors); assessment mechanisms
Funding weaknesses and recommendations	Issues, challenges with diverse funding options e.g. grants & research funding mechanisms, venture capital/investors issues (e.g. conservative investors, contracts and ownership); issues at different stages (e.g. early stage funding), etc.; aspects to improve
Lessons from other ecosystems	Other ecosystems' practices and strengths
Ecosystem trends	Ecosystem's trending aspects (e.g. pre-accelerators, female entrepreneurs)
Concepts	
Trust	Views on trust within different aspects of the ecosystem
Failure	Views on failure and tolerance to failure
Key alliances	Strategic alliances/ partnerships needed or recommended to improve within the ecosystem

Appendix R. Thematic Analysis- Codes and Sub-Codes

Codes and Sub-Codes

1. Local characteristics
- Business environment
- Entrepreneurs' support
- Melbourne's strengths
- Melbourne's weaknesses
- Ecosystem development & improvements
- Ecosystem properties & success factors
- Ecosystem leader/advocate
- Comparisons related to Sydney
- Ecosystem recommendations

2. Societal attitudes, traditions, norms
- Preconceived ideas
- Triggers of an Entrepreneurial Culture
- Entrepreneurship & Entrepreneurial thinking
- Innovation-Technology
- Entrepreneurial success stories
- Immigrant entrepreneurship
- Role models

3. Ecosystem Issues
- Cultural barriers
- Collaboration issues
- Ecosystem missing aspects

4. Startup/Business concept

5. Startup
- Key resources for startups through networks
- Success factors
- Startup challenges & barriers

6. Growth
- Growth strategies
- Key resources for growth through networks
- Growth challenges & barriers

7. Value creation

8. Market
- Market characteristics
- Market recommendations
- International markets

9. University actor's role

10. Government actor's role

11. Financial organisation actor's role

12. Support org/service actor's role

13. Other interactions
- University-industry-government

14. University system

15. Industry

16. University's role in the ecosystem
- University's strengths
- University's weaknesses
- University's recommendations

17. Research
- Research practices & engagement
- Technology transfer & Commercialising
- Research recommendations

18. Entrepreneurship programs
- Development and current status
- Entrepreneurship Education
- Entrep. Educ/ Programs strengths
- Entrep. Educ/ Programs weaknesses
- Entrep. Educ/ Programs recommendations

19. Work Integrated Learning

20. Accelerators (University)
- Accelerators' strengths
- Accelerators' weaknesses & recomm

21. Accelerators & Entrep programs (other)
- Accelerators' strengths
- Accelerators' weaknesses & recomm

22. Events/ Meet-ups
- Events/Meetups practices
- Events/Meetups strengths
- Events/Meetups weaknesses & recomm

23. Networking
- Networks & Networking practices
- Networking strategies/recommendations
- Connecting with the ecosystem

24. Mentors & Advisors
- Mentorship practices, strengths & areas
- Mentorship weaknesses Mentorship recommendations

25. Co-working spaces
- Co-working spaces' strengths
- Co-working spaces' weaknesses & recom

26. Government's role in the ecosystem
- Government's regulations and policies
- Government's strengths
- Government's weaknesses
- Government's recommendations
- Grants practices and effectiveness

27. Funding
- Funding availability
- Funding practices
- Funding weaknesses & recomm

28. Concepts
- Trust
- Failure
- Key alliances

29. Support Services

30. Ecosystem terends

31. Lessons from other ecosystems

References

Acs, ZJ 2006, 'How is entrepreneurship good for economic growth?, *Innovations*, vol. 1, pp. 97-107.

Acs, ZJ & Audretsch, D 2010, *Handbook of entrepreneurship research: An interdisciplinary survey and introduction*, 2nd edition, Springer, London.

Acs, ZJ, Audretsch, D, Lehmann, E & Licht, G 2017a, 'National systems of innovation', *The Journal of Technology Transfer*, vol. 42, no. 5, pp. 997-1008.

Acs, ZJ, Autio, E & Szerb, L 2014, 'National systems of entrepreneurship: Measurement issues and policy implications', *Research Policy,* vol. 43, no. 3, pp. 476–494.

Acs, ZJ, Stam, E, Audretsch, D & O'Connor, A 2017b, 'The lineages of the entrepreneurial ecosystem approach', *Small Business Economics*, vol. 49, no. 1, pp. 1–10.

Adams, SB 2020, 'From orchards to chips: Silicon Valley's evolving entrepreneurial ecosystem', *Entrepreneurship & Regional Development*, <https://doi.org/10.1080/08985626.2020.1734259>.

Ahlstrom, D & Bruton, GD 2006, 'Venture capital in emerging economies: Networks and institutional change', *Entrepreneurship Theory and Practice*, vol. 30, no. 2, pp. 299–320.

Aldrich, H & Waldinger, R 1990, 'Ethnicity and entrepreneurship', *Annual review of sociology*, vol. 16, pp. 111–35.

Aldrich, HE & Reese, PR 1993, 'Does networking pay off? A panel study of entrepreneurs in the research triangle', in Churchill, NS, et al. (eds.), *Frontiers of entrepreneurship research*, pp. 325–399.

Aldrich, HE 2000, 'Learning together: national differences in entrepreneurship research', in Sexton, D.L. and Landström, H. (eds.), *The Blackwell handbook of entrepreneurship*, Blackwell, London, pp. 5-25.

Alford, RR & Frisland, R 1985, *Powers of theory: capitalism, the state, and democracy*, Cambridge University Press, Cambridge.

Alvarez, C, Urbano, D, Corduras, A & Navarro, J 2011, 'Environmental conditions and entrepreneurial activity: A regional comparison in Spain', *Journal of Small Business and Enterprise Development,* vol. 18, no. 1, pp. 120–140.

Alvalen, J & Boschma, R 2017, 'A critical review of entrepreneurial ecosystems research: Towards a future research agenda', *European Planning Studies*, vol. 25, no. 6, pp. 887-903.

Anderson, A, Jack, S & Drakopoulou Dodd, S 2005, 'The role of family members in entrepreneurial networks: Beyond boundaries of the family firm', *Family Business Review*, vol. 18, no. 2, pp. 135–154.

Anderson, A & Ronteau, S 2017, 'Towards an entrepreneurial theory of practice; emerging ideas for emerging economies', *Journal of Entrepreneurship in Emerging Economies*, vol. 9, no. 2, pp. 110-120.

Andersson T, Curley MG & Formica P 2010, 'Entrepreneurial and corporate universities', *Knowledge-Driven Entrepreneurship*, pp. 153-161, Springer, New York, NY.

Antonucci, TC 1986, 'Measuring social support networks: Hierarchical mapping technique', *Generations*, vol. 10, pp. 10-12.

Aranguren, MJ, Navarro, M & Wilson, JR 2015, 'Constructing research and innovation strategies for smart specialisation (RIS3): Lessons from practice in three European regions', in Valdaliso JM and Wilson JR (s.), *Strategies for shaping territorial competitiveness*, Abingdon: Routledge, pp. 218–242.

Arruda, C, Nogueira, VS and Costa, V, 2013, 'The Brazilian entrepreneurial ecosystem of startups: An analysis of entrepreneurship determinants in Brazil as seen from the OECD pillars', *Journal of Entrepreneurship and Innovation Management*, vol. 2, no. 3, pp. 17-57.

Asheim, B 2012, 'The changing role of learning regions in the globalizing knowledge economy: A theoretical re-examination', *Regional Studies*, vol. 46, no. 8, pp. 993–1004.

Audretsch, D & Belitski, B 2017, 'Entrepreneurial ecosystems in cities: establishing the framework conditions', *The Journal of Technology Transfer*, vol. 42, no. 5, pp. 1030–1051.

Audretsch, D 2004, 'Sustaining innovation and growth: Public policy support for entrepreneurship', *Industry and Innovation*, vol. 11, no. 3, pp. 167–191.

Audretsch, D 2014, 'From the entrepreneurial university to the university for the entrepreneurial society', *Journal of Technology Transfer*, vol. 39, no. 3, pp. 313–321.

Audretsch, D 2020, 'Entrepreneurship and culture', *Eurasian Economic Review,* vol. 10, pp. 1-8.

Audretsch, D, Colombelli, A, Grilli, L, Minola, T & Rasmussen, E 2020, 'Innovative start-ups and policy initiatives', *Research Policy*, vol. 49, <https://doi.org/10.1016/j.respol.2020.104027>.

Audretsch, D, Cunningham, B, Kuratko, J, Lehmann, A & Menter, D 2019a, 'Entrepreneurial ecosystems: Economic, technological, and societal impacts', *The Journal of Technology Transfer,* vol. 44, no. 2, pp. 313-325.

Audretsch, D, Mason, C, Miles, M & O'Connor, A 2018, 'The dynamics of entrepreneurial ecosystems', *Entrepreneurship & Regional Development*, vol. 30, no. 3-4, pp. 471-474.

Audretsch, D & Link, AN 2019b, 'Embracing an entrepreneurial ecosystem: an analysis of the governance of research joint ventures', *Small Business Economics*, vol. 52, no. 2, pp. 429-436.

Auerswald, P 2015, 'Enabling entrepreneurial ecosystems', *The Oxford handbook of local competitiveness*, pp. 54–83, Oxford University Press.

Australia's Chief Scientist 2015, *Boosting high-impact entrepreneurship in Australia. A role for universities,* viewed 19 July 2020, <https://www.chiefscientist.gov.au/2015/10/new-report-boosting-high-impact-entrepreneurship-in-australia>.

Australian Bureau of Statistics 2015, *Greater Melbourne*, *economy and industry,* viewed 20 May 2020,<https://itt.abs.gov.au/itt/r.jsp?RegionSummary&region=2GMEL&dataset=ABS_REGIONAL_ASGS&geoconcept=REGION&datasetASGS=ABS_REGIONAL_ASGS&datasetLGA=ABS_NRP9_LGA&regionLGA=REGION&regionASGS=REGION>.

Australian Bureau of Statistics 2016, *Census quick stats*, viewed 17 May 2020, <https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/2GMEL?opendocument>.

Australian Bureau of Statistics 2018, *International trade: Supplementary information, financial year 2017-18*, cat. no. 5368.0.55.003, ABS, Canberra.

Australian Bureau of Statistics, 2017, *Labour force, Australia*, *Oct 2017,* no. 6202.0, viewed 12 August 2020, <https://www.abs.gov.au/ausstats/abs@.nsf/lookup/6202.0Media%20Release1Oct%202017>.

Australian Bureau of Statistics, 2020a, *Labour force, Australia, Jul 2020,* no. 6202.0, viewed 12 August 2020, <https://www.abs.gov.au/ausstats/abs@.nsf/0/6050C537617B613BCA25836800102753?Opendocument>.

Australian Bureau of Statistics 2020b, *Regional population growth, Australia, 2018-19*, no. 3218.0, viewed 22 May 2020, <https://www.abs.gov.au/Ausstats/abs%40.nsf/mf/3218.0>.

