

The Effect of Social Capital and it's Network Antecedents on Intrapreneurship

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A research project submitted to the Gordon Institute of Business Science,
University of Pretoria, in partial fulfilment of the requirements for the degree of
Masters in Business Administration.

11 November 2019

Abstract

For organisations to survive, thrive and maintain a competitive advantage, intrapreneurship is quintessential to cultivate as it can drive organisational growth, value creation and strategic resumption. To unlock intrapreneurship, it is imperative that it is understood through the lens of social capital, which has been proven to provide advantages to intrapreneurs in their intrapreneurial endeavours. Prior research has proved to be fragmented in investigating intrapreneurship from an individual level perspective, with limited focus on social capital as a driver.

This study sought to bridge the research gap and unpack the influence of social capital, through the constructs of network brokerage, social network cohesion and network homophily on individual level intrapreneurship from a middle manager's perspective. The primary outcome of the study was to propose a model of the relationships between the constructs and intrapreneurship.

As a result, a conceptual model was built based on theoretical relationships and tested using Structured Equation Modelling to produce a refined theoretical model, with an acceptable model fit. The findings reported significant relationships between network brokerage, social network cohesion and network homophily with intrapreneurship. The findings provide insights for organisations, management and academia around the relationships between the constructs as well as what to seek, foster and build with middle managers to promote intrapreneurship.

Keywords

Social capital, intrapreneurship, network homophily, network brokerage, social network cohesion

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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11 November 2019

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1 Introduction to Research Problem

1.1 Research Definitions

For the purpose of this research, the following definitions will be adopted for key concepts:

Intrapreneurship - Intrapreneurship is defined as “entrepreneurship within an existing organisation” and is often related to the creation of new business ventures and innovative activities such as the development of new and novel products, services, technologies, strategies and competitive advantages (Antoncic & Hisrich, 2003; Blanka, 2018; Guth & Ginsberg, 1990; Morris, Webb, & Franklin, 2011).

Social Capital - Social capital is defined as the resources embedded in a social structure which are accessed or mobilised in purposive actions (Adler & Kwon, 2002). This speaks in particular to resources embedded in a social structure, accessibility to social resources and the mobilisation of these resources (Adler & Kwon, 2002; Blyler & Coff, 2003; Nan Lin, 2017).

Networks - Networks are defined as a set of actors with relationships that link the actors and facilitate the flow of resources between them (Hoang & Antoncic, 2003).

Network Brokerage – Network brokerage is defined as the bridge connections from one cluster or network to another which generally results in the broker benefitting from differential access to resources and advantages (Burt, 2005; Soda, Tortoriello, & Iorio, 2018).

Social Network Cohesion – Social network cohesion is defined as the state of interactions within a network that are characterised by a set of attitudes and norms including their behavioural manifestations (Chan, To, & Chan, 2006; Fleming, Mingo, & Chen, 2007).

Network Homophily – Network homophily is defined as the principle that contact between similar individuals occurs at a higher rate than with dissimilar individuals through the notion that similarity breeds connection (De Carolis, Litzky, & Eddleston, 2009; Fischer, 1982; McPherson, Smith-Lovin, & Cook, 2001).

1.2 Research Objectives

The majority of the research conducted on the field of intrapreneurship to date has focussed on the organisational level with scant research that has provided an in-

depth analysis of individual level intrapreneurship (Blanka, 2018). Limited empirical research on the topic has concentrated on the personal attributes or characteristics of intrapreneurs but has failed to recognise the potential impact of social capital and trust-related competencies required for intrapreneurial activities (Monnavarian & Ashena, 2009).

The purpose of this research is to study the relationship of social capital with intrapreneurship by studying the perceptions of middle managers on aspects of social capital in the form of *network brokerage*, *social network cohesion* and *network homophily*. A theoretical model will be proposed as the primary outcome of this study.

1.3 Research Context

Pinchot (1985) states that intrapreneurs are defined as entrepreneurial thinking people within existing organisations who enable organisations to grow as they are able to think across boundaries and organisational divisions. As a result of intrapreneurial activities, intrapreneurs formulate the foundational basis for innovation and create a competitive advantage for organisations (Guerrero & Peña-Legazkue, 2013). Furthermore, intrapreneurs are able to utilise the pre-existing resources within an organisation and are able to operate within the organisation as well as in line with the organisation's policies and associated bureaucracy (Baruah & Ward, 2015).

Monnavarian & Ashena (2009) emphasise that the most vital asset for knowledge workers do not take the form of their current capabilities, in the form of human capital, but rather their relationships with others within an organisation, or social capital. The development of an extensive network of rich and diverse relationships requires enhanced and attuned interpersonal skills, as well as significant investment from an individual to create, maintain and enhance the value of the network (De Carolis et al., 2009; De Carolis & Saporito, 2006). Even though this is the case, these skills or competencies are often taken for granted (Monnavarian & Ashena, 2009). Social capital is able to provide advantages to an individual in line with the resource-based view of the organisation, creating competitive advantage as well as promoting reciprocal cooperation, resource exchange and resource creation in an individual (Arena & Uhl-Bien, 2016; Chisholm & Nielsen, 2009). Recent research has found that individuals with rich social capital are generally better at creating value, breaking silos and improving collaboration for an organisation (Arena & Uhl-Bien, 2016). It has

also been proven that social capital intervention within an organisation has the ability to break down organisational silos, improve business collaboration and produce favourable results (Bourakova-Lorgnier, M. Bouzdine, 2004). Furthermore, work by Arena et al., (2016) states that innovation within an organisation is as much of a social phenomenon as a technical one, emphasising a reliance on social capital to build momentum and buy-in around intrapreneurial ventures.

Based on work by Hitt & Duane (2002), social capital comprises the relationships between individuals, divisional units and organisations that facilitate action and create value. More often than not, social capital consists of interconnected relationships that also yield prospective opportunities for the owners of the capital if it is utilised (Liao & Welsch, 2005; Nahapiet & Ghoshal, 1998). As a result of this, it can be assumed that well designed, integrated relationships or networks, with diverse and rich talent, have the ability to enable individuals to collaborate in manners that contribute to the creation of and usage of competitive advantage as well as the resolution of business challenges in novel ways.

The study of middle managers intrapreneurship through social capital is important to undertake because middle managers are uniquely positioned within an organisation and have an integrative role to play, enabling them to reconcile and communicate top level executive outlooks with implementation issues emerging at lower organisational levels (Kuratko, Ireland, Covin, & Hornsby, 2005). As such, middle managers are uniquely placed to influence and shape intrapreneurial behaviour in an organisation as a result of their networks, brokerage across their networks and their ability to bundle and integrate resources from and across levels of the organisation (Blanka, 2018; Kuratko et al., 2005; Moriano, Molero, Topa, & Lévy Mangin, 2014). Recent studies have identified middle managers as being pivotal in acting as change and communication agents within an organisation, making them pivotal to unlocking intrapreneurial endeavours (Morikuni, Wang, & Dyerson, 2019).

In fact, middle managers are seen as active knowledge brokers at the intersection of information flows throughout the organisation, as these managers add value by identifying knowledge gaps as well as brokering knowledge through the organisation (Glisby & Holden, 2003; Nonaka & Takeuchi, 1995). As a result of their network position, brokers within an organisation benefit from their ability to extract and utilise valuable resources, which has the potential to activate intrapreneurial activities or intrapreneurial development (Soda et al., 2018)

1.4 Research Significance

For organisations to continue to survive and retain their competitive advantage, intrapreneurship is crucial to cultivate (Ireland, Hitt, & Sirmon, 2003; Morris et al., 2011). Furthermore, research has proven that intrapreneurship positively correlates to organisational growth and profits (Bierwerth, Schwens, Isidor, & Kabst, 2015). In addition to this, intrapreneurship has been positively associated with the ability to increase organisational efficiency and value creation (Kearney & Meynhardt, 2016).

In order to unlock the value of intrapreneurship, there is a need to identify employees with the tendency to pursue intrapreneurial activities and understand how they are able to do so (Akhtar & Kang, 2016; Auer Antoncic & Antoncic, 2011; Rule & Irwin, 1988). Building on this notion, prior studies go on to state that increased levels of social capital amongst intrapreneurs and their intrapreneurial networks allow for bonding and bridging with peers, provide access to non-redundant information, new ideas and social influence, all of which unlock intrapreneurial activity (Akhtar & Kang, 2016).

Even though intrapreneurship through new venture creation and strategic revitalisation of organisations has been identified as key, the current literature on intrapreneurship has proved to be fragmented from an individual-level perspective and this has limited the theoretical advancement or progression of the field of employee, and thus individual level, intrapreneurship (Blanka, 2018; Gawke, Gorgievski, & Bakker, 2019). This is evident, even though it has been proven that employee intrapreneurship can be bolstered through the effective development and utilisation of social capital (Akhtar & Kang, 2016).

As a result, the purpose of this research is to unpack the relationship of social capital, through *network brokerage*, *social network cohesion* and *network homophily* on the perception of successful individual level intrapreneurship from a middle managers perspective.

Numerous studies have highlighted the importance of innovation to not only grow but sustain an organisation in the future (Bjornali & Støren, 2012; Kuratko, Hornsby, & Covin, 2014). As such, it becomes important for all avenues that are able to foster innovation within an organisation to be nurtured. The innovation source that can be harnessed from employees in middle management ,who interact with products and customers as well as lower level employees and top management, make them well

positioned to be a fruitful innovation source and change catalyst within an organisation (Blanka, 2018; Kuratko et al., 2005; Morikuni et al., 2019). Extensive research has been steered to uncover what intrinsic, organisational and human capital requirements are necessary to extract value from intrapreneurs, but minimal work has been done to uncover the social capital competencies required for these middle managers to be effective within their roles as intrapreneurs (Arena & Uhl-Bien, 2016).

As a result, it is the opinion of the researcher that the combination of social capital competencies as well as intrapreneurial competencies at the individual level are important to understand so that businesses can nurture this capability in order to derive more value from employees and continuously improve to remain competitive and sustainable. A failure to harness the power of intrapreneurship would be a lost opportunity for any organisation that is looking to grow in an out-of-the-box way or even solve complex challenges in new and innovative ways.

1.5 Research Scope

In line with the objectives of the study to unpack the influence of social capital on intrapreneurship through the perspective of middle managers, the conceptual model aims to test *network brokerage*, *social network cohesion* and *network homophily* as individual constructs. The scope of this research is to understand how certain factors within these identified constructs relate to intrapreneurship.

Network brokerage, defined as the bridged connections between networks allowing for differential access to valuable resources, will be assessed through the lenses of relational bonding, resource bridging and stakeholder linkages (Burt, 2005; Soda et al., 2018). All of these constructs are linked to aspects of the concept of bridging social capital (Adler & Kwon, 2002; Leana & Van Buren, 1999). This is in line with the work of (Blanka, 2018) who emphasised that brokering competencies are important when intrapreneurs want to develop ideas as their ability to think across and transcend various organisational units is imperative to achieve success. Furthermore, to drive innovation and strategic resumption, the extraction and exchange of resources and ideas at all organisational levels, and thus the brokerage between them, is important (Moreira, Markus, & Laursen, 2018). The networks that intrapreneurs build within organisations enables them to remain open minded, unpack and discover new opportunities as well as develop brokering competencies.

As a result, the social embeddedness of intrapreneurs within organisations is important to assess when developing intrapreneurial behaviour to drive innovation (Gulati, 1998; Nahapiet & Ghoshal, 1998).