Australian Government 2016, *Small business counts small business in the Australian economy*, Australian small business and family enterprise ombudsman, viewed 10 June 2020, <https://www.asbfeo.gov.au/sites/default/files/Small_Business_Statistical_Report-Final.pdf>.

Australian Government 2017, *Australian Innovation system report,* Department of Industry, Innovation and Science, viewed on 19 July 2020, <www.industry.gov.au/innovationreport>.

Australian Government, 2019a, *Business innovation*, Australian innovation system monitor, Department of Industry, Innovation and Science, viewed November 2019, <https://publications.industry.gov.au/publications/australianinnovationsystemmonitor/business-innovation/index.html>.

Australian Government 2019b, *Small business counts, small business in the Australian economy*, Australian small business and family enterprise ombudsman, viewed 21 June 2020, <https://www.asbfeo.gov.au/sites/default/files/documents/ASBFEO-small-business-counts2019.pdf>.

Australian Government 2020, *Visas for innovation, supporting innovation in South Australia*, viewed 11 July 2020, <https://immi.homeaffairs.gov.au/visas/working-in-australia/visas-for-innovation/supporting-innovation-in-south-australia>.

Australian Private Equity & Venture Capital Association Limited 2016, *AVCAL annual report 2016 Building better businesses*, viewed 20 Nov 2017, <https://www.avcal.com.au/about-avcal/about-avcal>.

Autio, E & Acs, Z 2010, 'Intellectual property protection and the formation of entrepreneurial growth aspirations', *Strategic Entrepreneurship Journal,* vol. 4, no. 3, pp. 234–251.

Autio, E, Kenney, M, Mustar, P, Siegel, D & Wright, M 2014, 'Entrepreneurial innovation: The importance of context', *Research Policy*, vol. 43, no. 7, pp. 1097-1108.

Autio, E, Nambisan, S, Thomas, LD & Wright, M 2018, 'Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems, *Strategic Entrepreneurship Journal*, vol. 12, no. 1, pp. 72-95.

Baker, T & Nelson, RE 2005, 'Creating something from nothing: resource construction through entrepreneurial bricolage', *Administrative Science Quarterly*, vol. 50, no. 3, pp. 329–366.

Baker, W. 2000. *Achieving success through social capital: tapping the hidden resources in your personal and business networks*. Jossey-Bass, San Francisco.

Barrett, R 2016, 'Innovation rhetoric and reality: an introduction to the tim review's 5 special issue on innovation and entrepreneurship in Australia', *Technology Innovation Management Review,* vol. 6 no. 6, pp. 5-10.

Bathelt, H, Malmberg, A & Maskell, P 2004, 'Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation', *Progress in Human Geography*, vol. 28, no. 1, pp. 31–56.

Battilana, J, Leca, B & Boxenbaum, E 2009, 'How actors change institutions: Towards a theory of institutional entrepreneurship', *The Academy of Management Annals*, vol. 3, no. 1, pp. 65-107.

Baumol, WJ 1990, 'Entrepreneurship: Productive, unproductive and destructive,' *Journal of Political Economy*, vol. 98, no. 3, pp. 893–921.

Baumol, WJ 1993, *Entrepreneurship, management and the structure of payoffs*, MIT Press, Cambridge, MA.

Baumol, WJ, Litan, RE & Schramm, CJ 2009, *Good capitalism, bad capitalism, and the economics of growth and prosperity*, Yale University Press, New Haven, CT.

Belitski, M & Heron, K 2017, 'Expanding entrepreneurship education ecosystems', *Journal of Management Development*, vol. 36, no. 2, pp. 163-177.

Bennett, RJ 2014, *Entrepreneurship, small business and public policy: Evolution and revolution*, Taylor & Francis, Florence.

Bernardi, L, Keim, S & Von der Lippe, H 2007, 'Social influences on fertility: A comparative mixed methods study in Eastern and Western Germany', *Journal of Mixed Methods Research*, vol. 1, no. 1, pp. 23-47.

Bessant, J & Tidd, J 2011, *Innovation and entrepreneurship*, 2nd edition, John Wiley & Sons, Chichester, Sussex.

Biesta, G 2010, 'Pragmatism and the philosophical foundations of mixed methods research', in A. Tashakkori & C. Teddlie, (2nd ed.), *Handbook of mixed methods in social & behavioral research*, pp. 95-117.

Björklund, T & Krueger, N 2016, 'Generating resources through co-evolution of entrepreneurs and ecosystems', *Journal of Enterprising Communities: People and Places in the Global Economy*, vol. 10, no. 4, pp. 477-498.

Blenker, P, Trolle Elmholdt, S, Hedeboe Frederiksen, S, Korsgaard, S & Wagner, K 2014, 'Methods in entrepreneurship education research: a review and integrative framework', *Education + Training*, vol. 56, no. 8/9, pp. 697-715.

Bliemel, M, Flores, R, De Klerk, S & Miles, MP 2019, 'Accelerators as start-up infrastructure for entrepreneurial clusters', *Entrepreneurship & Regional Development*, vol. 31, no. 1-2, pp. 133-149.

Bliemel, M. J., McCarthy, I. P., & Maine, E. M. 2016. 'Levels of multiplexity in entrepreneur's networks: implications for dynamism and value creation', *Entrepreneurship Research Journal*, vol. *6*, no. 3, pp. 247-272.

Borgatti, SP, Everett, MG, & Johnson, JC 2013, *Analyzing social networks*, London: Sage Publications.

Borgatti, SP, Foster P 2003, 'The network paradigm in organizational research: A review and typology', *Journal of Management*, vol. 29, no. 6, pp. 991–1013.

Borgatti, SP & Halgin, DS 2011, 'On network theory', *Organization Science,* vol. 22, no. 5, pp. 1168–1181.

Borgatti, SP, Everett, MG & Freeman, LC 2002, '*UCINET 6 for Windows: Software for social network analysis*', Analytic Technologies, Cambridge, MA.

Borgatti, SP, Everett, MG & Johnson, JC 2018, *Analyzing social networks*, 2nd edn., Sage Publications, Kindle Edition.

Borgatti, SP, Jones, C & Everett, MG 1998, 'Network measures of social capital', *Connections*, vol. 21, no. 2, pp. 36–45.

Bosma, N, Jones, K, Autio, E & Levie, J 2008, *Global entrepreneurship monitor 2007 executive report, Babson College,* London Business School, and Global Entrepreneurship Research Consortium (GERA).

Bosma, N, Sanders, M & Stam, E 2018, 'Institutions, entrepreneurship, and economic growth in Europe', *Small Business Economics*, vol. 51, no. 2, pp. 483-499.

Boso, N, Story, VM & Cadogan, JW 2013, 'Entrepreneurial orientation, market orientation, network ties, and performance: Study of entrepreneurial firms in a developing economy', *Journal of Business Venturing*, vol. 28, no. 6, pp. 708-727.

Brass, D. J. 2002. Social networks in organizations: Antecedents and consequences. Unpublished manuscript, University of Kentucky, Lexington.

Braun, V & Clarke, V 2006, 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, vol. 3, no. 2, pp. 77-101.

Broadman, HG, Anderson, J, Claessens, CA, Ryterman, R, Slavova, S, Vagliasindi, M & Vincelette, GA 2004, *Building market institutions in South Eastern Europe: Comparative prospects for investment and private sector development*, World Bank Publications, Washington, DC.

Brown, R & Mason, C, 2017, 'Looking inside the spiky bits: a critical review and conceptualisation of entrepreneurial ecosystems', *Small business economics*, vol. 49, no. 1, pp. 11–30.

Brown, R & Rocha, A 2020, 'Entrepreneurial uncertainty during the Covid-19 crisis: Mapping the temporal dynamics of entrepreneurial finance', *Journal of Business Venturing Insights*, vol. 14, Doi: 10.1016/j.jbvi.2020.e00174.

Bruns, Bosma, N, Sanders, M & Schramm 2017, 'Searching for the existence of entrepreneurial ecosystems', in Acs, Z, Stam, E, Audretsch, D & O'Connor, A 2017 (special issue), The lineages of the entrepreneurial ecosystem approach. *Small Business Economics*, vol. 49, no. 1, pp. 1–10.

Brush, CG, Manolova, TS & Edelman LF 2008, 'Separated by a common language? entrepreneurship research across the Atlantic', *Entrepreneurship Theory and Practice,* vol. 32, no. 2, pp. 249–266.

Brush, CG, Manolova, TS & Edelman, LF 2008, 'Properties of emerging organizations: An empirical test', *Journal of Business Venturing*, vol. 23, no. 5, pp. 547–566.

Bruton, GD & Ahlstrom, D 2003, 'An institutional view of China's venture capital industry: Explaining the differences between China and the West', *Journal of Business Venturing*, vol. 18, no. 2, pp. 233–260.

Bruton, GD, Ahlstrom, D & Li, HL 2010, 'Institutional theory and entrepreneurship: where are we now and where do we need to move in the future?', *Entrepreneurship Theory and Practice*, vol. 34, no. 3, pp. 421-440.

Brzozowska, A & Zdziarski, M 2016, 'Review of network research in scientific journal 'Entrepreneurship Theory and Practice'', in Kosała, M, Urbaniec, M. & Żur, A (eds.), *Entrepreneurship: Antecedents and effects*, pp. 93-107, Kraków University of Economics.

Burt, RS 2004, 'Structural holes and good ideas', *American Journal Sociology*, vol. 110, no. 2, pp. 349–399.

Burt, RS 1992, '*Structural holes: The social structure of competition*, Harvard University Press, Cambridge, MA.

Burt, RS 1993, 'The social structure of competition', *Explorations in Economic Sociology*, vol. 65.

Burt, RS 2000, 'The network structure of social capital', *Research in Organizational Behaviour*, vol. 22, pp: 345–423.

Burvill, SM, Jones-Evans, D & Rowlands, H 2018, 'Reconceptualising the principles of Penrose's (1959) theory and the resource based view of the firm', *Journal of Small Business and Enterprise Development*, vol. 25, no. 6, pp. 930–959.

Busenitz, LW, Gómez, C & Spencer, JW 2000, 'Country institutional profiles: Unlocking entrepreneurial phenomena', *Academy of Management Journal*, vol. 43, no. 5, pp. 994–1003.

Bygrave, W 2007, 'The entrepreneurship paradigm (I) revisited,' in H. Neergaard and J. P. Ulhoi (eds.), *Handbook of qualitative research methods in entrepreneurship*, pp. 17–48, Cheltenham: Edward Elgar.

Campbell, J, Quincy C, Osserman, J & Pedersen, O 2013, 'Coding in-depth semistructured interviews: problems of unitization and intercoder reliability and agreement', *Sociological Methods & Research,* vol. 42, no. 3, pp. 294-320.

Cantner, U, Cunningham, JA, Lehmann, EE & Menter, M 2020, 'Entrepreneurial ecosystems: a dynamic lifecycle model', *Small Business Economics*, <https://doi.org/10.1007/s11187-020-00316-0>.

Carayannis EG & Campbell DF 2009, ''Mode 3' and 'Quadruple Helix': Toward a 21st century fractal innovation ecosystem', *International Journal of Technology Management*, vol. 46, no. 3/4, pp. 201–234.

Carayannis EG, Barth TD & Campbell DF 2012, 'The quintuple helix innovation model: Global warming as a challenge and driver for innovation', *Journal of Innovation and Entrepreneurship*, vol. 1, no. 1, pp. 1–12.

Carayannis EG, Grigoroudis E, Campbell DF, Meissner D & Stamati D 2018, 'The ecosystem as helix: an exploratory theory-building study of regional co-opetitive entrepreneurial ecosystems as quadruple/quintuple helix innovation models', *R&D Management*, vol. 48, no. 1, pp. 148-162.

Cardon, MS, Foo, MD, Shepherd, D, & Wiklund, J 2012, 'Exploring the heart: Entrepreneurial emotions is a hot topic', *Entrepreneurship Theory and Practice*, vol. 36, no. 1, pp. 1–10.

Carpenter, MA, Li, M, & Jiang, H 2012, 'Social network research in organizational contexts: A systematic review of methodological issues and choices', *Journal of Management*, vol. 38, no. 4, pp. 1328-1361.

Carpentier, J & de la Sablonnière, R 2013, 'Identity profiles and well-being of multicultural immigrants: The case of Canadian immigrants living in Quebec', *Frontiers in Psychology*, vol. 4, no. 80.

Carree, MA and AR Thurik, 2003, 'The Impact of entrepreneurship on economic growth', *Handbook of entrepreneurship research*, Boston/Dordrecht: Kluwer Academic Publishers.

Carroll, T 2020, 'Understanding Australian culture', *Start Global*, presentation 18 February 2020, Insight Academy, Melbourne.

Cavallo, A, Ghezzi, A & Balocco, R 2019, 'Entrepreneurial ecosystem research: present debates and future directions', *International Entrepreneurship and Management Journal*, vol. 15, pp. 1291-1321.

Charmaz, K 2001, 'Grounded theory', in R. M. Emerson (ed.), *Contemporary field research: Perspectives and formulations*, 2nd ed., Waveland Press, pp. 335 – 352, Prospect Heights, IL.

Chen, J, Cai, L, Bruton, GD & Sheng, N 2020, 'Entrepreneurial ecosystems: what we know and where we move as we build an understanding of China, *Entrepreneurship & Regional Development,* vol. 32, no. 5-6, pp. 370–388.

Chen, W, & Tan, J 2009, 'Understanding transnational entrepreneurship through a network lens: Theoretical and methodological considerations', *Entrepreneurship theory and Practice*, vol. 33, no. 5, pp. 1079-1091.

Chesbrough, HW2003, *Open innovation: the new imperative for creating and profiting from technology*, Boston, Mass. Harvard Business School Press.

Christensen, C 2013, *The innovator's dilemma: when new technologies cause great firms to fail*, Harvard Business Review Press.

Churchill, NC & Lewis, V 1983, 'The five stages of small business growth', *Harvard Business Review*, vol. 61, no. 3, pp. 30–50.

City of Melbourne 2017, *Startup action plan 2017-21*, City of Melbourne, viewed 17 May 2020, <www. melbourne.vic.gov.au>.

Clarysse, B, Wright, M, & VanHove, J 2015, *A look inside accelerators*, London: Nesta.

Coduras, A, Urbano, D, Rojas, Á & Martínez, S 2008, 'The relationship between university support to entrepreneurship with entrepreneurial activity in Spain: A GEM data-based analysis', *International Advances in Economic Research*, vol. 14, no. 4, pp. 395-406.

Cohen, B & Kietzmann, J 2014, 'Ride on! mobility business models for the sharing economy', *Organization & Environment*, vol. 27, pp. 207-214.

Cohen, B & Muñoz, P 2015, 'Toward a theory of purpose-driven urban entrepreneurship', *Organization & Environment*, vol. 28, no. 3, pp. 264–285.

Cohen, B & Winn, MI 2007, 'Market imperfections, opportunity and sustainable entrepreneurship', *Journal of Business Venturing*, vol. 22, pp. 29-49.

Coleman, JS 1988, 'Social capital in the creation of human capital', *American Journal of Sociology*, vol. 94, pp. 95–120.

Colombelli, A, Paolucci, E & Ughetto, E 2019, 'Hierarchical and relational governance and the life cycle of entrepreneurial ecosystems', *Small Business Economics*, vol. 52, no. 2, pp. 505-521.

Colombo, MG, Dagnino, GB, Lehmann, EE & Salmador, M 2019, 'The governance of entrepreneurial ecosystems', *Small Business Economics,* vol. 52, no. 2, pp. 419-428.

Compass 2015, 'The global start-up ecosystem ranking 2015', viewed on 1 Nov. 2017, <http://start-up-ecosystem.compass.co/ser2015/>.

Content, J, Bosma, N, Jordaan, J & Sanders, M 2020, 'Entrepreneurial ecosystems, entrepreneurial activity and economic growth: new evidence from European regions', *Regional Studies*, vol. 54, no. 8, pp. 1007-1019.

Cornelius, B, Landström, H, & Persson, O 2006, 'Entrepreneurial studies: The dynamic research front of a developing social science', *Entrepreneurship Theory and Practice*, vol. 30, no. 3, pp. 375–398.

Coviello, N & Jones, MV 2004, 'Methodological issues in international entrepreneurship research', *Journal of Business Venturing,* vol. 19, no. 4, pp. 485–508.

Coviello, NE 2005, 'Integrating qualitative and quantitative techniques in network analysis. Qualitative Market Research', *An International Journal*, vol. 8, no. 1, pp. 39-60.

Coviello, NE 2006, 'The network dynamics of international new ventures', *Journal of International Business Studies,* vol. 37, no. 5, pp. 713-731.

Covin, JG & Slevin, DP 1991, 'A conceptual model of entrepreneurship as a firm behavior', *Entrepreneurship Theory and Practice*, vol. 16, pp. 7–25.

Creswell, JW & Plano Clark, VL 2011, *Designing and conducting mixed methods research,* 2nd ed., Sage, Los Angeles, CA.

Creswell, JW & Poth, CN 2018, *Qualitative inquiry & research design: choosing among five approaches*, 4th ed., Sage, Kindle Edition, Thousand Oaks, CA.

Creswell, JW 2003, *Research design qualitative, quantitative, and mixed method approaches*, Sage Publications, Thousand Oaks.

Creswell, JW 2007, *Qualitative inquiry and research design: choosing among five approaches,* 2nd ed., Sage, Thousand Oaks.

Creswell, JW 2013, *Qualitative inquiry & research design: choosing among five approaches,* 3rd ed., Sage, Thousand Oaks, CA.

Crispin, S, McAuley, A, Dibben, M, Hoell, R & Miles, M 2013, 'To teach or try: A continuum of approaches to entrepreneurship education in Australasia', *American Journal of Entrepreneurship*, vol. 6, no. 2, pp. 94-109.

Crossan, MM & Apaydin, M 2010, 'A multi-dimensional framework of organizational innovation: a systematic review of the literature', *Journal of Management Studies*, vol. 47, pp. 1154–1191.

Cunningham, JA & O'Reilly, P 2018, 'Macro, meso and micro perspectives of technology transfer', *The Journal of Technology Transfer*, vol. 43, no. 3, pp. 545–557.

Dana, LP & Dana, TE 2005, 'Expanding the scope of methodologies used in entrepreneurship research', *International Journal of Entrepreneurship and Small Business*, vol. 2, no. 1, pp. 79-88.

Davidsson, P 2015, 'Entrepreneurial opportunities and the entrepreneurship nexus: A re-conceptualization', *Journal of Business Venturing*, vol. 30, pp. 674–695.

Davidsson, P 2003, 'The domain of entrepreneurship research: Some suggestions', *Cognitive Approaches to Entrepreneurship Research, Advances in Entrepreneurship, Firm Emergence and Growth*, vol. 6, pp. 315-372.

Davidsson, P, Achtenhagen, L & Naldi, L 2006, 'What Do We Know About Small Firm Growth?' In Parker, S (ed.), *The life cycle of entrepreneurial ventures*, International Handbook Series on Entrepreneurship, vol. 3, Springer, pp. 361 – 398, New York, NY.

Davidsson, P 2005, *'Researching entrepreneurship'*, Springer-Verlag, New York.

Davidsson, P & Honig, B 2003, 'The role of social and human capital among nascent entrepreneurs', *Journal of Business Venturing*, vol. 18, no. 3, pp. 301–331.

Dawes, JG 2008, 'Do data characteristics change according to the number of scale points used? An experiment using 5 point, 7 point and 10 point scales', *International Journal of Market Research*, vol. 51 no. 1, pp. 61-77.

Denzin, NK & Lincoln, Y S 2011, *Introduction: The discipline and practice of qualitative research. The SAGE handbook of qualitative research*, 4th ed., Sage, Thousand Oaks, CA.

Dheer, RJ & Lenartowicz, T 2018, 'Career decisions of immigrants: Role of identity and social embeddedness', *Human Resource Management Review*, vol. 28, pp. 144-163.

DiMaggio, Paul J, and Powell, Walter W 1983, 'The Iron cage revisited: Institutional isomorphism and collective rationality in organizational fields', *American Sociological Review*, vol. 48, pp. 147 – 60.

DiMaggio, PJ 1988, 'Interest and agency in institutional theory', in L. Zucker (ed.), *Institutional patterns and organizations,* pp. 3–22, Cambridge, MA: Ballinger.

Dimov, D 2010, 'Nascent entrepreneurs and venture emergence: Opportunity confidence, human capital, and early planning', *Journal of Management Studies*, vol. 47, no. 6, pp.1123-1153.

Dingle, T & O'Hanlon, S 2009, 'From manufacturing zone to lifestyle precinct: Economic restructuring and social change in inner Melbourne, 1971–2001', *Australian Economic History Review*, vol. 49, no. 1, pp. 52-69.

Dobbs, M & Hamilton, RT 2007, 'Small business growth: Recent evidence and new directions', *International Journal of Entrepreneurial Behaviour and Research*, vol. 13, pp. 296–322.

Dodgson, M, Hughes, A, Foster, J & Metcalfe, S 2011, 'Systems thinking, market failure, and the development of innovation policy: The case of Australia', *Research Policy,* vol. 40, no. 9, pp. 1145-1156.

Donaldson, C 2020, 'Culture in the entrepreneurial ecosystem: a conceptual framing', *International Entrepreneurship and Management Journal*, <https://doi.org/10.1007/s11365-020-00692-9>.

Douglas, E & Prentice, C 2019, 'Innovation and profit motivations for social entrepreneurship: A fuzzy-set analysis', *Journal of Business Research*, vol. 99, pp. 69-79.