Social network cohesion, defined as interactions within a network which are distinguished by a collection of norms, behaviours and attitudes, will be assessed through the lenses of trust, risk propensity and reciprocity (Chan et al., 2006; Fleming et al., 2007). These constructs are all linked to aspects of the concept of bonding social capital (Adler & Kwon, 2002; Leana & Van Buren, 1999). Social cohesion around relationships within a network promote the willingness of individuals to devote time, effort and energy in distributing resources or knowledge with others within their network (Reagans & McEvily, 2003). It has also been noted that *social network cohesion* around informal networks decrease the impact of the competitive and motivational impediments that occur or present themselves when sharing resources with a co-worker or colleague (Reagans & McEvily, 2003). Furthermore, social cohesion has been proven to promote the cooperation of individuals within a network as well as reciprocity (Ingram & Roberts, 2000). These fundamentals are built on trust and promote the risk taking propensity of intrapreneurs (Hoang & Antoncic, 2003).

Network homophily, defined through the notion that similarity breeds connection in networks, will be assessed through the lens of how networks are built through network formation, network influence and network expansion activities (De Carolis et al., 2009; Fischer, 1982; McPherson et al., 2001). The concept of *network homophily* and the diversity of networks with which perceived value is obtained for intrapreneurs will unpack the circumstance in which two connected nodes in a network share certain characteristics based on the notion of “birds of a feather” (Ciriello, Hu, & Schwabe, 2013; McPherson et al., 2001). The study will aim to unpack the varying degrees of homophily for successful intrapreneurship and networks from the perspective of middle managers through the lens of networking activities.

1.6 Research Overview

This chapter presented an overview of the study, by discussing the business rationale for the study to be undertaken as well as the research scope and significance. In addition to this, definitions for key constructs were presented and

gaps in the current body of knowledge were identified. The remaining chapters will be presented as follows:

Chapter 2 provides a detailed literature review that will unpack the relationships between intrapreneurship, social capital and the three selected second order constructs of *network brokerage*, *social network cohesion* and *network homophily*. These second order constructs will be broken down further to provide a high-level description of the first order constructs of bridging, bonding, linking, trust, reciprocity, risk propensity, network formation, network expansion and network influence along with their relationships and interdependencies as well.

Chapter 3 highlights the research questions and associated hypotheses for each of the second order constructs as well as presents the conceptual model this study is based on and aims to test.

Chapter 4 outlines the quantitative research methodology and design. This chapter will describe the research approach and process including aspects around the selected research instruments and data collection methods. Finally, this chapter will provide insights into the analytical techniques used and their applicability to this study.

Chapter 5 presents the results of the study and the approach to deriving the final model using structural equation modelling.

Chapter 6 provides a brief overview of the study in relation to the research questions and will then discuss the findings from the study in relation to the original hypotheses and the theory set out in the literature review.

Chapter 7 sums up the study in terms of the pre-defined business and academic rationales for the study and presents the outcome of the study as well as the findings.

2 Literature Review

2.1 Introduction

Social capital, from the perspective of how networks are formed, utilised and nurtured as well as its links with intrapreneurship are quintessential to understand in a landscape that has historically looked to human capital, personalities, behaviours and organisational capabilities as a strategic lever to foster intrapreneurship (Arena & Uhl-Bien, 2016; Belousova & Gailly, 2013; Blanka, 2018; Ireland, Covin, & Kuratko, 2009).

The literature review for this study is structured by starting with an overall definition of intrapreneurship, followed by social capital and its link with intrapreneurship as well as the other key constructs of the study. The first key construct in this research will be *network brokerage*, which will be explored through the lenses of relational bonding, resource brokerage and stakeholder linking. The second key construct is *social network cohesion*, which will be explained through the concepts of trust, reciprocity and risk-taking propensity as a result of social cohesion within a network. The final key construct that will be examined is *network homophily*, which will be explored through the networking activities of network formation, network expansion and network influence.

The main purpose of this study is to unpack the elements of *network brokerage*, *social network cohesion* and *network homophily* and their effect on the concept of intrapreneurship through the lens of social capital and propose a refined research model thereafter. As such, the literature review aims to describe and highlight the relevance of each of these constructs in relation to each other as well as in the broader context of intrapreneurship and social capital according to the proposed conceptual model.

2.2 Intrapreneurship Theory

2.2.1 Intrapreneurship Definitions

Pinchot (1985) defined intrapreneurship as “entrepreneurial thinking people within existing firms” in his seminal work which highlighted the difference between entrepreneurship and intrapreneurship as a concept. Various terms are used to refer to unique aspects of intrapreneurship in literature such as “internal corporate

entrepreneurship”, “corporate entrepreneurship”, “corporate venture” and “internal corporate venture”(Zahra, 1991). This study will use the term intrapreneurship.

Antoncic & Hisrich, (2003) sum up the seminal work done on intrapreneurship by defining the three dimensions of intrapreneurial research as being an individual level, the establishment of new corporate undertakings ,with focus on diverse types of ventures and positioning in the corporate structure, and the entrepreneurial organisation.

2.2.2 Organisational Intrapreneurship

Intrapreneurship has been recognised to be vital to the capability of an organisation to participate in strategic renewal and new venture creation (Belousova & Gailly, 2013; Ireland et al., 2009). Further to this, previous studies went on to highlight that intrapreneurship is essential for organisations as it accelerates organisational growth, profitability and competitiveness as well as value creation (Parker, 2011; Zahra, 1991). To date, the most common definition of intrapreneurship relates to an organisation’s strategic renewal and establishment of new businesses due to the entrepreneurial behaviours of its employees (Blanka, 2018; Guth & Ginsberg, 1990; Morris et al., 2011).

Prerequisites for intrapreneurial success within an organisation include management support in the form of encouragement; adoption of new ideas and the provision of capital for experimental projects; autonomy with regards to employees not being penalised for experimentation; rewards that are positioned to recognise achievement and employees challenging themselves as well as flexible time constraints to allow employees to work on solving problems within the organisation and organisational boundaries which focus on solving fundamental business problems (Hornsby, Naffziger, Kuratko, & Montagno, 1993).

Antoncic & Hisrich, (2003) defined an eight-dimensional intrapreneurship concept for organisation level intrapreneurship defined according to the following list of dimensions:

1. New ventures (the creation of new autonomous or semi-autonomous units or firms)
2. New business (the pursuit of and entering into new businesses related to current products or markets)
3. Product/service innovativeness (the creation of new products and services)

4. Process innovativeness (innovations in production procedures and techniques)
5. Self-renewal (strategy reformulation, reorganisation and organisational change)
6. Risk taking (the possibility of loss related to quickness in taking bold actions and committing resources to the pursuit of new opportunities)
7. Proactiveness (the top management orientation for pioneering and initiative taking)
8. Competitive aggressiveness (the aggressive posturing towards competitors)

2.2.3 Individual Intrapreneurship

Based on the research gaps identified around fragmented studies on intrapreneurship from an individual perspective as well as their impact, drivers and inhibitors, this study will focus on intrapreneurship at an individual level, particularly from the perspective of the networks formed for success (Blanka, 2018; Gawke et al., 2019).

In general, entrepreneurial orientation and characteristics are defined as innovativeness, risk taking, proactiveness, competitive aggressiveness and autonomy (Rauch, Wiklund, Lumpkin, & Frese, 2009). Individuals who exhibit these characteristics within and for an organisation can be defined as intrapreneurs given the definition put forward by Pinchot (1985) that intrapreneurs are “entrepreneurial thinking people within existing firms”. The individual level intrapreneurial characteristics in this regard are innovativeness, proactiveness and risk taking, in particular. Innovativeness, for the purpose of previous studies, is defined as the aptitude or desire of an individual to embrace creativity and utilise experimentation in the introduction and development of new products and services as well as technological leadership (Rauch et al., 2009). Risk taking, in this respect, refers to an individual's inclination towards venturing into the unknown or uncertain environments and proactiveness speaks to an individual being opportunity seeking and “acting in anticipation of future demand”(Rauch et al., 2009).

Blanka (2018) highlights the work done to build up the individual level view of intrapreneurship in a review of the concept since inception and notes that prior research has been conducted on operational level employees, along with human capital, behaviour, personality traits, demographics, insights, social capital as well as

affiliation. The effect of intrapreneurship on middle-level managers through personality, behaviour and leadership styles have also been studied and documented in recent years (Blanka, 2018).

In fact, researchers have gone as far as to say that middle managers are, by default, intrapreneurs within an organisation, owing to their roles and tasks which include motivating employees, acquiring resources and gaining momentum around ideas by selling these ideas to top-level management (Kuratko et al., 2014, 2005)

High performing individuals, and thus intrapreneurs, tend to be exceptionally positioned as brokers in the organisational network as a result of their social capital and position within an organisation (Burt, 2004; Mehra, Kilduff, & Brass, 2001). As such, the repercussions of social capital are even more pronounced when it comes to intrapreneurship as it appears that innovation is just as much a social phenomenon within convoluted organisations as it is a technological phenomenon (Arena & Uhl-Bien, 2016). Uihøi (2005) confirmed this view by stating that social capital can either drive or inhibit the efforts required to gain momentum and buy in around a new idea or initiative within an organisation. In addition to this, Parker (2011) stressed that intrapreneurs often leverage both their human capital and social ties to organise and mobilise resources for intrapreneurial ventures.

2.3 Social Capital Theory

Social capital has been defined as “the goodwill that is engendered by the fabric of social relations and that can be mobilised to facilitate action” (Adler & Kwon, 2002). Researchers go further to define social capital as “social capital facilitates the acquisition of resources by promoting a constant flow of information from diverse sources” (Blyler & Coff, 2003).

In literature, social capital has been largely characterised through norms of trust and reciprocity as these are the elements which facilitate cooperative action and the enablement of individuals to act for mutual benefit based on the quality of social relationships (Abbott & Freeth, 2008; Lochner, Kawachi, & Kennedy, 1999). Based on the ability of social capital to mobilise individuals in a common direction, it has often been classified as a resource that can harvest multiple benefits such as the sharing of knowledge and the increasing of information flow within an organisation, both of which have been positively linked to intrapreneurship (Burt, 1997; Chadam &

Pastuszak, 2005; Lesjak & Vehovar, 2005; Nahapiet & Ghoshal, 1998; Tsai, 2000; Yew Wong, 2005).

Shane (2003) brought attention to the significance of social capital for an intrapreneur, especially with respect to the acquisition of resources, by stating that opportunities along with the perception of the value of the opportunity is seen as more desirable or valuable if it is rare and not commonly known. As a result of this, intrapreneurs should possess differential access to resources and information based on their active search for information and resources embedded in their social networks (Shane, 2003).

Urbano, Alvarez, & Turró, (2013) put forward that social capital in a network provides an advantage, through the social structure rendering a situation of imperfect competition, by creating opportunities for certain individuals based on their connections. This was founded on research which emphasised the relationship between intrapreneurship and social capital as well as its importance of creating connections in networks facilitating the creation and execution of intrapreneurial endeavours (Burt, 1997; N Lin, Cook, & Burt, 2001). This is as a result of the fact that personal networks can be seen as a capability for an intrapreneur as this has the ability to facilitate the flow of resources (De Carolis & Saporito, 2006; Urbano et al., 2013). It was further postulated that social capital has the ability to release additional resources when mobilising resources for an initial initiative or intrapreneurial endeavour (Blyler & Coff, 2003; Urbano et al., 2013).