Drover, W, Busenitz, L, Matusik, S, Townsend, D, Anglin, A and Dushnitsky, G 2017, 'A review and road map of entrepreneurial equity financing research: Venture capital, corporate venture capital, angel investment, crowdfunding, and accelerators', *Journal of Management*, vol. 43, no. 6, pp. 1820–1853.

Drucker, PF 1985, 'The discipline of innovation', *Harvard Business Review*, vol. 63, no. 3, pp. 67–72.

Ebben, J & Johnson, A 2006, 'Bootstrapping in small firms: An empirical analysis of change over time', *Journal of Business Venturing*, vol. 21, no. 6, pp. 851-865.

Edelman LF, Manolova T, Shirokova G & Tsukanova T 2016, 'The impact of family support on young entrepreneurs' start-up activities', *Journal of Business Venturing*, vol. 31, no. 4, pp. 428-448.

Edelman, L & Yli-Renko, H 2010, 'The impact of environment and entrepreneurial perceptions on venture-creation efforts: bridging the discovery and creation views of entrepreneurship', *Entrepreneurship Theory and Practice*, vol. 34, no. 5, pp. 833-856.

Edmondson, A & McManus, S 2007, 'Methodological fit in management field research', *The Academy of Management Review,* vol. 32, no. 4, pp. 1155-1179.

Eisenhardt, KM & Graebner, ME 2007, 'Theory building from cases: Opportunities and challenges', *The Academy of Management Journal*, vol. 50, no. 1, pp. 25-32.

Eisenhardt, KM 1989, 'Building theories from case study research', *Academy of management review*, vol. 14, no. 4, pp. 532-550.

Erickson, F 1986, 'Qualitative methods in research on teaching', in M.C. Wittrock (ed.), *Handbook of research on teaching*, 3rd edn., pp. 119–61, Macmillan, New York.

Erina, I, Shatrevich, V & Gaile-Sarkane, E 2017, 'Impact of stakeholder groups on development of a regional entrepreneurial ecosystem', *European Planning Studies*, vol. 25, no. 5, pp. 755-771.

Estrin, S, Korosteleva, J & Mickiewicz, T 2013, 'Which institutions encourage entrepreneurial growth aspirations?' *Journal of Business Venturing*, pp. 564-580.

Etzkowitz H & Leydesdorff L 2000, 'The dynamics of innovation: from national systems and "Mode 2" to a Triple Helix of university-industry-government relations', *Research Policy*, vol. 29, pp. 109–123.

Etzkowitz H 2003, 'Innovation in innovation: The triple helix of university-industry-government relations', *Social Science Information*, vol. 42, no. 3, pp. 293-337.

European Commission 2014, *The role of universities and research organisations as drivers for smart specialisation at regional level*. Brussels: European Commission Directorate-General for Research and Innovation.

Fayolle A 2007, *Entrepreneurship and new value creation: The dynamic of the entrepreneurial process*. UK: Cambridge University Press.

Fayolle, A & Kyro, P 2008, *The Dynamics between entrepreneurship, environment and education*, European Research in Entrepreneurship series, Edward Elgar Publishing.

Fayolle, A 2013, 'Personal views on the future of entrepreneurship education', *Entrepreneurship & Regional Development*, vol. 25, no. 7-8, pp. 692-701.

Feld, B 2012, *Startup communities: Building an entrepreneurial ecosystem in your city*, Wiley, New York, NY.

Feldman, M, & Zoller, TD 2012, 'Dealmakers in place: social capital connections in regional entrepreneurial economies', *Regional Studies*, vol. 46, no. 1, pp. 23–37.

Fisher, G, Kotha, S & Lahiri, A 2016, 'Changing with the times: An integrated view of identity, legitimacy, and new venture life cycles', *Academy of Management Review*, vol. 41, no. 3, pp. 383-409.

Fraiberg, S 2017, 'Start-up nation: Studying transnational entrepreneurial practices in Israel's start-up ecosystem', *Journal of Business and Technical Communication*, vol. 31, no. 3, pp. 350–388.

Friedland, R & Alford, RR 1991, 'Bringing society back in: Symbols, practices, and institutional contradictions', in Walter W. Powell and Paul J. DiMaggio (eds.), *The new institutionalism in organizational analysis*, pp. 232–263. University of Chicago Press.

Fritsch, M & Wyrwich, M 2017, 'The effect of entrepreneurship on economic development—an empirical analysis using regional entrepreneurship culture', *Journal of Economic Geography*, vol. 17, no. 1, pp. 157-189.

Fuentelsaz, L, González, C & Maícas, JP 2020, 'High-growth aspiration entrepreneurship and exit: the contingent role of market-supporting institutions', *Small Business Economics*, <https://doi.org/10.1007/s11187-020-00320-4>.

Fuentelsaz L, Macias JP & Mata P 2018, 'Institutional dynamism in entrepreneurial ecosystems', in O'Connor A. Stam E. Sussan F. and Audretsch DB. (eds.), *Entrepreneurial ecosystems place-based transformations and transitions*, pp. 45-65, Springer, Cham.

Galkina, T & Atkova, I 2020, 'Effectual networks as complex adaptive systems: exploring dynamic and structural factors of emergence', *Entrepreneurship Theory and Practice*, vol. 44, no. 5, pp. 964-995.

Galvão, A, Marques, C & Ferreira, J 2020, 'The role of entrepreneurship education and training programmes in advancing entrepreneurial skills and new ventures', *European Journal of Training and Development*, DOI 10.1108/EJTD-10-2019-0174.

Garcia, R & Calantone, R 2002, 'A critical look at technological innovation typology and innovativeness terminology: A literature review', *Journal of Product Innovation Management*, vol. 19, no. 2, pp. 110–132.

Garrison, DR, Cleveland-Innes, M, Koole, M & Kappelman, J 2006, 'Revisiting methodological issues in transcript analysis: negotiated coding and reliability', *Internet and Higher Education*, vol. 9, pp. 1-8.

Garrow, EE & Hasenfeld, Y 2014, 'Social enterprises as an embodiment of a neoliberal welfare logic', *American Behavioral Scientist*, vol. 58, no. 11, pp. 1475–1493.

Gartner, WB 1995, 'Aspects of organizational emergence', in I. Bull, H. Thomas, & G. Willard (eds.), *Entrepreneurship: Perspectives on theory building,* pp. 67–86, Pergamon, Oxford.

Gartner WB & Brush CB 1999, 'Entrepreneurship as organizing: emergence, newness and transformation', *Academy of Management Conference*, 7 August 1999, Chicago, IL.

Gartner, WB & Birley S 2002, 'Introduction to the special issue on qualitative methods in entrepreneurship research', *Journal of Business Venturing* 17, pp. 387-395.

Gartner, WB 2007, 'Entrepreneurial narrative and a science of the imagination', *Journal of Business Venturing* 22, pp. 613-627.

Gee, JP, Michaels, S & O'Connor, MC 1992, 'Discourse analysis', in M. D. LeCompte, W. L. Millroy, & J. Preissle (eds.), *The handbook of qualitative research in education*, Academic Press, San Diego, pp. 227–291.

Gerba, YT & Viswanadham, P 2016, Performance measurement of small-scale enterprises: Review of theoretical and empirical literature, *International Journal of Applied Research*, vol. 2, no. 3, pp. 531–535.

Giddens, A 1984, *The constitution of society: Outline of the theory of structuration*, Berkeley: University of California Press.

Gimenez, D, Peris-Ortiz, M & Urbano, D 2015, 'A cultural perspective on entrepreneurship and regional development: The case of the Bages (Catalonia)', in Peris-Ortiz M & Merigó-Lindahl JM (eds.), *Entrepreneurship, regional development and culture: An institutional perspective*, Springer International Publishing, Cham, Switzerland.

Glick Schiller, N, Basch, L, Blanc-Szanton, C (ed.) 1992, *Towards a transnational perspective on migration. race, class ethnicity and nationalism reconsidered*, New York Academy of Science, New York, pp. 1–24.

Global Entrepreneurship Monitor 2017b, *GEM Australia 2016/17 national report,* Australian Centre for Entrepreneurship Research.

Global Entrepreneurship Monitor 2019, *GEM 2017/18 Australian national report*, Australian Centre for Entrepreneurship Research

Global Entrepreneurship Monitor 2017a, *Global report 2016/17*, Global Entrepreneurship Research Association.

Global Entrepreneurship Monitor 2020, *Global report 2019/20*, Global Entrepreneurship Research Association.

Global Victoria 2019, *Victoria's economy*, State Government of Victoria, viewed 17 May 2020, <https://global.vic.gov.au/victorias-capabilities/why-melbourne/victorias-economy#>.

Granovetter, MS 1973, 'The strength of weak ties', *American Journal of Sociology*, vol. 78, no. 6, pp. 1360–1380.

Greve, A 1995, 'Networks and entrepreneurship: an analysis of social relations, occupational background, and use of contacts during the establishment process', *Scandinavian Journal of Management*, vol. 11, no. 1, pp. 1–14.

Griffin-EL, EW & Olabisi, J 2018, 'Breaking boundaries: Exploring the process of intersective market activity of immigrant entrepreneurship in the context of high economic inequality', *Journal of Management Studies*, vol. 55, no. 3, pp. 457-485.

Guba, E & Lincoln, Y 1985, *Naturalistic inquiry*. Newbury Park, CA: Sage.

Guba, E & Lincoln, Y 1998, 'Competing paradigms in qualitative research', in N. K. Denzin and Y. S. Lincoln (eds)*, The landscape of qualitative research*, London: Sage, pp. 195–220.

Guba, E 1981, 'Criteria for assessing the trustworthiness of naturalistic inquiries', *Educational Communication and Technology Journal*, vol. 29, pp. 75–92.

Guerrero, M, Cunningham, JA & Urbano, D 2015, 'Economic impact of entrepreneurial universities' activities: An exploratory study of the United Kingdom', *Research Policy*, vol. 44, no. 3, pp.748-764.

Guerrero M, Urbano D & Fayolle A 2016a, 'Entrepreneurial activity and regional competitiveness: Evidence from European entrepreneurial universities', *The Journal of Technology Transfer*, vol. 41, no. 1, pp. 105-131.

Guerrero, M & Urbano, D 2012, 'The development of an entrepreneurial university', *The Journal of Technology Transfer*, vol. 37, no. 1, pp. 43-74.

Guerrero, M & Urbano, D 2014, "Academics' start-up intentions and knowledge filters: An individual perspective of the knowledge spillover theory of entrepreneurship', *Small Business Economics*, vol. 43, no. 1, pp. 57–74.

Guerrero, M, Urbano, D & Gajón, E 2017, 'Higher education entrepreneurial ecosystems: exploring the role of business incubators in an emerging economy', *International Review of Entrepreneurship*, vol. 15, no. 2.

Gulati R, 1998, 'Alliances and networks', *Strategic Management Journal,* vol. 19, no. 4, pp. 293–317.

Haynie, JM, Shepherd, D, Mosakowski, E & Earley, PC 2010, 'A situated metacognitive model of the entrepreneurial mindset, *Journal of Business Venturing*, vol. 25, no. 2, pp. 217-229.