Nahapiet & Ghoshal (1998), broke down social capital into three distinct, yet interrelated, conceptual areas of cognitive, relational and structural social capital. This has become an extensively applied and understood framework for identifying social capital. Structural social capital implies the existence of a network for access to individuals, knowledge and resources whilst relational and cognitive capital reflect the capability for resource exchange as well as the formation of social relationships (Liao & Welsch, 2005; Nahapiet & Ghoshal, 1998). Relational capital, in particular, speaks to sentiments of trust that are common between actors within a social context of either a group, organisation or community (Nahapiet & Ghoshal, 1998). This study will be conducted from the perspective of relational social capital, through a deep dive on *social network cohesion*, *network brokerage*, as well as *network homophily* at the individual level. These constructs, as well as their relationship to intrapreneurship and social capital are detailed in the sections that follow.

2.4 Network Brokerage

Blanka (2018) emphasised that brokering competencies are important when intrapreneurs want to develop ideas as their ability to think across various organisational units is imperative to achieve success, push innovation and pursue strategic resumption. The networks that intrapreneurs build within organisations enables them to remain open minded , unpack and discover new opportunities as well as develop brokering competencies (Blanka, 2018). Bjornali & Støren (2012) highlight the importance of brokering competencies which use a blend of knowledge combination, social capital and networking skills in their research as well.

Burt (2005) stated that brokerage embodies the bridge connections from one group to another group and it occurs as individuals, or brokers, act as connectors or joins from one group to the next. For individuals, in particular, functioning in a broker role has the ability to provide three specific competitive advantages: wider access to diverse information, early access to new information and control over the diffusion of information (Burt, 2005; Burt & Merluzzi, 2014; Nancy Lin, Cook, Burt, & Burt, 2019). Studies go further to state that brokers benefit from the access and control to resources and information as well as the referral and receipt of advantages provided to them by access to otherwise disconnected nodes within an organisation (Soda et al., 2018).

As a result of these advantages, related to brokerage specifically, the social embeddedness of intrapreneurs within organisations is important to assess when developing and identifying intrapreneurial behaviour to drive innovation (Kellogg, 2014). This is also a function of the fact that brokerage within a network is as much a part of an individual's network position as it is related to an individual's behaviour and strategic orientation towards mobilising resources within a network (Jonczyk, Bensaou, & Galunic, 2014; Kellogg, 2014).

Arena & Uhl-Bien (2016) put forward that leadership structures that leverage the competitive advantage of brokers to promote superior performance and the adaptive ability within an organisation need to be prioritised. This requires that organisations and leaders empower the capability of brokers to optimally connect disparate and diverse information to resolve organisational challenges. The organisation also needs to leverage the ability of cohesive groups to disseminate and share information (Arena & Uhl-Bien, 2016). As a result of this study, it was suggested that

organisations and leaders need to shift from a chiefly human capital focus to a focus on identifying and recognising social capital to enable the momentum of ideas, which supports intrapreneurship and intrapreneurial activities through a system or network utilising bridging and brokering (Arena & Uhl-Bien, 2016; Uihøi, 2005).

Brass, Galaskiewicz, Greve, & Tsai (2004) ,claim that according to the network viewpoint, relations are the structured patterns of interaction between individuals. The network perspective speaks to an individual's centrality within a group as well as group's role within an organisation (Brass et al., 2004). A network is defined as a set of nodes and ties representing relationships between individuals. These ties and nodes are generally studied along the lines of strategic alliance, strategic collaborations, communications through the flow of information and influence (Brass et al., 2004).

Woolcock & Narayan (2000) identified a network approach to social capital which emphasises the importance of both vertical and horizontal associations between individuals within an organisation. This speaks particularly to the concepts of bonding and bridging social capital. Adler & Kwon (2002) associate these terms with the theories of structural holes and network closure. The argument around closure states that a network of strongly interrelated components establishes social capital whilst the structural hole argument states that social capital is formed in a network where individuals broker connections between otherwise disconnected segments (Burt, 2000). Subsequent studies state that network closure is pivotal to enable recognition that reduces the risk when individuals interact, resulting in increased trust within the network (Cook, 2017).

Aldridge, Halpern, & Fitzpatrick (2002), identified the distinctions between bridging, bonding and linking social capital. Bonding is horizontal, and amongst equals or within a peer group and is inward looking, whereas bridging is vertical between different groups, is outward looking and based on trust. Linking social capital refers to the relations between diverse horizontal groups (Woolcock & Narayan, 2000). Based on these distinctions, this study will focus on these aspects of bonding, bridging and linking through the lens of relationships, resources and stakeholders respectively.

2.4.1 Relational Bonding

Relational bonding is horizontal, and amongst equals or within a peer group and is inward looking (Aldridge et al., 2002). Obstfeld (2005) labelled this type of orientation or brokering as “tertius iungens”, which is translated as “a third who joins”. This sentiment was echoed by defining bonding social capital as an individual who resolves dependencies with a network without having to be in direct contact themselves (Spiro, Acton, & Butts, 2013). In management science, relational bonding is described as originating from core ties, typically existing in environments with high closure, trust and shared norms and is often the primary source of interpersonal contact which forms a core network (Ansari, Munir, & Gregg, 2012; Cook, 2017; Granovetter, 1985)

In literature, relational bonding has been likened to the term or concept of “collaborating broker” (Soda et al., 2018). In this light, this type of brokerage plays a connecting role between individuals and bridges structural holes within a network through the active sharing of information and the promotion of coordination and collaboration between individuals to facilitate cooperation. Kellogg (2014) described this type of brokerage as a “connecting” practice of brokers with the intent to transfer, translate and transform knowledge within a network. Based on the arguments provided around *network brokerage*, this practice links directly to the ability of an individual to harvest social capital as well as pursue intrapreneurial endeavours through the creation of relational bonds.

The features of bonding social capital have been described as reciprocity, obligations, trust, norms and values (Coleman, 1988; Rousseau, Sitkin, Burt, & Camerer, 1998). This work went further to unpack that the strength of the bonds within a network would be able to simulate the effect of network closure and thus stimulate sharing and cooperation (Coleman, 1988; Granovetter, 1985; Levin & Cross, 2004).

2.4.2 Resource Bridging

Resource bridging occurs between different groups, is outward looking and based on trust (Aldridge et al., 2002). The bridging forms of social capital describe how an individual’s success, and in this case, intrapreneurial success, is related to the connections, value and resources that social capital and brokerage competencies allow access to (Adler & Kwon, 2002; Leana & Van Buren, 1999). Literature refers to

this type of brokerage as transfer brokerage and explain this phenomenon as the transfer of information or resources between individuals who would not be able to directly reach other (Spiro et al., 2013). In management science, resource bridging is described as originating from peripheral ties, typically consisting of peripheral ties that tend to be elevated in inimitable and therefore valuable resources as well as information ,which is often made up of weak ties from outside of the core network (Ansari et al., 2012; Cook, 2017; Granovetter, 1985).

In literature, this type of brokerage has been referred to as “arbitraging” owing to the ability of a broker to exploit informational asymmetries within a network as a result of being active in multiple networks or clusters and having unique access to a diverse range of information (Soda et al., 2018). Further to this, studies have identified middle managers within organisations as front and centre to information flowing through an organisation from various sources and that these middle managers are able to identify resource gaps and broker resources through the organisation (Li & Gao, 2003; Nonaka & Takeuchi, 1995).

Additionally, information and influence have been identified as direct benefits from brokering through bridging within intrapreneurial networks (De Carolis et al., 2009). This is linked to social capital which has been noted to provide ease of access to information linked to intrapreneurial opportunities and enhance the time taken to receive information that is of high quality and relevance (Adler & Kwon, 2002; Burt, 2004; Scott Shane & Venkataraman, 2000).

2.4.3 Stakeholder Linking

Linking social capital refers to the relations between diverse groups (Woolcock & Narayan, 2000). Obstfeld (2005) labelled this type of orientation or brokering as brokers who serve to create ties by bringing together individuals that are not currently related and the main benefit of this is that the broker gains accrue from the formation of the relationship between the brokered individuals. This sentiment was echoed in subsequent literature by defining linking social capital as a type of matchmaking brokerage where a broker introduces disparate individuals to create a relationship (Spiro et al., 2013).

The benefits of stakeholder linking from the perspective of social capital originated from non-superfluous ties, or the absence of network ties in the form of structural holes (Burt, 1997; Moran, 2005). This is as a result of the fact that disconnected

networks are able to provide non-redundant and different sources of information and resources, making them more valuable (Burt, 1997; Granovetter, 1985; Moran, 2005). These weak network ties are characterised by structural features of the network in the form of connectivity, centrality and hierarchy between individuals and organisational divisions (Liao & Welsch, 2005; Nahapiet & Ghoshal, 1998). In addition to this, the value of weak network ties that are later linked, lies in the ability of these ties to provide an advantage to the individual who connects the disparate networks as this individual is able to enjoy the benefits associated with the dissemination and use of the resources (Cook, 2017; Liao & Welsch, 2005; Moran, 2005).

Recent studies emphasise that the direction of this introduction, linking or matchmaking between disparate parties can be upward, lateral and downward based on the direction of influence a broker has (S. Lee, Han, Cheong, Kim, & Yun, 2017). Quintane & Carnabuci (2016) highlight that brokers may leverage the disconnections between parties or use the disconnections to gain favour or increase coordination between these parties to move towards a desired outcome and that this choice is dependent on the brokers strategic orientation and intent. Kellogg (2014) describes this process as the “buffering” practices of a broker who bridges the gaps between different groups with varying levels of expertise, status and knowledge.

2.5 Social Network Cohesion

Within social capital and its' multiple dimensions, social network refers to the number of informal and formal network ties an individual has (Liao & Welsch, 2005; Nahapiet & Ghoshal, 1998). This research adopts the that *social network cohesion* is a state of affairs comprising both the horizontal and vertical relationships among members of a society, as characterised by a cluster of attitudes and norms that include trust, a sense of belonging, as well as the inclination to contribute, participate, support and assist, along with their behavioural manifestations (Chan et al., 2006).

As a consequence of these formal and informal ties, intrapreneurs with extensive social networks are positioned to respond more nimbly to their operating environment as well as access resources for their ventures (Liao & Welsch, 2005; Nahapiet & Ghoshal, 1998). Relational social capital, with particular emphasis on intrapreneurship, speaks to the ability of an intrapreneur to receive and extract informational, physical and emotional support whilst in the venture creation process by enabling the establishment of trust and communication between individuals within

a network (DiMaggio & Garip, 2012; Liao & Welsch, 2005). Literature further postulates that the knowledge and resources entrenched in these social networks are crucial to the formulation, support and progression of new ventures and thus intrapreneurship (De Carolis et al., 2009).

The advantages of cohesive groups are that individuals can rapidly distribute information and habitually display increased levels of trust than less cohesive groups (Fleming et al., 2007). Further to this, social cohesion refers to social trust, in the form of personal and institutional trust at an organisational level, as well as reciprocity, which takes the form of in-kind exchanges between individuals (G. Lee & Teo, 2005). It has also been noted that social capital and social cohesion has also been linked to an intrapreneurs risk-taking propensity and based on trust (Johnson-George & Swap, 1982).

Reagans & McEvily, (2003) proposed and proved that social cohesion within and around relationships directly impacts the readiness and motivation of individuals to invest time, energy and effort in sharing resources with those around them. This activity of sharing resources is crucial for successful organisations and translates to increases in learning rates, the transfer of best practice knowledge, new product and venture creation, organisational competitiveness and the maintenance of organisational competitive advantage (Reagans & McEvily, 2003). This is as a result of certain individuals being on opposite ends of structural holes and having access to valuable knowledge, information and resources (Burt, 2004). The bridging of these structural holes results in the improvement of a team's overall creativity, productivity and ability to innovate (Reagans & McEvily, 2003). In the context of this research, *social network cohesion* will be studied from the perspective of trust, risk propensity and reciprocity within an intrapreneurs network.

2.5.1 Trust

Prior research has characterised trust as an individual's inclination to be vulnerable, by placing one's welfare in the hands of another, associated with a positive sentiment towards the other individual behaving and acting in a beneficial manner towards the individual (Rousseau et al., 1998). Nahapiet & Ghoshal (1998) speak of relational trust which arises as a consequence of being embedded in a social network and echoes the sentiment around trust being a belief that individuals care about each other's welfare and will act in accordance. This often results from repeated actions

which produce feelings of reliability between individuals (Rousseau et al., 1998). Trust has the ability to represent a governance mechanism that is rooted in relationships, but trustworthiness is an attribute of an individual actor (Brass et al., 2004; Tsai, 2000; Tsai & Ghoshal, 1998; Uzzi, 1996). As a result of trust, and its ability to produce joint efforts in the direction of a goal, trustworthy individuals are able to achieve support more often than when trust does not exist in a relationship (Tsai, 2000; Tsai & Ghoshal, 1998).

Furthermore, strong relational ties and *social network cohesion* are associated with trust and the flow of resources between individuals within a network (Gulati, 1998; Rowley, Behrens, & Krackhardt, 2000). Strong interpersonal relationships increase the formation of trust and thus resource transfer as trust within a relationship provides comfort for the source of the resources that the recipient will not misuse the resources provided to them (McEvily, Perrone, & Zaheer, 2003; Rowley et al., 2000). It has also been stated that a source's willingness to transfer resources to a recipient is as a result of reputational protection and cooperative behaviour owing to the time and effort required in communicating or providing access, and that this sort of cooperation is more prevalent when social cohesion exists between the source and the recipient (Coleman, 1988; Granovetter, 1985).

Trust, as a core component of social capital, promotes the development and longevity of relationships, with minimal maintenance requirements (Stone, 2001; Tymon & Stumpf, 2003). In a relationship, trust is able to facilitate learning through improved coordination and communication in a network (Laursen, Masciarelli, & Prencipe, 2012; Rowley et al., 2000; Uzzi, 1996; Wellman & Wortley, 1990). Additionally, trust is able to facilitate learning through social integration (Gnyawali & Srivastava, 2013; Laursen et al., 2012). Strong interpersonal relationships, as a by-product of social cohesion, increase the formation of trust and thus resource transfer (Laursen et al., 2012; Rowley et al., 2000). Furthermore, studies have also emphasised that trust within a relationship provides comfort for the source of the resources that the recipient will not misuse the resources provided to them facilitating intrapreneurial ventures on the back of these acquired resources (McEvily et al., 2003; Reagans & McEvily, 2003; Rowley et al., 2000).

Prior research has shown that communication in the form of information sharing and the empowerment of others, as a result of trust, is considered crucial for innovation (Kanter & Eccles, 1992; Pinchot, 1985). It has also been proven that trust is a pre-

requisite feature within a network geared towards innovation (Dakhli & De Clercq, 2004; Ellonen, Blomqvist, & Puumalainen, 2008; Shazi, Gillespie, & Steen, 2015).

Researches have also expressed that the value of resources flowing through a network are enhanced by the levels of trust within that network (Levin & Cross, 2004; McCarthy & Levin, 2014; Walter, Levin, & Murnighan, 2015). As a result of this, trust is associated with the quality of resource exchange and thus new venture and idea creation within a network which is directly linked to intrapreneurial activities and outcomes as a result of the exchange of valuable resources (Clegg, Unsworth, Epitropaki, & Parker, 2002; H. Lee & Choi, 2003).

2.5.2 Risk-Taking Propensity

Risk-taking propensity has been defined as an individual's tendency to either take or avoid risks and went further to state that risk propensity has the ability to influence the way an individual frames decision in conditions of uncertainty (Kahneman & Tversky, 2013). Risk-taking propensity has been characterised as the quick pursuit of opportunities or resources and bold actions when evaluated through the lens of the pursuit of intrapreneurial activities (Lumpkin & Dess, 1996). This attitude and approach to risk-taking propensity is often likened with intrapreneurial behaviour which can be described as bold, directive and opportunity seeking (Lumpkin & Dess, 1996). Intrapreneurs may vary their risk-taking propensities depending on their growth aspirations, experience and supporting relationships in the form of their networks (Sitkin & Weingart, 1995).

To support this, researchers have uncovered a direct relationship between levels of social capital and risk propensity in a study focused on networks and new venture creation (De Carolis et al., 2009). A willingness to take risks, as well as to share valuable and often sensitive resources is a key attribute for intrapreneurship (Johnson-George & Swap, 1982). This ability to take risks is often as a result of trust within a social network (Krackhardt & Hanson, 1993). Studies have found that intrapreneurs generally have a lower risk perception and are able to grasp more opportunities as and when they arise (Augusto Felício, Rodrigues, & Caldeirinha, 2012; Baron & Ensley, 2006; Simon, Houghton, & Aquino, 2000). Backing this view is the fact that intrapreneurs are the individuals who often recognise change opportunities, evaluate the opportunities and exploit the resources available to them in order to achieve an organisations objectives (Augusto Felício et al., 2012). This

speaks to the risk-taking propensity of intrapreneurs based on their readiness to pledge significant resources in order to materialise opportunities in uncertain environments (Augusto Felício et al., 2012; Keh, Der Foo, & Lim, 2002).

Research has also highlighted that pursuing new ideas or ventures within an organisation is risky in terms of time, effort and resource investment required and requires a certain level of reliance on others for support (De Carolis et al., 2009; De Carolis & Saporito, 2006). This support can contribute to an intrapreneurs risk-taking propensity owing to their boost in confidence from their supporting network and comfort in entering vulnerable situations, as a result of their ability to depend and rely on their surrounding network, as well (Rousseau et al., 1998). Building on this, the internal initiative required for intrapreneurship is characterised by commitment, task dedication, personal energy, persistence and risk taking in pursuing intrapreneurial endeavours and seeing them to completion (Augusto Felício et al., 2012; Trevelyan, 2008).

2.5.3 Reciprocity

As a definition, the relational facet of social capital in the form of reciprocity is based on the notion that “I’ll do this for you now, but you will do something for me later” (Adler & Kwon, 2002).

Social network cohesion, especially with respect to reciprocity, can provide a release from the competitive and motivational impediments that may arise from sharing unique or valuable information within and with a network owing to the idea that knowledge or resource transfer is often advantageous for the recipient or beneficiary but costly for the source (Spiro et al., 2013). This pressure is alleviated as a result of the dense third-party ties around a social relationship serving to overcome the challenges as cohesion highlights and brings to light the value of overlapping ties or relationships between various individuals or mutual third parties (Reagans & McEvily, 2003). At the basis of this thinking is that stronger social ties provide increased motivation to be of assistance and social considerations such as the aspiration to reciprocate or preserve balanced relationships are the driving force behind this (Burt, 1997; Granovetter, 1985).

Social network cohesion has a direct impact on the way in which individuals are socialised within a social circle and the way in which group norms, such as cooperation, are formed and adhered to (Reagans & McEvily, 2003). In addition to

this train of thought, literature has put forward that the existence of group norms within a network increases the willingness of an individual to share valuable and rare resources owing to a sense of confidence that the receiving individual will be willing to assist them in the future, even if the exchange of that resource is not beneficial for the resource holder in the short term (Reagans & McEvily, 2003; Uzzi, 1996).

Social cohesion within networks, with the inclusion of trust, promotes reciprocal relationships in which individuals support each other, learn from each other and share resources with each other (Coleman, 1988; Levin & Cross, 2004; N Lin et al., 2001; Putnam, 2000). The presence of reciprocity norms within a social network mitigate the effects of increased competition usually produced as a result of the sharing of valuable resources between the source and recipient or beneficiary through the presence of strong third party connections and relationships between individuals (Ingram & Roberts, 2000; Reagans & McEvily, 2003).

2.6 Network Homophily

Network homophily is the principle that contact between similar individuals occurs at a higher rate than with dissimilar individuals and is supported by the notion that similarity breeds connection within social networks (McPherson et al., 2001). The result of *network homophily* is that networks formed are often homogenous with respect to multiple behavioural, sociodemographic and intrapersonal characteristics. Studies go on to specify that homophily in a network can influence, and in fact limit, the diversity of resources and information flow, the attitudes within the network and the interactions between the individuals in the network (McPherson et al., 2001). Homophily as a principle implies that social characteristic distance translates more or less directly to network distance (McPherson et al., 2001). This makes *network homophily* important to consider in the realm of social capital within a network.

Fischer (1982) put forward that homophily patterns across a diverse range of relations have proven to be consistent as the number of relationships/connections between two individuals tends to increase the strength of homophily in a network. The achieved characteristics of education, occupation and social class, classified as social background for the purposes of this study, has proved to be highly homophilous in nature with an increased tendency for these networks to inbreed with each other (Marsden, 1987, 1988; McPherson et al., 2001).

Networks are integral to connect intrapreneurs with opportunities allowing for organisational growth by facilitating innovation, spreading risks, providing support, providing access to resources as well as building credibility (De Carolis et al., 2009). Individuals connected to diverse networks are more likely exposed to varying worldviews, are able to synthesise and evaluate an issue from multiple perspectives and are more likely to identify a need for discussion and collaboration within a network (Reagans & McEvily, 2003). In contrast to this, individuals surrounded by a homogenous network are more likely to think, act and perceive the world in a similar way and have difficulty in sharing their resources or common understanding with those outside their network (Burt, 2005). These factors contribute to the ability of an intrapreneur to facilitate communication, access resources, discover new opportunities to learn and innovate with diverse bodies of knowledge as well as develop new relationships (Reagans & McEvily, 2003).

Certain researchers have taken the stance that innovator networks should disclose lower levels of homophily to facilitate collaboration as this requires the interactions of complementary rather than substituting individuals (Ciriello et al., 2013). In literature, it is argued that an average degree of homophily within a network is the optimal amount allowing for individuals to interact with those who are both similar and dissimilar to themselves. This will also allow for the extraction of resources and information from dissimilar individuals and the discussion and usage of these resources between similar people (Nejad, Amini, & Babakus, 2015).

Zhang, Bu, Ding, & Xu (2018) highlight that *network homophily* is an important factor to facilitate collaboration as it encourages individuals with similarity to work together more cohesively as a result of reduced barriers in communication. This sort of collaboration has the potential to facilitate innovation and thus intrapreneurship, making *network homophily* quintessential to unpack and understand in the context of intrapreneurial networks (Bozeman & Boardman, 2014; Zhang et al., 2018).

2.6.1 Network Formation

Forret & Dougherty (2001) stated that network formation provides access to senior or more highly regarded contacts and promotes access to non-redundant information within networks. Network range is identified as the extent to which networks and connections span across institutional, organisational and social boundaries (Forret & Dougherty, 2001; Reagans & McEvily, 2003). Network range, in the realm of

resources within an organisation, relates to the benefits and resources embedded in network connections that go across various organisational and social boundaries (Reagans & McEvily, 2003).

It has been found that building a network based on sociodemographic variables increased an individual's confidence and access to opportunities within a network (Nan Lin, Ensel, & Vaughn, 1981). Forret & Dougherty (2001) stated that being in a higher-level management position also promotes networking behaviours and the creation of networks. In addition to sociodemographic and management level, personality traits also play a role in the network formation process, especially in the form of extraversion, higher levels of self-esteem and attitudes towards organisational politics (Forret & Dougherty, 2001; Nan Lin et al., 1981).