Hanneman, RA 2001, *Introduction to Social Network Methods*, Department of Sociology, University of California: Riverside, CA.

Hansen, DL, Shneiderman, B, Smith, MA & Himelboim, I 2020, 'Social network analysis: Measuring, mapping, and modelling collections of connections', in *Analyzing Social Media Networks with NodeXL*, 2nd edn., pp. 31-51, Elsevier Inc.

Hart, C 1998, *Doing a literature review: Releasing the social science research imagination*, Sage, London.

Hausberg, JP & Korreck, S 2020, 'Business incubators and accelerators: a co-citation analysis-based, systematic literature review', *The Journal of Technology Transfer*, vol. 45, no. 1, pp. 151-176.

Hawe, P, Webster, C & Shiell, A 2004, 'A glossary of terms for navigating the field of social network analysis', *Journal of Epidemiology and Community Health,* vol. 58, no. 12, pp. 971-5.

Hayton, JC, George, G & Zahra, SA 2002, 'National culture and entrepreneurship: A review of behavioral research', *Entrepreneurship: Theory and Practice,* vol. 26, no. 4, pp. 33–52.

Hendrickson, L, Bucifal, S, Balaguer, A & Hansell, D 2015, *The employment dynamics of Australian entrepreneurship,* Department of Industry, Innovation and Science and Australian Bureau of Statistics.

Hesse-Biber, SN, Rodriguez, D & Frost, NA 2015, 'A qualitatively driven approach to multi-method and mixed methods research', in Hesse-Biber, SN, & Johnson, RB (eds.), *The Oxford handbook of multi-method and mixed methods research inquiry*, Oxford University Press, New York.

Hindle, K 2004, 'Choosing qualitative methods for entrepreneurial cognition research: a canonical development approach', *Entrepreneurship Theory & Practice,* vol. 28, no. 6, pp. 575–607.

Hindle, K 2010, 'Skillful dreaming: Testing a general model of entrepreneurial process with a specific narrative of venture creation', *Entrepreneurial Narrative: Theory, Ethnomethodology and Reflexivity*, vol. 1, pp. 101–139.

Hite, JM & Hesterly, WS 2001, 'The evolution of firm networks: from emergence to early growth of the firm', *Strategic Management Journal*, vol. 22, no. 3, pp. 275–286.

Hlady-Rispal, M & Jouison-Laffitte, E 2014, 'Qualitative research methods and epistemological frameworks: A review of publication trends in entrepreneurship', *Journal of Small Business Management*, vol. 52, no. 4, pp. 594–614.

Hoang, H & Antoncic, B 2003, 'Network-based research in entrepreneurship: A critical review', *Journal of Business Venturing,* vol. 18, no. 2, pp. 165–187.

Hofstede, G 2003, *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations,* 2nd ed., Sage Publications, Newbury Park, CA.

Hollensbe, E, Wookey, C, Hickey, L & George, G 2014, 'Organizations with purpose', *Academy of Management Journal*, vol. 57, pp. 1227-1234.

Hollstein, B 2014, 'Qualitative approaches', *The SAGE handbook of social network analysis*, pp. 404-416, SAGE Publications, London.

Hoy, F 1997, 'Relevance in entrepreneurship research', in DL Sexton and RW Smilor (eds.), *Entrepreneurship 2000*, Chicago, IL: Upstart Publishing, pp. 361–376.

Hruschka D, Schwartz D, Cobb St. John D, Picone-Decaro E, Jenkins R & Carey J 2004, 'Reliability in coding open-ended data: Lessons learned from hiv behavioral research', *Field Methods,* vol. 16, pp. 307-331.

Huggins, R, Thompson, P & Johnston, A 2012, 'Network capital, social capital, and knowledge flow: How the nature of inter-organisational networks impacts on innovation', *Industry and Innovation*, vol. 19, pp. 203–232.

Huisman, M & van Duijn, M 2014, 'A reader's guide to sna software', *The SAGE handbook of social network analysis*, pp. 578-600, SAGE Publications, London.

Innovation Cities Index 2019, *Innovation cities index 2019: Global*, 2thinknow Data Innovation Agency, viewed 11 July 2020, <https://www.innovation-cities.com/index-2019-global-city-rankings/18842/>.

International student experience 2020, *Study Melbourne*, State Government of Victoria, viewed 17 May 2020, <https://www.studymelbourne.vic.gov.au/about-study-melbourne/international-student-experience>.

Isenberg, D 2010, 'How to start an entrepreneurial revolution', *Harvard Business Review*, vol. 88, no. 6, pp. 41-49.

Isenberg, D 2011, 'The entrepreneurship ecosystem strategy as a new paradigm for economic policy: Principles for cultivating entrepreneurship', *Presentation at the Institute of International and European Affairs*.

Isenberg, D & Onyemah, V 2016, 'Fostering scaleup ecosystems for regional economic growth', *Innovations: Technology, Governance, Globalization*, vol. 11, no. 1–2, pp. 60–79.

Jack, S 2010, 'Approaches to studying networks: implications and outcomes', *Journal of Business Venturing* 25, pp. 120–137.

Jack, SL & Anderson, AR 2002, 'The effects of embeddedness on the entrepreneurial process', *Journal of business Venturing*, vol. 17, no. 5, pp. 467-487.

Jaskiewicz, P, Combs, JG, Ketchen, DJ & Ireland, D 2016, 'Enduring entrepreneurship: antecedents, triggering mechanisms, and outcomes', *Strategic Entrepreneurship Journal*, vol. 10, no. 4, pp. 337–345.

Johannisson, B 2000, 'Networking and entrepreneurial growth', in DL Sexton & H Landström (eds.), *The Blackwell handbook of entrepreneurship,* pp. 368–386, Blackwell, Oxford.

Johnson, B & Gray, R 2010, 'A history of philosophical and theoretical issues for mixed methods research', in A. Tashakkori & C. Teddlie (eds.), *Handbook of mixed methods in social & behavioral research*, 2nd ed., pp. 69-93, Sage, Thousand Oaks, CA.

Jones, N & Lau, AMS, 2010, 'Blending learning: widening participation in higher education', *Innovations in education and teaching international*, vol. 47, no. 4, pp. 405–416.

Kachlami, H, Davidsson, P, Obschonka, M, Yazdanfar, D & Lundström, A 2020, 'The regional employment effects of new social firm entry', *Small Business Economics*, <https://doi.org/10.1007/s11187-020-00345-9>.

Kee, DMH, Yusoff, YM & Khin, S 2019, 'The role of support on start-up success: A PLS-SEM approach', *Asian Academy of Management Journal*, vol. 24, no. 1, pp. 43–59.

Kenney, M & Patton, D 2005, 'Entrepreneurial geographies: support networks in three high-tech industries', *Economic Geography*, vol. 81, no. 2, pp. 201–228.

Kirkwood, J 2007, 'Tall poppy syndrome: Implications for entrepreneurship in New Zealand', *Journal of Management & Organization,* vol. 13, no. 4, pp. 366-382.

Klyver, K, Honig, B, & Steffens, P 2018, 'Social support timing and persistence in nascent entrepreneurship: exploring when instrumental and emotional support is most effective', *Small Business Economics*, vol. 51, no. 3, pp. 709-734.

Krippendorff, K 2004, *Content analysis: An introduction to its methodology*, 2nd ed, Thousand Oaks, CA.

Krueger, NF & Neergaard, H 2011, 'Revisiting the cognitive developmental trajectory of entrepreneurship: The role of critical developmental experiences', *Frontiers of Entrepreneurship* Research, vol. 31, no. 6, p. 7.

Krueger, NF 2007, 'What lies beneath? The experiential essence of entrepreneurial thinking', *Entrepreneurship Theory and Practice*, vol. 31, no. 1, pp. 123-138.

Kuratko, DF, Fisher, G, Bloodgood, JM & Hornsby, JS 2017, 'The paradox of new venture legitimation within an entrepreneurial ecosystem', *Small Business Economics*, pp. 1-22.

Lackéus, M 2015, 'Entrepreneurship in education, what, why, when, how', *Entrepreneurship 360 background paper*, OECD, Paris.

Larson, A. and Starr, J.A. 1993, 'A network model of organization formation', *Entrepreneurship Theory and Practice,* vol. 17, no. 2, pp. 5–15.

LaunchVic 2018, *Victorian startup ecosystem mapping report,* viewed 17 May 2020, <https://launchvic.org/files/Victorian-Startup-Ecosystem-Mapping-Report-2018.pdf>.

LaunchVic 2019, *Impact report*, viewed 17 May 2020, <https://launchvic.org/images/uploads/LaunchVic-Impact-Report-Dec-2019.pdf>.

Leavy, P 2017, *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*, Guilford Publications, Kindle Edition, New York, NY.

Lefebvre, V, Radu Lefebvre, M & Simon, E 2015, 'Formal entrepreneurial networks as communities of practice: A longitudinal case study', *Entrepreneurship and Regional Development*, vol. 27, no. 7/8, pp. 500–525.

Levie, J & Lichtenstein, BB 2010, 'A terminal assessment of stages theory: introducing a dynamic states approach to entrepreneurship', *Entrepreneurship Theory and Practice,* vol. 34, no. 2, pp. 317-350.

Leyden, D. P., Link, A. N., & Siegel, D. S. 2014, 'A theoretical analysis of the role of social networks in entrepreneurship', *Research Policy*, vol. 43, no. 7, pp. 1157-1163.

Liguori, E, Bendickson, J, Solomon, S & McDowell, WC 2019, 'Development of a multi-dimensional measure for assessing entrepreneurial ecosystems', *Entrepreneurship & Regional Development*, vol. 31, no.1-2, pp. 7-21.

Lin, N 1982, 'Social resources and instrumental action', P Marsden & N Lin (eds.), *Social structure and network analysis*, Sage, Beverly Hills, CA, pp. 131–145.

Liñán, F, Jaén, I & Ortega, FJ 2015, 'Understanding the role of culture and economic conditions in entrepreneurship', in Peris-Ortiz M & Merigó-Lindahl JM, *Entrepreneurship, regional development and culture: An institutional perspective*, Springer International Publishing, Cham, Switzerland.

Lincoln, YS & Guba, EG 1985, 'But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation', in D. D. Williams (ed.), Naturalistic *evaluation*, pp. 73–84, Jossey-Bass, San Francisco, CA.

Liu, CH, Chang, AYP & Fang, YP, 2020, 'Network activities as critical sources of creating capability and competitive advantage', *Management Decision*, vol. 58, no. 3, pp. 544-568.

Lofland, J, Snow, D, Anderson, L & Lofland, LH 2006, *Analyzing social settings: A guide to qualitative observation and analysis*, 4th ed., Thomson Wadsworth, Belmont, CA.