Furthermore, studies conducted with a focus on individual level intrapreneurship have uncovered that bottom up proactivity is required in order to be successful (Moriano et al., 2014). More specifically, in order to enable intrapreneurship, individual employees should be involved in out of the box thinking, networking behaviour and leading an initiative in order to be a driving force behind intrapreneurial endeavours (Lumpkin & Dess, 1996; Moriano et al., 2014; Rauch et al., 2009)

2.6.2 Network Expansion

For this study, network expansion is defined as the networking behaviours or network building activities of individuals to initiate and maintain relationships with individuals in networks (Forret & Dougherty, 2001). These activities include going to social meetings such as lunches or dinners, joining industry associations or community projects, participating in athletic events, speaking at conferences or organisational gatherings, maintaining contact with individuals to keep the relationship alive and being social in anything that could be classified as a network building activity (Kanter & Eccles, 1992).

In order to effect the mobilisation of resources and information for intrapreneurial activities, the use and creation of both internal and external networks is quintessential (Baker & Nelson, 2005; Halme, Lindeman, & Linna, 2012). Studies have shed light on the concept of network creation and expansion facilitating resource bricolage and stakeholder mobilisation in intrapreneurial activities (Baker & Nelson, 2005; Di Domenico, Haugh, & Tracey, 2010).

In this context, bricolage is used in response to resource scarcity and the attainment of these resources to facilitate and unblock intrapreneurial endeavours utilising network expanding techniques (Halme et al., 2012). Studies by (Andersen, 2008) uncovered that in bottom up innovation processes, the utilisation of local resources and bricolage was most prevalent.

2.6.3 Network Influence

Influence and the capability of an individual to influence within a network is vital to get one's way (Kipnis, Schmidt, & Wilkinson, 1980). Influence within a network speaks to the notion of appealing to an individual to gain commitment for an appeal or request in an effort to influence the attitudes and behaviours of others (S. Lee et al., 2017). Jensen (2007) highlighted that influence, as a tactic, is often used in decision making and influencing the outcomes of decisions, which is a skill required for intrapreneurship. The key influencing tactics were identified as being rational persuasion, exchange, inspirational appeal, legitimating, apprising, pressure, collaboration, ingratiation, consultation, personal appeal and coalition (S. Lee et al., 2017).

Furthermore, it has been found that in the past, influence tactics have been used for blocking and sanction, manipulation, socialising, negotiating politicking within an organisation (S. Lee et al., 2017). Intrapreneurs, when utilising the concept of bricolage, make extensive use of their networks in order to mobilise resources (Halme et al., 2012). In order to do this, and to reach resources within their current networks, persuasion and influence are tactics often brought to the fore in order to be successful (Di Domenico et al., 2010; Halme et al., 2012)

In order to advance the understanding of why influence and persuasion are imperative for intrapreneurial endeavours, it is important to understand that intrapreneurs often have to find novel means to facilitate and unblock non-traditional approaches to tasks and initiatives, taking into account their current means and resources (Antoncic & Hisrich, 2001, 2003; Halme et al., 2012). In the pursuit of their intrapreneurial endeavours, intrapreneurship often requires an individual to go outside conventional and traditional limitations and processes in order to unlock value, requiring extensive influence and persuasion tactics of key stakeholders and resources in order to get this done (Halme et al., 2012; Moriano et al., 2014).

3 Research Questions and Hypotheses

3.1 Introduction

The previous chapters of this study served to highlight the importance of understanding the value of social capital from an individual perspective and its relation to intrapreneurship through the lenses of *network brokerage*, *social network cohesion* and *network homophily*.

The objective of this study is to gain a deeper understanding of the relationships between the constructs of *network brokerage*, *social network cohesion* and *network homophily* and intrapreneurship. Based on this objective, a conceptual model, depicted in **Figure 1** below, was developed to test these relationships through hypotheses and research questions.

3.2 Research Questions and Hypotheses

3.2.1 Research Question 1 and Hypotheses 1 – Network Brokerage

3.2.1.1 Research Question 1 – R(B)

R(B): Is there a positive relationship between Network Brokerage and Intrapreneurship?

Research Question 1, R(B), was formulated to assess the nature of the relationship between *network brokerage*, as an independent variable, and intrapreneurship, the dependent variable. Research on the relationship between these two constructs has shown that high performing individuals and intrapreneurs, tend to be uniquely positioned as brokers within an organisational network (Burt, 2005; Mehra et al., 2001). (Blanka, 2018) affirmed this view by emphasising that brokering competencies are quintessential when intrapreneurs want to develop new ventures or ideas as it allows them to think across organisational units and gain access to valuable resources (Bjornali & Støren, 2012). As such, based on the definition of reflective constructs being a function of the latent construct, the relationship between Network Brokerage and Intrapreneurship is modelled as reflective in the conceptual model proposed in **Figure 1** (Hair, Ringle, & Sarstedt, 2011).

3.2.1.2 Hypothesis 1 – H(B)

Based on the rationale and R(B), the study aims to test the following hypothesis through the reflective constructs of relational bonding, stakeholder linking and resource bridging:

H(B)₀ - Null: There is no significant positive relationship between network brokerage and intrapreneurship

H(B) - Alternate: There is a significant positive relationship between network brokerage and intrapreneurship

3.2.2 Research Question 2 and Hypothesis 2 – Social Network Cohesion

3.2.2.1 Research Question 2 – R(S)

R(S): Is there a positive relationship between Social Network Cohesion and Intrapreneurship?

Research Question 2, R(S), was formulated to assess the nature of the relationship between *social network cohesion*, as an independent variable, and intrapreneurship, the dependent variable. Research on the relationship between these two constructs has shown that the formal and informal ties that an individual has as a result of their *social network cohesion* positions intrapreneurs to respond more nimbly to their environments and gain access to valuable resources (Liao & Welsch, 2005; Nahapiet & Ghoshal, 1998). In addition to this, *social network cohesion* has the ability to limit the competitive and motivational impediments that are usually associated with the sharing of resources within a network (Spiro et al., 2013). As such, based on the definition of reflective constructs being a function of the latent construct, the relationship between Social Network Cohesion and Intrapreneurship is modelled as reflective in **Figure 1** (Hair et al., 2011).

3.2.2.2 Hypothesis 2 – H(S)

Based on the rationale and R(S), the study aims to test the following hypothesis through the reflective constructs of trust, reciprocity as risk propensity:

H(S)₀ - Null: There is no significant positive relationship between social network cohesion and intrapreneurship

H(S) - Alternate: There is a significant positive relationship between social network cohesion and intrapreneurship

3.2.3 Research Question 3 and Hypothesis 3 – Network Homophily

3.2.3.1 Research Question 3 – R(H)

R(H): Is there a negative relationship between Network Homophily and Intrapreneurship?

Research Question 3, R(H), was formulated to assess the nature of the relationship between *network homophily*, as an independent variable, and intrapreneurship, the dependent variable. Research on the relationship between these two constructs has shown that there isn't consensus on what the optimal amount of homophily in a network is, however, it has been noted that homophily in a network has the ability to limit the diversity of resources and attitudes required for effective intrapreneurship (McPherson et al., 2001). As such, based on the definition of formative constructs being a cause of the latent construct, the relationship between Network Homophily and Intrapreneurship is modelled as reflective in **Figure 1** (Hair et al., 2011).

3.2.3.2 Hypothesis 3 – H(H)

Based on the rationale and R(H), the study aims to test the following hypothesis through networking activities such as the formative constructs of network formation, network expansion and network influence:

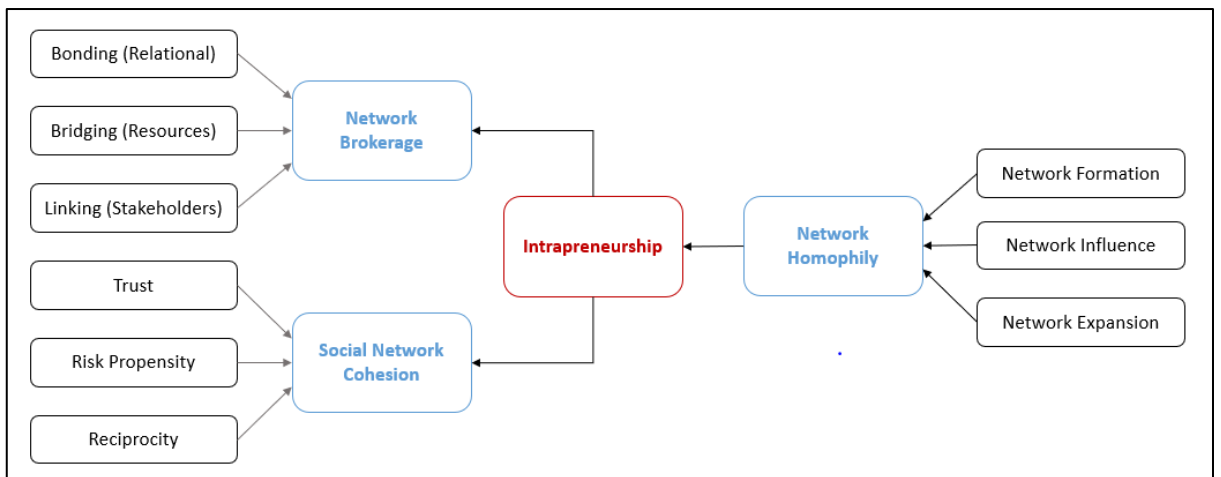
H(H)₀ - Null: There is no significant negative relationship between network homophily and intrapreneurship

H(H) - Alternate: There is a significant negative relationship between network homophily and intrapreneurship

3.3 Conceptual Model

As a result of the research questions and associated hypotheses, a conceptual model was formulated which gives a visual representation of the study and its desired outcome by way of a refined model. This conceptual model shows the reflective and formative constructs along with their hypothesised relationship to Intrapreneurship and can be found in **Figure 1** below.

Figure 1: Conceptual Model



4 Research Methodology

4.1 Methodology Approach

The purpose of the study was to develop, test and propose a conceptual model where intrapreneurship is impacted by factors related to *network brokerage*, *social network cohesion* and *network homophily*. This chapter will discuss the research methodology and approach adopted. The quantitative study used confirmatory factor analysis as a method which is based on Structural Equation Modelling (SEM).

4.2 Choice of Methodology

The study made use of positivist research paradigm, owing to the relational nature of the study and the positivist bias of the researched having undertaken an undergraduate degree in the field of science. This was supported by the fact that the research sought to test hypotheses and determine relationships between variables and is consistent with the findings of researchers who have adopted a similar approach (Koro-Ljungberg & Douglas, 2008). The adoption of this approach implies that the researcher remained independent and maintained the stance that reality is objective and singular as well as remained value free and unbiased in the process (Saunders, Lewis, & Thornhill, 2009). In addition to this, Saunders, Lewis, & Thornhill (2009) stated that a deductive approach is an approach where the researcher develops theory and subjects the theory to rigorous tests. In this study, a conceptual model was constructed with associated hypotheses for testing and was carried out utilising a highly structured plan. The research tested for relationships between the selected constructs of *network brokerage*, *social network cohesion* and *network homophily* on intrapreneurship. As a result, this study undertook a deductive approach.

The data utilised and collected for this research was numerical in nature and a single means of data collection was used. Quantitative research methods were used to understand the nature of the relationship between literature informed variables such as *network brokerage*, *social network cohesion*, *network homophily* and intrapreneurship using statistical analysis to explain theorised relationships and test the rigour of the conceptual model (Creswell & Poth, 2017). A mono method quantitative approach was adopted for this study owing to the fact that a single quantitative data collection technique, such as electronic surveys, were combined with quantitative data analysis procedures (Saunders et al., 2009). The study was a

descripto-explanatory study as it focussed on identifying the nature of relationships between the constructs of *network brokerage*, *social network cohesion*, *network homophily* and intrapreneurship and then built insights into the initial description (Saunders & Lewis, 2012). A survey research design was used based on the constructs of *network brokerage*, *social network cohesion*, *network homophily* and intrapreneurship identified in the conceptual model. An electronic survey in the form of a self-completed questionnaire was utilised as the main instrument of enquiry.

The research study was cross-sectional in nature as it was conducted at a single instance in time and not over a long period of time. This decision was arrived at based on the time constraints of the MBA programme as well as the length of the study (Saunders & Lewis, 2012). The utilisation of a self-completed questionnaire survey was chosen to aid the speedy extraction of information given the timeframe and length of the study.

4.3 Population

The target population identified for this study consisted of middle managers. This was as a result of the fact that middle managers have an integrative role enabling them to reconcile and communicate top level executive outlooks with implementation issues emerging at lower organisational levels (Kuratko et al., 2005; Morikuni et al., 2019). To fulfil this role, middle managers ought to constructively synthesise information, distribute that information and champion the acquired information or resources in an optimal fashion (Kuratko, Ireland, Covin & Hornsby, 2005). As such, middle managers were uniquely placed to influence and shape intrapreneurial behaviour in an organisation. To reach this population, both the personal and professional networks of the researcher were approached in order to expand the research effort. In addition to this, middle managers within an Australian based software company were targeted. Limiting the population to middle managers ensured that the data collected was more homogenous in nature.

4.4 Unit of Analysis

The unit of analysis for this study were the individuals who will make up the target population of middle managers across multiple industries and organisations. This ensured that a representative view of the entire population was obtained. Literature indicated that sampling techniques provide a range of techniques that enable a researcher to decrease the amount of data that needs to be collected by studying

data from a sub-group as opposed to all instances or components (Saunders et al., 2009). The work by Saunders & Lewis (2012) went on to highlight the different types of sampling techniques and their ability to either be classified as probability and non-probability of the sample being representative of the entire population.

4.5 Sampling Method and Size

Reliability testing within a sample ensures that measured variables within a sample are able to measure the same attributes as well as be associated with each other (Cronbach, 1951). The existence of an internal association within a series of measured variables is able to provide statistical consistency as well as reliability within the measured variables of a study (Cronbach, 1951; Tavakol & Dennick, 2011; Trochim & Donnelly, 2006). A measure called the Cronbach's Coefficient Alpha is widely adopted as a research technique to assess the internal consistency and reliability of a scale (Cronbach, 1951; W. Zikmund, Carr, Babin, & Griffin, 2013).

Validity testing within a sample speaks to the extent of the association between measured variables within a construct as it is expected that these constructs are required to converge to be valid (Hair, Sarstedt, Ringle, & Gudergan, 2017). Validity within a sample is required to ensure that measured variables do indeed measure their associated theoretical construct as opposed to a different construct in the sample (Hair et al., 2017).

In order to guarantee the reliability and validity of data points collected, respondents from a large enough sample size were required to enable the extraction of results from analysis (Saunders & Lewis, 2012). A representative sample was required to ensure the generalisation of the research findings to the general population owing to the fact that the research approach is deductive (W. G. Zikmund, Babin, Carr, & Griffin, 2009).

Study participants were selected in a manner that allowed the researcher to obtain a representative sample set and reduce the margin of error when extrapolating the research findings to the population (Saunders & Lewis, 2012). For this study, based on the perception of middle managers and intrapreneurship competencies required with respect to *network brokerage*, *social network cohesion* and *network homophily*, a non-probability, purposive sampling technique was adopted with a focus on key themes through heterogeneous sampling (Saunders & Lewis, 2012).

The statistical technique utilised for this study was Partial Least Squares - Structural Equation Modelling (PLS - SEM). This method was chosen based on the work of researchers who have put forward that the PLS-SEM method is suited to both confirmatory and exploratory studies (Chin, 2010; Hair et al., 2017). Furthermore, when evaluated, it was found that PLS- SEM utilised ordinary least squares as a estimation procedure and was able to cater for data that is not normally distributed (Hair et al., 2011). This is done through estimating the coefficients in a linear regression model by minimising the sum of squares of the differences between fitted and observed values in the data (Chin, 2010; Hair, Risher, Sarstedt, & Ringle, 2019; Hair et al., 2017). In addition to this, PLS-SEM does not require a large sample size and has been proven to be effective with complex models (Hair et al., 2017).

Although PLS - SEM as a technique, is robust enough to cater for smaller sample sizes, prior research in path modelling suggests that a sample size of between 100 to 200 is advised (Hoyle, 1995). In addition, a sample size based on a rule of ten times the number of links pointing towards a latent variable within a structural model has been suggested(Hair, Black, Babin, & Anderson, 2010). (Hair et al., 2011) recommend that the minimal sample size for the PLS technique should ,at minimum, be equal to ten times the maximum number of structural paths on a latent variable from its measured variables. The researcher calculated this by assuming the maximum number of measured variables loading onto a higher order construct which reported a minimum sample size of 90 for the conceptual model primary study (Hair, Ringle, & Sarstedt, 2013; Hair et al., 2019).

4.6 Measurement Instrument

The measurement instrument for this study took the form of electronically distributed self-completed questionnaires (surveys) that attempted to test the perception of middle managers on *network brokerage*, *social network cohesion* and *network homophily* on intrapreneurship. This approach was supported by the work of Saunders et. Al (2012) as well as Zikmund et al. (2009) who supported the fact that that quantitative exploratory research can be conducted through surveys, theoretical constructs and academic literature.

The survey questions attempted to measure specific variables within the constructs of *network brokerage*, *social network cohesion* and *network homophily* through the lens of intrapreneurship and social capital. The survey was designed by identifying

relationships and inferences from literature for each construct that was measured. Thereafter, each concept or idea was used to derive a question pertaining to each construct and used in the final survey. As a result, the survey did not make use of existing questionnaires from previous studies. The questions related to *network homophily* were reverse coded, in order to measure the amount of homophily in a network, without confusing the respondent or influencing the outcome of the study in a biased manner. The questionnaire used in the study can be found in Appendix A.

In order to derive value from the data collected, a Likert style rating scale was used for the dependent and independent variables in order to obtain data with nominal characteristics. Respondents were requested to provide responses based on a pre-populated scale constructed in line with a series of statements linked to the key constructs. Literature recommends the use of a five-point or seven-point Likert scale to ensure reliability (Swanson & Holton, 2005). In addition, according to (W. G. Zikmund et al., 2009), reliability is a measure of a measurement scales internal consistency. The reliability of the measurement scale was estimated using Cronbach's alpha (Kimberlin, Winterstein, & Winterstein, 2008).

Based on the process outlined by GIBS, an ethical clearance application was constructed and approved prior to the distribution of the survey and collection of data. This, along with a suitable turnaround time for the completion of the surveys was factored into the project plan which was formulated to monitor and keep the research effort on track.

4.7 Data Gathering Process

In addition to the questions relating to the key constructs of *network brokerage*, *social network cohesion* and *network homophily*, demographic variables such as gender, role, age and industry were collected through the survey questionnaire and categorised as nominal scale categorical data. This demographic data was used to screen respondents and ensure that they do form part of the research population and that the findings of the study are both valid and reliable.

The survey questionnaire (Appendix A) was distributed through an online link as well as an accompanying positioning and consent statement for various forms of distribution channels. Follow up communications were also sent to ensure that the response rate was as high as it needed to be in order to obtain a representative sample for statistical analysis purposes.

4.8 Analysis Approach

Prior to the primary research, the researcher conducted a pilot-test to assess the conceptual model validity based on the scale development process defined by (Carpenter, 2018). Pilot test respondents were asked to assess the survey for ease of understanding amongst other factors. The feedback received from these respondents in terms of understanding and grammatical errors, as well as the structure were improved upon prior to the final survey being distributed. In addition to this, based on feedback received, the survey was amended to include a high-level definition or description of the term “intrapreneurship”.

As defined by Carpenter (2018) and Johanson & Brooks (2010), the purpose of the measurement scale is to capture concepts that are not directly observable. In order to effectively ensure the reporting of valid and reliable scales, a pilot test was conducted on which the researcher collected a sample of 71 responses. Johanson & Brooks (2010) indicated that a pilot study should have a sample size in excess of 30 respondents whilst Carpenter (2018) indicated that a minimum of 100 respondents are required. Considering the time horizon and limitations of this research a pilot sample size of 71 was evaluated as adequate.

Principal Components Analysis (PCA), a statistical method which processes data and extracts a small number of synthetic variables, termed principal components, from a larger group of measured variables explaining a certain phenomenon within research was utilised (Pallant, 2005). The factorability of the pilot study was assessed by evaluating the PCA outputs which included the Kaiser-Meyer-Olkin (KMO, $KMO > 0.6$) values, Bartlett's test for sphericity ($p < 0.05$) and the Correlation matrix ($r > 0.3$) as recommended by Carpenter (2018). Furthermore, all retained values need to report a communality score > 0.40 . The conceptual model was modified based on the output of the PCA for the pilot sample and will be discussed in the Results section.

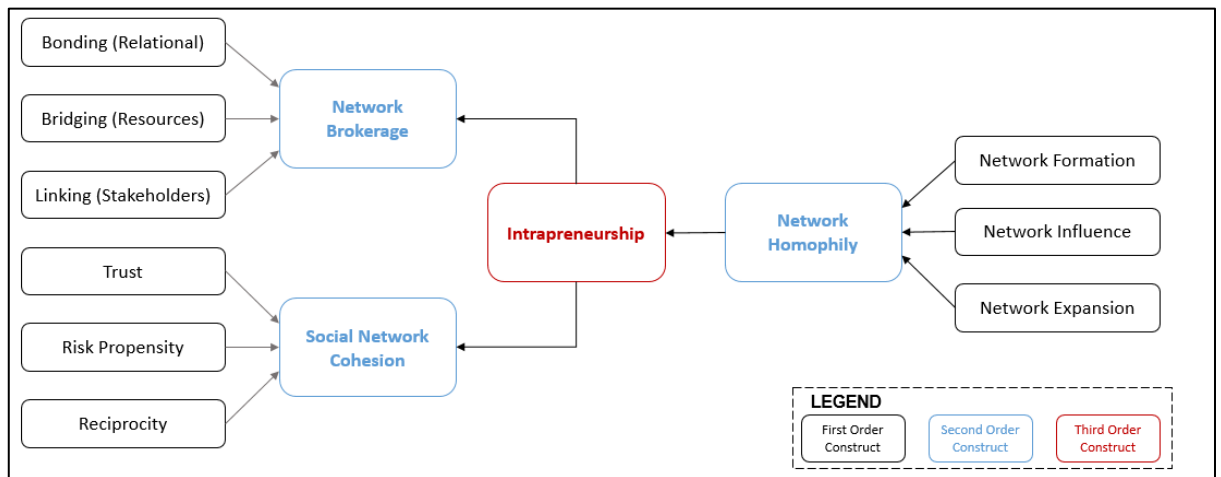
In order to facilitate the analysis process, a codebook was generated to identify each variable in the study using a codename. The code book can be found in Appendix B. This codebook proved useful when transferring the survey data to statistical software for analysis purposes. The first step in the analysis process was to screen the data for completeness, validity and outliers (W. G. Zikmund et al., 2009). Data received that was incomplete was disqualified, except in the case of 50 - 100% completion,

as this data was imputed utilising an algorithm that formulates best guesses based on attributes of the research population (W. G. Zikmund et al., 2009). Thereafter, descriptive statistics were compiled.