Lombardi, R, Lardo, A, Cuozzo, B & Trequattrini, R 2017, 'Emerging trends in entrepreneurial universities within Mediterranean regions: An international comparison', *EuroMed Journal of Business*, vol. 12, no. 2, pp.130-145.

Lumpkin, GT & Dess, GG 1996, 'Clarifying the entrepreneurial orientation construct and linking it to performance', *Academy of Management Review*, vol. 21, no. 1, pp. 135-172.

Lundvall, BÅ 2010, *National systems of innovation: Toward a theory of innovation and interactive learning,* vol. 2, Anthem press.

Lundvall, BÅ, Johnson, B, Andersen, ES & Dalum, B 2002, 'National systems of production, innovation and competence building', *Research Policy*, vol. 31, pp. 213–231.

Mack, E & Mayer, H 2016, 'The evolutionary dynamics of entrepreneurial ecosystems', *Urban Studies*, vol. 53, no. 10, pp. 2118–2133.

Marin, A & Wellman, B 2014, 'Social Network Analysis: an introduction', in *The SAGE handbook of social network analysis*, pp. 11-25, SAGE Publications, London.

Maritz, A 2017, 'Illuminating the black box of entrepreneurship education programmes: part 2', *Education + Training*, vol. 59, no. 5, pp. 471-482.

Maritz, A, Jones, C & Shwetzer, C 2015a, 'The status of entrepreneurship education in Australian universities', *Education + Training*, vol. 57, no. 8-9, pp. 1020-1035.

Maritz, A, Koch, A & Schmidt, M 2016, 'The role of entrepreneurship education programs in national systems of entrepreneurship and entrepreneurship ecosystems', *International Journal of Organizational Innovation,* vol. 8, no. 4, pp. 7-26.

Maritz, A, Nguyen, Q & Bliemel, M 2019, 'Boom or bust? Embedding entrepreneurship in education in Australia', *Education + Training*, vol. 61, no. 6, pp. 737-755.

Maritz, A, Zolin, R, De Waal, A, Fisher, R, Perenyi, A & Eager, B 2015b, 'Senior entrepreneurship in Australia: Active ageing and extending working lives', *International Journal of Organizational Innovation*, vol. 7, no.1.

Markides, C 2006, 'Disruptive innovation: In need of better theory', *Journal of product innovation management*, vol. 23, no. 1, pp.19-25.

Markovsky, BD, Willer, T & Patton, 1988, 'Power relations in exchange networks', *Amer. Sociol. Rev.* vol. 53, no. 2, pp. 220–236.
Marvasti, 2013, 'Types of data and their analysis: Analysing observations', *The SAGE handbook of qualitative data analysis*, edited by Uwe Flick, SAGE Publications, pp. 354-366.
Mason, C & Brown, R 2014, 'Entrepreneurial ecosystems and growth oriented entrepreneurship', Background paper prepared for the workshop organised by the OECD LEED.
Mauer, R, Neergaard, H & Linstad, AK, 2017, 'Self-efficacy: Conditioning the entrepreneurial mindset', *Revisiting the entrepreneurial mind*, pp. 293-317, Springer, Cham.
Mazzarol, T & Clark, D 2016, 'The evolution of small business policy in Australia and New Zealand', *Small Enterprise Research*, vol. 23, no. 3, pp. 239-261.
McCann P & Ortega-Argilés R 2015, 'Smart specialization, regional growth and applications to European Union cohesion policy', *Regional Studies*, vol. 49, no. 8, pp. 1291-1302.
McCarty, C, Molina, JL, Aguilar, C & Roth, L 2007, 'A comparison of social network mapping and personal network visualization', *Field Methods*, vol. 19, no. 2, pp. 145–62.
McDonald, S, Gan BC & Anderson A 2004,'Studying entrepreneurship: A review of methods employed in entrepreneurship research 1985–2004,' paper presented at RENT XVIII, Copenhagen, Denmark, 25–26 November.
McDonald, S, Gan, B, Fraser, S, Oke, A & Anderson, A 2015, 'A review of research methods in entrepreneurship 1985-2013', *International Journal of Entrepreneurial Behavior & Research,* vol. 21, no. 3, pp. 291-315.
McKelvie, A & Wiklund, J 2010, 'Advancing firm growth research: A focus on growth mode instead of growth rate', *Entrepreneurship Theory and Practice*, vol. 34, pp. 261–288.
Miller, D & Acs, J 2017, 'The campus as entrepreneurial ecosystem: The university of Chicago', *Small Business Economics*, vol. 49, no. 1, pp. 75–95.
Mitchell, JC 1969, *Social networks in urban situations: Analyses of personal relationships in Central African towns*, Manchester, UK: Manchester University Press.
Moore, JF 1993, 'Predators and prey: a new ecology of competition', *Harvard Business Review*, vol. 71, no. 3, pp. 75–83.
Moran, A 2011, 'Multiculturalism as nation-building in Australia: Inclusive national identity and the embrace of diversity', *Ethnic and Racial Studies*, vol. 34, no. 12, pp. 2153-2172.
Moreno, JL 1934, *Who shall survive? Foundations of sociometry, group psychotherapy and socio-drama*, Washington, DC: Nervous and Mental Disease Publishing Company.
Morgan, K 2017, 'Nurturing novelty: Regional innovation policy in the age of smart specialisation', *Environment and Planning C: Politics and Space*, vol.35, no. 4, pp. 569-583.
Moroz, PW & Hindle, K 2012, 'Entrepreneurship as a process: Toward harmonizing multiple perspectives, *Entrepreneurship Theory and Practice*, vol. 36, no. 4, pp. 781-818.
Morris, M, Kuratko, DF & Cornwall, JR 2013, *Entrepreneurship Programs and the Modern University*, Cheltenham: Edward Elgar Publishing.
Morris, MH, Neumeyer, X & Kuratko, DF 2015, 'A portfolio perspective on entrepreneurship and economic development', *Small Business Economics*, vol. 45, no. 4, pp. 713–728.
Morrison, A. 2000, 'Entrepreneurship: what triggers it?', *International Journal of Entrepreneurial Behavior & Research*. vol. 6, no. 2, pp. 59-71.
Morse, J & Mitcham, C 2002, 'Exploring qualitatively-derived concepts: Inductive—deductive pitfalls', *International Journal of Qualitative Methods,* vol. 1, no. 4, pp. 28-35.
Morse, J M 2015, 'Critical analysis of strategies for determining rigor in qualitative inquiry', *Qualitative Health Research*, vol. 25, no. 9, pp. 1212–1222.
Morse, JM 2007, 'Sampling in grounded theory', in A Bryant & K Charmaz (eds.), *The SAGE handbook of grounded theory*, SAGE, London, pp. 229 – 244.
Motoyama, Y & Knowlton, K 2017, 'Examining the connections within the startup ecosystem: A case study of St. Louis', *Entrepreneurship Research Journal*, vol. 7, no. 1, pp. 3–23.
Motoyama, Y & Watkins, K 2014, *Examining the connections within the startup ecosystem: A case study of St. Louis (Kauffman foundation research series on city, metro, and regional entrepreneurship),* Kauffman Foundation. Kansas City, MO.
Moyo, I 2014, 'A case study of Black African immigrant entrepreneurship in inner city Johannesburg using the mixed embeddedness approach'. *Journal of Immigrant and Refugee Studies*, vol. 12, pp. 250–73.

Muldoon, J, Bauman, A & Lucy, C 2018, 'Entrepreneurial ecosystem: do you trust or distrust?', *Journal of Enterprising Communities: People and Places in the Global Economy*, vol. 12, no. 2, pp. 158-177.

Multicultural communities 2020, *City of Melbourne*, viewed 17 May 2020, <https://www.melbourne.vic.gov.au/about-melbourne/melbourne-profile/multicultural-communities/Pages/ multicultural-communities.aspx>.

Muñoz, P, Kibler, E, Mandakovic, V & Amorós, JE 2020, 'Local entrepreneurial ecosystems as configural narratives: a new way of seeing and evaluating antecedents and outcomes', *Research Policy*, In press, <https://doi.org/10.1016/j.respol.2020.104065>.

Nabi, G, Liñán, F, Fayolle, A, Krueger, N & Walmsley, A 2017, 'The impact of entrepreneurship education in higher education: A systematic review and research agenda', *Academy of Management Learning & Education*, vol. 16, no. 2, pp. 277-299.

Nambisan, S, Siegel, D & Kenney, M 2018, 'On open innovation, platforms, and entrepreneurship', *Strategic Entrepreneurship Journal*, vol. 12, pp. 354–368.

Neck, HM & Corbett, AC 2018, 'The scholarship of teaching and learning entrepreneurship', *Entrepreneurship Education and Pedagogy*, vol. 1, no. 1, pp. 8-41.

Neck, HM, Meyer, D, Cohen, B & Corbett, A 2004, 'An entrepreneurial system view of new venture creation', *Journal of Small Business Management*, vol. 42, no. 2, pp. 190–208.

Neck, HM & Greene, PG 2011, 'Entrepreneurship education: known worlds and new frontiers', *Journal of Small Business Management*, vol. 49, no. 1, pp. 55-70.

North, D, Baldock, R, & Ullah, F 2013, 'Funding the growth of UK technology-based small firms since the financial crash: are there breakages in the finance escalator?' *Venture Capital*, vol. 15, no. 3, pp. 237–260.

North, DC 1990, *Institutions, institutional change and economic performance*. Cambridge, UK: Cambridge University Press.

Nuscheler, D, Engelen, A & Zahra, SA 2019, 'The role of top management teams in transforming technology-based new ventures' product introductions into growth', *Journal of Business Venturing*, Vol. 34 No. 1, pp. 122-140.

Obschonka, M, Schmitt-Rodermund, E & Terracciano, A 2014, 'Personality and the gender gap in self-employment: A multi-nation study', PloS ONE, vol. 9, no. 8.

O'Connor, A 2013, 'A conceptual framework for entrepreneurship education policy: meeting government and economic purposes', *Journal of Business Venturing*, vol. 28, pp. 546–563.

O'Connor, A, Stam, E, Sussan, F and Audretsch, D (eds.) 2018, *Entrepreneurial ecosystems place-based transformations and transitions*, Springer, Switzerland.

O'Donnell, A, Gilmore, A, Cummins, D, & Carson, D 2001, 'The network construct in entrepreneurship research: a review and critique', *Management Decision*, vol. 39, no. 9, pp. 749- 760.

Obstfeld, D 2005, 'Social networks, the *tertius* iungens orientation, and involvement in innovation, *Admin. Sci. Quart*. Vol. 50, no. 1, pp. 100–130.

Organization for Economic Cooperation and Development 2005, *Oslo manual, guidelines for collecting and interpreting innovation data*, 3rd edn. OECD, Paris.

Organization for Economic Cooperation and Development 2015, *World migration in figures,* From United Nations Department of economic and social affairs population division, viewed 24 July 2020, <http://www.oecd.org/els/mig/World-Migration-in-Figures.pdf>.

Organization for Economic Cooperation and Development 2017, *Entrepreneurship at a glance 2017,* OECD Publishing, Paris.