To investigate the validity and reliability of the constructs, existing scales from literature, in the form of Likert scales, were used for all measures. In addition to this, the means, standard deviations, and reliability of the data was assessed to ensure that the constructs and measures are suitable for the in-depth statistical analysis. This ensured that the need to have internal consistency and unidimensional data in the non-demographic sections of the data set were met (Tavakol & Dennick, 2011). To test the reliability and measure internal consistency of the data, a Cronbach's Alpha test was conducted using internal correlations (Cronbach, 1951; Tavakol & Dennick, 2011; W. G. Zikmund et al., 2009).

The conceptual model, developed and tested using PLS – SEM consisted of three questions, measured variables or data collection points per first order construct, linked to a higher order second order construct which all ultimately linked to intrapreneurship as a third order construct. The view of the conceptual model, in terms of the construct structure can be seen in **Figure 2** below.

Figure 2: Conceptual Model (Construct View)



This was further broken down into measured variables per first order construct, creating a linkage between measured variables, as per the Codebook, first order constructs, second order constructs and the third order construct of intrapreneurship. This breakdown is highlighted in **Table 1** below.

Table 1 : Conceptual Model (Measured Variable and Construct View)

Measured Variable	First Order Construct	Second Order Construct	Third Order Construct
Bonding1	Relational Bonding	Network Brokerage	Intrapreneurship
Bonding2			
Bonding3			
Bridging1	Resource Bridging		
Bridging2			
Bridging3			
Linking1	Stakeholder Linking		
Linking2			
Linking3			
Reciprocity1	Reciprocity	Social Network Cohesion	
Reciprocity2			
Reciprocity3			
Trust1	Trust		
Trust2			
Trust3			
RiskProp1	Risk Propensity		
RiskProp2			
RiskProp3			
Formation1	Network Formation	Network Homophily	
Formation2			
Formation3			
Expansion1	Network Expansion		
Expansion2			
Expansion3			
Influence1	Network Influence		
Influence2			
Influence3			

In addition to investigating the reliability and validity of the data, exploratory and confirmatory factor analysis was conducted. Factor analysis allowed the researcher to consolidate a large set of variables by summarising the underlying patterns of

correlation and looking for strongly related items (Pallant, 2005). Exploratory factor analysis (EFA) assumes that any variable may be associated with a factor (Pallant, 2005). According to Pallant (2005), EFA is applied in the initial stages of research to gather information about or explore the interrelationships amongst a set of variables. In this study, EFA was used to uncover the underlying factor structure of the constructs underlying *network brokerage*, *social network cohesion* and *network homophily* attempting to measure intrapreneurship from an individual perspective. Building on these results further, a rotated factor matrix calculation was undertaken to produce a factor solution. At this point, the cross loading of factors was assessed. Confirmatory factor analysis was then used to test the factor structure of the constructs of the study based on evaluating the Stone-Geisser value for predictive relevance (Hair et al., 2011, 2017; Pallant, 2005). The Stone-Geisser test was adopted as the primary test for predictive accuracy owing to the suggestions of Chin (2010) who put forward that the Stone-Geisser test is more fitting to describe the predictive validity of models in the field of social science. Furthermore, the SRMR test for predictive relevancy was deemed not to be the preferred test for PLS-SEM as per the work of prior researchers who put forward that the SRMR test was not adequately adapted to cater for PLS-SEM in terms of the guidelines for adoption and relevancy of the proposed numerical thresholds (Sarstedt, Ringle, Henseler, & Hair, 2014).

Post the reliability and validity checks, the data was assessed to produce descriptive statistics on the data set which included analysis of the data set and allowed for the respondents to be analysed and for generalisation to the general population to occur.

4.9 PLS-SEM Analysis Approach

PLS - SEM was utilised to evaluate the research questions and associated hypotheses within the conceptual model. This approach was adopted in the studies of Gawke et al., (2019) as well as Monnavarian & Ashena, (2009) who also studied intrapreneurship and its relationship to underlying constructs. Hair et al., (2010) describe SEM as a second generation Multivariate Statistical Analysis (MSA) utilising the combination of factor analysis as well as regression. PLS - SEM is based on the ordinary least square evaluation and when estimating coefficients, minimises the sum of squares between the differences of fitted and observed values (Chin, 2010; Hair et al., 2017). For this study, PLS - SEM was chosen over Covariance-based SEM in line with the suggestions of (Hair et al., 2019) who favour PLS -SEM when

testing a theoretical framework using prediction as well as when the conceptual model has many indicators and is complex higher order.

The PLS - SEM statistical analysis followed the methodology by Hair et al., (2017) as follows:

1. Assess the reliability and validity of the outer model
2. Assess the inner structural model for collinearity issues
3. Assess the significance and relevance of the structural model relationships
4. Assess the level of R^2
5. Assess the predictive relevance Q^2

Internal consistency reliability of the model represents the internal reliability and consistency of the measurement scale adopted (Trochim & Donnelly, 2006). Cronbach's alpha has been the most commonly used score to assess the internal reliability of a measurement scale (W. Zikmund et al., 2013). However, Chin (2010) argued that within the context of PLS modelling, the Cronbach alpha score tends to underestimate the internal reliability. Hair et al. (2017) states that a new score through the composite reliability should instead be reported. Both scores range from 0 to 1 and the lower bound for an acceptable level of internal consistency reliability of 0.7 should be adopted (Chin, 2010; Hair et al., 2019, 2017).

Validity of the outer model was evaluated through the lenses of convergent and discriminant validity. Convergent validity refers to the extent that a measured variable related with other measured variables that constitute a single higher order latent variable (Hair et al., 2017). Discriminant validity, on the other hand, aims to ensure that measured variables do not represent or cross-load on other items that it was not supposed to represent (Hair et al., 2017). Hair et al., (2017) provides an evaluation method in order to ensure that both convergent and discriminant validity are evaluated. Each of the measured variables factor loadings onto their respective latent variables need to exceed a score of 0.7 (Hair et al., 2017). In addition, the Average Variance Extracted (AVE) needs to exceed 0.5 (Fornell & Larcker, 1981). Furthermore, it is recommended that if latent scores report an AVE less than 0.5, consideration by researcher needs to be adopted as to whether or not the variable or measured variables should be deleted to ensure that content validity is not affected (Hair et al., 2011). Discriminant validity was assessed by evaluating the Heterotrait-Monotrait (HTMT) criterion matrix, which measures the associations of measured

variables onto latent scores (Henseler, Ringle, & Sarstedt, 2014). The upper bound for the HTMT should not exceed 0.9 to confirm discriminant validity in the PLS model (Henseler et al., 2014).

The inner model was assessed by evaluating the Variance Inflation factor (VIF). The presence of collinearity in the inner model can create higher path coefficients thus creating an inference that might not be true (Chin, 2010). Hair et al. (2017) recommends that the upper bound for VIF should be a score of 5. In addition to this, the path coefficients and co-efficient of determination (R^2) were evaluated using the bootstrap technique to validate the significance at a 99% significance level. The strength of the path co-efficient and R^2 was evaluated using the effect size categorisation recommended by Chin (2010). Whereby, values of 0.02, 0.15, and 0.35, respectively, represent small, medium, and large effects of an exogenous latent variable on an endogenous latent variable (Chin, 2010). In addition to this, for research in social sciences in particular, a value of 0.1 is also deemed an acceptable result (Falk & Miller, 1992).

The conceptual research model was evaluated using Smart PLS 3.0 due to the cost considerations as well as recommendations by Henseler et al., (2015).

4.10 Research Limitations

The following research limitations identified may or may not have an impact on the outcome and results of the study:

1. A purposive non-probability sampling technique was chosen for this study, as a result of this, limited access to the study was provided and the sample may not be fully representative of the population.
2. A limitation inherent in the usage of self-completed questionnaires is that the respondent may not fully understand the questionnaire and be unable to clarify any uncertainties in order to ensure that they correct answers are provided. This may influence the quality of the data.
3. Respondents of the survey may be susceptible to social desirability bias owing to the study of the respondent's perception of the notion of intrapreneurship as opposed to the collection of factual data points.

4. The sampling size for this study is relatively small, compared to the entire population and this could have introduced a sampling error, impacting the results of the study.
5. Limitations around the statistical method of PLS-SEM being used is that the technique generally presents one model fit index in the form of SRMR, relying on bootstrapping and blindfolding techniques to predict model significance (Hair et al., 2019).
6. In scale development, there are numerous limitations that could have a significant impact on the study. These limitations may present in the form of the sample characteristics, methodological limitations, psychometric limitations, missing data, bias as well as item limitations in the form of difficult to answer or interpret questions (Morgado, Meireles, Neves, Amaral, & Ferreira, 2017)

5 Results

Having discussed the conceptual model and its rationale along with the methodology and approach adopted for this study, this chapter presents the results of the research. The chapter commences by providing descriptive analytics on the sample population based on the structure of the survey instrument which is then followed by presenting the results to the adopted analytical approach which inform the research questions.

5.1 Sample Size and Descriptive Statistics

As discussed in Chapter 4, the researcher conducted a pilot pre-test to evaluate and ensure robustness of the developed hypothesis and conceptual research model. The pre-test had a sample size of 71 ($n=71$) which was evaluated using a PCA to understand the optimal structure of the research model. Furthermore, the main research initially targeted a minimum sample size of 200 as previously discussed in Chapter 4.

The validity of this sample size was assessed once the PCA test was concluded which informed a minimum sample size of 103 based on a minimum R^2 of 0.25 and ten times the maximum number of arrows pointing towards a latent variable (Hair et al., 2013). The final raw sample size obtained for the research was 141 which was therefore deemed adequate as this exceeded the minimum requirement based on the sample size recommendations for PLS.

Table 2 provides a summary of the final size achieved for this research ($n = 140$). One respondent was disqualified from the final data set as they failed to complete in excess of 50% of the survey. Data was imputed on a further 4 respondents, each missing one question, based on the Missing At Random (MAR) philosophy.

Table 2: Qualified Sample Data Collected and Imputed

Sample size attribute	Total
Raw sample size	141
Respondents with less than 50% completion	1
Respondents with 100% completion	136
Respondents with between 50 - 100% completion	4
Data points imputed (MAR assumed)	4
Final sample size	140

5.1.1 Descriptive Statistics for Qualified Sample

The research adopted five sample descriptive statistics which included the age and gender of the respondent, the industry in which the respondents were employed, the current role of the respondent in the organisation and the country in which the respondent resides.

As summarised in **Table 3**, the majority of the respondents indicated that they were between 26 – 35 years of age (41.4%). The second largest age group reported by the survey respondents was the age group 36 – 45 years of age (36.4%). The remaining respondents indicated that they belonged to the 46 – 55 year age group (16.4%) and 56 – 65 year age group (5.7%). Furthermore, 57.9% of the respondents reported that they were male, 35% reported that they were female, 0.7% indicated their gender was classified as “other” and 9 respondents failed to indicate their age. In addition, just under 73% of the respondents indicated that they reside in South Africa, 12.9% in the United Kingdom, 9.3% in Australia and the remainder in Canada (2.1%), UAE (1.4%), Germany (0.7%), and the USA (0.7%).

Table 3 : Qualified Sample Descriptive Statistics (Age, Gender, Geography)

Descriptive	Attribute	Frequency	Valid Percent
Age	26 - 35 years	58	41.4
	36 - 45 years	51	36.4
	46 - 55 years	23	16.4
	56 - 65 years	8	5.7
Gender	Male	81	57.9
	Female	49	35.0
	Other	1	0.7
	Blank	9	6.4
Country	Australia	13	9.3
	Canada	3	2.1
	Germany	1	0.7
	South Africa	102	72.9
	UAE	2	1.4
	United Kingdom	18	12.9
	USA	1	0.7

59% of the respondents reported the Information Technology sector as their main employment industry, 25% of the respondents reported that they were employed in the Financial Services sector, 22% came from the Professional Services sector whilst Manufacturing and Mining as well as Healthcare accounted for 10% and 8% of the

respondents respectively. The remaining industries representing the sample population each represented <5% respectively as summarised in **Table 4**.