Organization for Economic Cooperation and Development 2017, *International migration outlook*, 41st edn, viewed on 24 July 2020, <http://www.oecd.org/migration/international-migration-outlook-1999124x.htm>.

Organization for Economic Cooperation and Development, 2010, *High-growth enterprises: What governments can do to make a difference*, viewed 10 June 2020, <https://www.oecd.org/publications/high-growth-enterprises-9789264048782-en.htm>.

Parida, V, Pesämaa, O, Wincent, J & Westerberg, M 2017, 'Network capability, innovativeness, and performance: a multidimensional extension for entrepreneurship', *Entrepreneurship and Regional Development*, vol. 29, no. 1-2, pp. 94–115.

Parker, SC & Belghitar, Y 2006, 'What happens to nascent entrepreneurs? An econometric analysis of the PSED', *Small Business Economics*, vol. 27 No. 1, pp. 81–101.

Patton, MQ 1990, *Qualitative evaluation and research methods*, Sage, Newbury Park, CA.
Penaluna, K, Penaluna, A & Jones, C 2012, 'The context of enterprise education: insights into current practices', *Industry and Higher Education*, vol. 26, no. 3, pp. 163-75.
Penrose, E 1959, *The theory of the growth of the firm*. Oxford University Press. New York.
Peris-Ortiz M & Merigó-Lindahl JM 2015, *Entrepreneurship, regional development and culture: an institutional perspective*, Springer International Publishing, Cham.
Picken, J 2017, 'From startup to scalable enterprise: Laying the foundation', *Business Horizons,* vol. 60 no. 5, pp. 587-595.
Portes, A & Sensenbrenner, J 1993, 'Embeddedness and immigration: Notes on the social determinants of economic action', *American Journal of Sociology*, vol. 98, pp. 1320–50.
Pugh, R 2018, 'Questioning the implementation of smart specialisation: Regional innovation policy and semi-autonomous regions', *Environment and Planning C: Politics and Space*, vol. 36, no. 3, pp. 530-547.
Pugh, R, Soetanto, D, Jack, SL & Hamilton, E 2019, 'Developing local entrepreneurial ecosystems through integrated learning initiatives: the Lancaster case', *Small Business Economics*, pp. 1-15, <https://doi.org/10.1007/s11187-019-00271-5>.
Quacquarelli Symonds 2019, *Top Universities in Australia 2020,* QS Top Universities, viewed 10 Apr 2020, <https://www.topuniversities.com/university-rankings-articles/world-university-rankings/top-universities-australia-2020>.
Randerson, K, Dossena, G & Fayolle, A 2016, 'The futures of family business: family entrepreneurship', *Futures*, vol. 75, pp. 36-43.
Rao, H, Morrill, C & Zald, M 2000, 'Power plays: how social movements and collective action create new organizational forms', *Research in Organizational Behavior,* vol. 22, pp. 237–281.
Ratinho, T, Amezcua, A, Honig, B & Zeng, Z 2020, 'Supporting entrepreneurs: A systematic review of literature and an agenda for research', *Technological Forecasting and Social Change*, vol. 154.
Ravitch, SM & Riggan, M 2017, *Reason & Rigor, How conceptual frameworks guide research*, 2nd edn., Sage, London.
Reynolds, PD 1997, 'Who starts new firms? Preliminary explorations of firms in gestation', *Small Business Economics*, vol. 9, no. 5, pp. 449–462.
Roberts, JW 2012, *Beyond learning by doing: Theoretical currents in experiential education*, Routledge, New York, NY.
Robinson, P & Malach, S 2007, 'Multi-disciplinary entrepreneurship clinic: experiential education in theory and practice, in Fayolle, A (ed.), *Handbook of research in entrepreneurship education*, Edward Elgar Publishing, Cheltenham, pp. 173-186.
Robson, C 2002, *Real world research* (2nd edn), Oxford: Blackwell.
Rosa, P, Kodithuwakku, SS & Balunywa, W 2006, 'Entrepreneurial motivation in developing countries: What does 'necessity' and 'opportunity' entrepreneurship really mean?', *Frontiers of Entrepreneurship Research*, vol. 26, no. 20.
Roundy, PT & Fayard, D 2019, 'Dynamic capabilities and entrepreneurial ecosystems: The micro-foundations of regional entrepreneurship', *The Journal of Entrepreneurship,* vol. 28, no. 1, pp. 94-120.
Roundy, PT, Bradshaw, M & Brockman, BK 2018, 'The emergence of entrepreneurial ecosystems: A complex adaptive systems approach', *Journal of Business Research*, vol. 86, pp. 1–10.
Roundy, PT, Brockman, BK & Bradshaw, M 2017, 'The resilience of entrepreneurial ecosystems', *Journal of Business Venturing Insights*, vol. 8, pp. 99–104.
Rowley, J 2012, 'Conducting research interviews', *Management Research Review*, vol. 35, no. 3-4, pp. 260-271.
Saldaña, J 2016, *The coding manual for qualitative researchers*, 3rd ed., SAGE Publications, Kindle Edition.
Sarasvathy, SD 2001, 'Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency', *Academy of Management Review*, vol. 26, no. 2, pp. 243–263.
Saunders, M., Lewis, P. and Thornhill, A. 2009, *Research methods for business students*, 5th edn, Pearson Education, Essex.

Savery, JR 2006, 'Overview of problem-based learning: definitions and distinctions', *Interdisciplinary Journal of Problem-based Learning*, vol. 1, no. 3, pp. 9-20.

Scheidgen, K 2020, 'Degrees of integration: how a fragmented entrepreneurial ecosystem promotes different types of entrepreneurs', *Entrepreneurship and Regional Development,* DOI:10.1080/08985626.2020.1734263.

Schindehutte, M & Morris, MH 2009, 'Advancing strategic entrepreneurship research: The role of complexity science in shifting the paradigm', *Entrepreneurship Theory and Practice*, vol. 33, no. 1, pp. 241–276.

Schwarzkopf, C 2016, 'Fostering innovation and entrepreneurship: entrepreneurial ecosystem and entrepreneurial fundamentals in the USA and Germany', Springer, Germany.

Scott, WR 1995, *Institutions and organizations*, vol. 2, Sage, Thousand Oaks.

Scott, WR 2007, *Institutions and organizations: Ideas and interests*, Sage Publications, Thousand Oaks, CA.

Seidman, I 2013, *Interviewing as qualitative research: A guide for researchers in education and the social sciences,* 4th ed., Teachers College Press, New York.

Shane, S & Nicolaou, N 2015, 'Creative personality, opportunity recognition and the tendency to start businesses: A study of their genetic predispositions', *Journal of Business Venturing*, vol. 30, no. 3, pp. 407-419.

Shane, S & Nicolaou, N 2018, 'Exploring the changing institutions of early-stage finance', *Journal of Institutional Economics*, vol. 14, no. 6, pp. 1121-1137.

Shane, S & Venkataraman, S 2000, 'The promise of entrepreneurship as a field of research', *Academy of Management Review*, vol. 25, no. 1, pp. 217–226.

Shane, S 2012, 'Reflections on the 2010 AMR decade award: delivering the promise of entrepreneurship as a field of research', *Academy of Management Review*, vol. 37, no. 1, pp. 10-20.

Shepherd, D & Patzelt, H 2011, 'The new field of sustainable entrepreneurship: Studying entrepreneurial action linking "what is to be sustained" with "what is to be developed"', *Entrepreneurship Theory and Practice*, vol. 35, no. 1, pp. 137-163.

Shepherd, D 2015, 'Party On! A call for entrepreneurship research that is more interactive, activity based, cognitively hot, compassionate, and prosocial', *Journal of Business Venturing*, vol. 30, pp. 489–507.

Short, J, Ketchen, D, Combs, J & Ireland, R 2010, 'Research methods in entrepreneurship: Opportunities and challenges'. *Organizational Research Methods,* vol. 13, no. 1, pp. 6-15.

Shwetzer, C, Maritz, A & Nguyen, Q 2019, 'Entrepreneurial ecosystems: A holistic and dynamic approach', *Journal of Industry-University Collaboration*, vol. 1, no. 2, pp. 79-95.

Siegel, D & Wright, M 2014, 'University technology transfer offices, licensing, and start-ups', in Link, A., Siegel, D., Wright, M. (eds.), *The Chicago Handbook of Academic Entrepreneurship and Technology Transfer*, University of Chicago Press, Chicago

Sine, WD & David, RJ 2010, 'Institutions and entrepreneurship', *Research in the Sociology of Work*, vol. 21, pp. 1–26.

Social Progress Imperative 2019, *Social progress index executive summary*, viewed 17 May 2020, <https://www.socialprogress.org/assets/downloads/resources/2019/2019-Social-Progress-Index-executive-summary-v2.0.pdf>.

Sommer, E & Gamper, M 2017, 'Transnational entrepreneurial activities: A qualitative network study of self-employed migrants from the former Soviet Union in Germany', *Social Networks*, vol. 53, pp. 136-147.

Sparrowe, R. T., R. C. Liden, S. J. Wayne, M. L. Kraimer. 2001, 'Social networks and the performance of individuals and groups', *Acad. Management J.,* vol. 44, no. 2, pp. 316–325.

Spigel, B 2017, 'The relational organization of entrepreneurial ecosystems', *Entrepreneurship Theory and Practice,* vol. 41, no. 1, pp. 49-72.

Spigel, B & Harrison, R 2018, 'Toward a process theory of entrepreneurial ecosystems', *Strategic Entrepreneurship Journal*, vol. 12, no. 1, pp. 151–168.

Stake, RE 1995, *The art of case study research*. Sage, Thousand Oaks, CA.

Stake, RE 2005, 'Qualitative case studies', in *The Sage handbook of qualitative research,* edited by N. K. Denzin & Y. S. Lincoln, 3rd ed., pp. 443–466, Sage, Thousand Oaks, CA.

Stam, E & Van de Ven, A 2019, 'Entrepreneurial ecosystem elements', *Small Business Economics,* <https://doi.org/10.1007/s11187-019-00270-6>.

Stam, E 2014, *The Dutch entrepreneurial ecosystem*. Birch Research, entrepreneurship and innovation, Available at SSRN: http://dx.doi.org/10.2139/ssrn. 2473475.

Stam, E 2015, 'Entrepreneurial ecosystems and regional policy: a sympathetic critique', *European Planning Studies*, vol. 23, no. 9, pp. 1759–1769.

Stangler, D, & Bell-Masterton, J 2015, *Measuring and entrepreneurial ecosystem,* Kansas City: Kauffman Foundation.

Startup Genome 2017, *Global startup ecosystem report,* viewed 17 May 2020, <https://startupgenome.com/reports/global-startup-ecosystem-report-2017>.

Startup Genome 2017, *Melbourne startup ecosystem report, leading Australia into a new economic future*, viewed 24 July 2020, <https://launchvic.org/files/Melbourne-Startup-Ecosystem-Report-v1.2.pdf>.

Startup Genome 2018, *Melbourne startup ecosystem report, leading Australia into a new economic future,* viewed 17 May 2020, <https://startupgenome.com/ecosystems/melbourne>.

Startup Genome 2018, *The 2018 global startup ecosystem report*, viewed 24 July 2020, <https://startupgenome.com/report2018/>.

Startup Genome 2019, *Global startup ecosystem report,* viewed 17 May 2020, <https://startupgenome.com/reports/global-startup-ecosystem-report-2019>.

Start-up Genome 2020, The 2020 global start-up ecosystem report, viewed 16 Jul 2020, <https://startupgenome.com/reports/gser2020>.

Startup Victoria 2020, *About us*, viewed 17 May 2020, <https://startupvictoria.com.au/about-us/>.

Stearns, TM 1996, 'Strategic alliances and performance of high technology new firms', in: Reynolds, P., et al. (eds.), *Frontiers of Entrepreneurship Research*, pp. 268–281.

Steyaert, C & Katz, J 2004, 'Reclaiming the space of entrepreneurship in society: Geographical, discursive and social dimensions', *Entrepreneurship and Regional Development*, vol. 16, pp. 179–196.

Strauss, AL 1987, *Qualitative analysis for social scientists*, Cambridge University Press, Cambridge.

Stuart, TE & Sorenson, O 2005, 'Social networks and entrepreneurship', In S.A. Alvarez, R. Agarwal, & O. Sorenson (eds.), *Handbook of entrepreneurship research: Disciplinary perspectives,* pp. 233–252, Springer, New York, NY.

Sorenson, O 2018, 'Social networks and the geography of entrepreneurship', *Small Business Economics*, vol. 51, no. 3, pp. 527–537.

Suddaby, R, Seidl, D & Lê, JK, 2013, 'Strategy-as-practice meets neo-institutional theory', *Strategic Organization,* vol. 11, no. 3, pp. 329–344.

Sussan, F & Acs Z 2017, 'The digital entrepreneurial ecosystem', *Small Business Economics*, vol. 49, no. 1, pp.55–73.

Szerb, L, Lafuente, E, Horváth, K & Páger, B 2019, 'The relevance of quantity and quality entrepreneurship for regional performance: the moderating role of the entrepreneurial ecosystem', *Regional Studies*, vol. 53, no. 9, pp. 1308-1320.

Szerb, L, Aidis, R & Ács ZJ 2012, *The comparison of the global entrepreneurship monitor and the global entrepreneurship and development index methodologies: The case of Hungary*, Foundations and Trends® in Entrepreneurship. DOI: 9. 1-142. 10.1561/0300000046.

Terjesen, S, Acs, ZJ, Audretsch, DB, Hechavarria, D, Stam, E, & White, R 2017, *Entrepreneurial ecosystems: the search for performance*, University of Tampa, unpublished.

The Global Liveability Index 2020, *The economist intelligence unit limited*, viewed 17 May 2020, <http://www.eiu.com/topic/liveability?zid=liveability2019&utm_source=economist-daily-chart&utm_medium=link&utm_name=liveability2019>.

Thornton PH & Ocasio W 2008, 'Institutional logics', in R, Greenwood, C, Oliver, K, Sahlin-Andersson & R Suddaby (eds.), *The SAGE handbook of organizational institutionalism*, pp. 99 – 129. Thousand Oaks, CA: Sage.

Thornton PH, Ocasio W & Lounsbury, M 2012, *The institutional logics perspective: A new approach to culture, structure, and process*, Oxford University Press, UK.

Thornton, PH & Flynn, KH 2003, 'Entrepreneurship, networks and geographies', in Z Acs & D, Audretsch (eds.), *Handbook of entrepreneurship research*, pp. 401–433, Dordrecht: Kluwer Academic Publishers.

Thurik AR, Carree MA, Van Stel A, Audretsch DB. 2008, 'Does self-employment reduce unemployment?', *Journal of Business Venturing,* vol. 23, no. 6, pp. 673–686.

Tomy, S & Pardede, E 2018, 'From uncertainties to successful start ups: A data analytic approach to predict success in technological entrepreneurship', *Sustainability,* vol. 10, no. 3, pp. 602.

Tracy, SJ 2010, 'Qualitative quality: Eight "big-tent" criteria for excellent qualitative research', *Qualitative Inquiry*, vol. 16, no. 10, pp. 837-851.

Tranfield, D, Denyer, D & Smart, P 2003, 'Towards a methodology for developing evidence-informed management knowledge by means of systematic review', *British Journal of Management*, vol. 14, no. 3, pp. 207-222.

Trivedi, R, 2016, 'Does university play significant role in shaping entrepreneurial intention? A cross-country comparative analysis', *Journal of Small Business and Enterprise Development*, vol. 23, no. 3, pp. 790–811.

United Nations 2020, *World migration report*, International Organization for Migration, viewed 24 July 2020, <https://www.un.org/sites/un2.un.org/files/wmr_2020.pdf>.

Universities Australia 2020, *Data snapshot*, viewed 17 May 2020, <www.universitiesaustralia.edu.au>.

Urbano, D, Aparicio, S & Audretsch, D 2019, 'Twenty-five years of research on institutions, entrepreneurship, and economic growth: what has been learned? *Small Business Economics*, vol. 53, pp. 21-49.

Uzzi, B 1996, 'The sources and consequences of embeddedness for the economic performance of organizations: The network effect', *American Sociological Review*, pp. 674–698.

Vallance P, Blazek J, Edwards J & Kveton V 2018, 'Smart specialisation in regions with less-developed research and innovation systems: A changing role for universities?' *Environment and Planning C: Politics and Space*, vol. 36, no. 2, pp. 219–238.

Van de Ven, H 1993, 'The development of an infrastructure for entrepreneurship', *Journal of Business Venturing,* vol. 8, no. 3, pp. 211–230.

Van Gelderen, M, Kautonen, T & Fink, M 2015, 'From entrepreneurial intentions to actions: self-control and action-related doubt, fear, and eversion', *Journal of Business Venturing*, vol. 30, pp. 655-673.

Van Gelderen, M., Thurik, R., & Bosma, N. 2005, 'Success and risk factors in the pre-startup phase', *Small Business Economics*, vol. 24, no. 4, pp. 365-380.

Van Rijnsoever, FJ 2020, 'Meeting, mating, and intermediating: How incubators can overcome weak network problems in entrepreneurial ecosystems, *Research Policy*, vol. 49, <https://doi.org/10.1016/j.respol.2019.103884>.

Venkataraman, S 2004, 'Regional transformation through technological entrepreneurship', *Journal of Business Venturing*, vol. 19, no. 1, pp. 153–167.

Victoria State Government 2020a, *Priority industries and sectors*, viewed 20 May 2020, <https://djpr.vic.gov.au/priority-industries-sectors>.

Victoria State Government 2020b, *victoria's lead scientist strategic plan 2018 – 2020*, Department of Jobs, Precincts and Regions, viewed 11 July 2020, <https://djpr.vic.gov.au/victorias-lead-scientist/victorias-lead-scientist-strategic-plan-2018-2020>.

Von Bloh, J, Mandakovic, V, Apablaza, M, Amorós, JE & Sternberg, R 2020, 'Transnational entrepreneurs: opportunity or necessity driven? Empirical evidence from two dynamic economies from Latin America and Europe', *Journal of Ethnic and Migration Studies*, vol. 46, no. 10, pp. 2008-2026.

Wang, H, Zhao, Y, Dang, B, Han, P & Shi, X 2019, 'Network centrality and innovation performance: the role of formal and informal institutions in emerging economies', *Journal of Business & Industrial Marketing*, vol. 34, no. 6, pp. 1388–1400.

Wasserman, S & Faust, K 1994, *Social network analysis*, Cambridge: Cambridge University Press.

Watson, T 2013, 'Entrepreneurship in action: bringing together the individual, organizational and institutional dimensions of entrepreneurial action', *Entrepreneurship & Regional Development*, vol. 25, pp. 404-422.

Weber, R 2004, 'The rhetoric of positivism versus interpretivism: A personal view [editorial]', *mis quarterly,* vol. 28, no. 1, pp. iii–xii.

Welter, F 2011, 'Contextualizing entrepreneurship: conceptual challenges and ways forward', *Entrepreneurship Theory and Practice,* vol. 35, no. 1, pp. 165–184.

Welter, F, Baker, T, Audretsch, DB & Gartner, WB 2017, 'Everyday entrepreneurship—A call for entrepreneurship research to embrace entrepreneurial diversity, *Entrepreneurship Theory and Practice*, vol. 41, no. 3, pp. 311–321.

Wiklund, J & Shepherd, D 2003, 'Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses', *Strategic management journal*, vol. 24, no. 13, pp. 1307-1314.

Williams, TA & Shepherd, DA 2017, 'Mixed method social network analysis: Combining inductive concept development, content analysis, and secondary data for quantitative analysis', *Organizational Research Methods,* vol. 20, no. 2, pp. 268-298.

Williamson, O 2000, 'New institutional economics', *Journal of Economic Literature,* vol. 38, pp. 595–613.

World Economic Forum 2013, *Entrepreneurial ecosystems around the globe and company growth, dynamics,* Davos: World Economic Forum.

World Economic Forum 2017, *The global competitiveness report 2017–2018*, viewed 20 Nov. 2017, <www.weforum.org/gcr>.

Yigitcanlar, Tan 2005, 'The Making of knowledge cities: lessons learned from Melbourne', *International Symposium on Knowledge Cities 2005*, 28-30 November 2005, Saudi Arabia, Medina.

Yin, RK 2003, *Case study research: Design and methods*. Thousand Oaks, CA: Sage Publications.

Yin, RK 2014, *Case study research: Design and method,* 5th ed., Sage, Thousand Oaks, CA.

Yin, RK 2018, *Case study research and applications: Design and methods*, 6th ed., Sage, Kindle Edition, Thousand Oaks, CA.

Yiu, DW, Lau, C, & Bruton, GD 2007, 'International venturing by emerging economy firms: The effects of firm capabilities, home country networks, and corporate entrepreneurship, *Journal of International Business Studies,* vol. 38, no. 4, pp. 519–540.

Zahra, S & Wright, M 2011, 'Entrepreneurship's next act', *Academy of Management Perspectives*, vol. 25, pp. 67–83.

Zahra, S 2007, 'Contextualizing theory building in entrepreneurship research,' *Journal of Business Venturing,* vol. 22, pp. 443–452.

Zahra, S, Wright, M & Abdelgawad, SG 2014, 'Contextualization and the advancement of entrepreneurship research', *International Small Business Journal*, vol. 32, no. 5, pp. 479–500.

Zahra, S & George, G 2002, 'International entrepreneurship: The current status of the field and future research agenda', in D, Ireland, M, Hitt, D, Sexton & M Camp (eds.), *Strategic entrepreneurship: Creating an integrated mindset,* pp. 255–288, Oxford: Blackwell.

Left Blank Intentionally