Table 4 : Qualified Sample Descriptive Statistics (Industry Breakdown)

Industry	Frequency	Percent
Education	3	2.1
Financial Services	25	17.9
Government	3	2.1
Healthcare	8	5.7
Information Technology	59	42.1
Manufacturing and Mining	10	7.1
N/A	1	0.7
Professional Services	22	15.7
Retail and Hospitality	5	3.6
Telecommunications	2	1.4
Transportation	2	1.4
Total	140	100.0

As summarised in **Table 5** below, 57.1% of the research respondents reported that they were employed in business oriented roles within their respective organisations whilst 42.9% reported that they were employed in technology oriented roles within their organisations.

Table 5 : Qualified Sample Descriptive Statistics (Role Orientation)

Role type	Frequency	Percent
Business	80	57.1
Technology	60	42.9
Total	140	100.0

5.2 Measurement Model Validation

As discussed in Chapter 4, an EFA was conducted using a pilot study to ensure the conceptual measurement model was valid and reliable. Prior to the primary study, the researcher initially targeted between 30 - 100 respondents to conduct the pilot study as per recommendations of Carpenter (2018) and Johanson & Brooks (2009). Results of the pilot study were evaluated using PCA and Cronbachs alpha to verify the reliability and dimension reduction for the conceptual research model. As summarised in **Table 6**, 84.6% of the pilot study responses fitted into the age

category between 26 and 45 years of age. 52.1% reported that they were male and 43.7% reported that they were female.

Table 6: Pilot Sample Descriptive Statistics (Age, Gender, Geography)

Descriptive	Attribute	Frequency	Valid Percent
Age	18 - 25 years	2	2.8
	26 – 35 years	30	42.3
	36 - 45 years	30	42.3
	46 - 55 years	6	8.5
	Missing	3	4.2
Gender	Male	37	52.1
	Female	31	43.7
	Blank	3	4.2

The results of the PCA and internal consistency reliability analysis are summarised in **Table 7** below. The PCA was conducted first and each second order construct reported KMO scores between 0.75 – 0.82. The KMO measure for Network Homophily and Network Brokerage tested as ‘*middling*’ as they were between 0.7 – 0.8 (Kaiser, 1974). The KMO measure for Social Network Cohesion tested as ‘*meritorious*’ as the KMO score was between 0.8 – 0.9 (Kaiser, 1974). All second order constructs reported a Bartlett’s test for sphericity significance < 0.05, indicating that the data was suitable for PCA (Carpenter, 2018; W. Zikmund et al., 2013).

Table 7: Results of PCA and Internal Consistency Reliability Analysis

Second Order	First Order	Measured Variable	Cronbach Alpha	KMO	Bartlett's test	Components extracted (n)	%
Network Brokerage	Bridging	NB_Bonding1	0.78	0.75	0.00	2	53.41
		NB_Bonding2					
		NB_Bonding3					
		NB_Bridging1					
		NB_Bridging2					
		NB_Bridging3					
	Linking	NB_Linking1	0.66				
		NB_Linking2					
		NB_Linking3					
Network Homophily	Network Building	NH_Formation1	0.84	0.76	0.00	2	65.06
		NH_Formation2					
		NH_Expansion1					
		NH_Expansion2					
		NH_Expansion3					
	Network Influence	NH_Influence1	0.78				
		NH_Influence2					
		NH_Influence3					
		NH_Formation3					
Social Network Cohesion	Reciprocity	SC_Reciprocity1	0.69	0.82	0.00	2	62.40
		SC_Reciprocity2					
		Sc_RiskProp2					
		SC_RiskProp3					
	Trust	SC_Trust1	0.86				
		SC_Trust2					
		SC_Trust3					
		SC_Reciprocity3					

The data was rotated using the varimax rotation method which resulted in each of the second order constructs extracting two components each compared to the hypothesised three components in Chapter 3. The groupings of these components and how they loaded are detailed in **Table 7** above. The Bridging and Bonding measured variables for the second order construct Network Brokerage load together onto one component and the Linking measured variables loaded on the other component extracted for Network Brokerage. The Network Expansion latent variables for the construct Network Homophily loaded with Network Formation 1 (NH_Formation1) and Network Formation 2 (NH_Formation2) whilst the Network Influence measured variables loaded with Network Formation 3 (NH_Formation3). The Trust measured variables for the construct Social Network Cohesion loaded with Reciprocity 3 (SC_Reciprocity3) and Risk Propensity 1 (SC_RiskProp1) whilst Reciprocity 1 (SC_Reciprocity1), Reciprocity 2 (SC_Reciprocity2), Risk Propensity 2

(SC_RiskProp2) and Risk Propensity 3 (SC_RiskProp3) loaded together. All new first order constructs reported Cronbach alphas scores > 0.65 (Taber, 2018; van Griethuijsen et al., 2015).

As discussed above and as a result of these loadings, six first order constructs were found, as opposed to initially proposed nine. These new first order constructs were named according to the majority of measured variables that loaded with the construct as well as the underlying themes. The new constructs were named Bridging, Linking, Trust, Reciprocity, Network Building and Network Influence. These new first order constructs are tabulated, along with their second and third order constructs, in **Table 8** below.

Table 8: Refined Model (Construct View)

First Order Construct	Second Order Construct	Third Order Construct
Bridging	Network Brokerage	Intrapreneurship
Linking		
Trust	Social Network Cohesion	
Reciprocity		
Network Building	Network Homophily	
Network Influence		

Based on the outcomes of the PCA on the pilot study, the primary model was then evaluated.

5.3 Outer Model Analysis

As discussed in Chapter 4, the researcher followed a process as prescribed by Chin (2010) and Hair et al. (2017) to evaluate the conceptual model presented in Chapter 3.

The outer model was first assessed for reliability by evaluating the Cronbach alpha and Composite reliability scores. As summarised in **Table 9** below, Cronbach's alpha for all the latent variables exceeded the adopted lower bound limit of 0.6 prescribed by Carpenter (2018). Furthermore, all latent variables exceeded the minimum lower bound of 0.7 as prescribed by Hair et al. (2014).

As the researcher adopted the Composite reliability measure to confirm internal consistency reliability of the outer model, the reliability of the outer model was established as all latent variables exceeded the lower bound threshold of 0.7 as prescribed by Chin (2010) and Hair et al., (2017).

Convergent validity of the PLS outer model was assessed by evaluating the AVE and the factor loadings for each of the first and second order constructs.

Table 9: Outer Model Reliability and Validity Analysis (Cronbach's Alpha, Composite Reliability, AVE)

Construct	Cronbach's Alpha	Composite Reliability	AVE
Bridging	0.80	0.88	0.71
Linking	0.67	0.82	0.61
Network Building	0.86	0.90	0.64
Network Influence	0.81	0.87	0.64
Reciprocity	0.61	0.79	0.56
Trust	0.73	0.83	0.55

As summarised in **Table 10** below, the factor loadings for the Bridging construct ranged from 0.56 – 0.76, the Linking construct ranged from 0.75 – 0.81, the Network Building construct ranged from 0.73 – 0.81, the Network Influence construct ranged from 0.73 – 0.88, the Reciprocity construct ranged from 0.54 – 0.76, and the Trust construct ranged from 0.65 – 0.81. Measured variables which reported a factor loading < 0.7 were removed from the model as per the prescribed threshold adopted (Chin, 2010). Furthermore, all AVE scores were reported > 0.5 as per the minimum threshold proposed by Hair et al. (2017). Therefore, convergent validity of the outer model was confirmed.

Table 10 : Outer Model Factor Loadings

	Bridging	Linking	Network Building	Network Influence	Risk Propensity	Trust
NB_Bonding1	0.56*					
NB_Bonding2	0.61*					
NB_Bonding3	0.69*					
NB_Bridging1	0.75					
NB_Bridging2	0.74					
NB_Bridging3	0.76					
NB_Linking1		0.75				
NB_Linking2		0.81				
NB_Linking3		0.78				
NH_Formation1			0.81			
NH_Formation2			0.79			
NH_NetExp1			0.73			
NH_NetExp2			0.87			
NH_NetExp3			0.81			
NH_NetInf1				0.79		
NH_NetInf2				0.88		
NH_NetInf3				0.79		
NH_Formation3				0.73		
SC_Recip1					0.70	
SC_Recip2					0.54*	
SC_RiProp2					0.73	
SC_RiProp3					0.76	
SC_Recip3						0.77
SC_RiProp1						0.65*
SC_Trust1						0.70
SC_Trust2						0.81
SC_Trust3						0.72

Discriminant validity of the outer model was assessed by evaluating the HTMT criterion matrix. As summarized in **Table 11** below, no inter-item correlations exceeded 0.9 (Henseler et al., 2014). It was therefore confirmed that no discriminant validity issues existed with the outer model.

Table 11: Outer Model Discriminant Validity (HTMT Criterion Matrix)

	Bridging	Linking	Network Building	Network Influence	Risk Propensity	Trust
Bridging						
Linking	0.60					
Network Building	0.47	0.36				
Network Influence	0.55	0.39	0.81			
Reciprocity	0.56	0.69	0.32	0.41		
Trust	0.45	0.50	0.28	0.42	0.86	

5.4 Inner Model Analysis

VIF was evaluated to establish if the inner model had any collinearity issues. As summarised in **Table 12** below, the VIF scores ranged from 1.2 – 3.6, well below the upper bound of 5 (Hair et al., 2017). It was therefore confirmed that no collinearity issues were present in the inner model.

Table 12: Inner Model Collinearity (VIF)

Measured Variable	VIF
B_Bridging1	2.1
B_Bridging2	1.6
B_Bridging3	1.9
B_Linking1	1.3
B_Linking2	1.3
B_Linking3	1.3
NH_Formation1	2.4
NH_Formation2	2.9
NH_Formation3	1.4
NH_NetExp1	2.4
NH_NetExp2	3.1
NH_NetExp3	3.6
NH_NetInf1	1.8
NH_NetInf2	3.3
NH_NetInf3	1.6
SC_Recip1	1.7
SC_Recip3	1.7
SC_RiProp1	1.2
SC_RiProp2	1.4
SC_RiProp3	2.1
SC_Trust1	1.5
SC_Trust2	1.9
SC_Trust3	1.6

5.5 Construct Descriptive Analysis

After evaluating for reliability and validity of the research model, descriptive statistics for the higher order variables were analysed. Of the first order constructs, Reciprocity and Trust reported the highest means at 4.14 and 4.32 respectively. Social network cohesion reported the highest mean of 4.23 for the second order constructs. In terms of standard deviation, and hence a spread in the data in the second order constructs, *network homophily* showed the greatest spread at 0.76, followed by *network brokerage* at 0.54 and then *social network cohesion* at 0.48. From the first order constructs, network building had the highest standard deviation at 0.86 and reciprocity and trust had the lowest standard deviations, both reporting a value of 0.54. All of the constructs were skewed, with *social network cohesion* and *network brokerage* showing a negative skewness and *network homophily* being positively skewed for the second order constructs. The lowest skewness value was -0.05 for *social network cohesion* and the highest value was 1.04, allocated to network influence. All second order and first order constructs exhibited levels of Kurtosis, indicating their degree of outliers in the distribution.

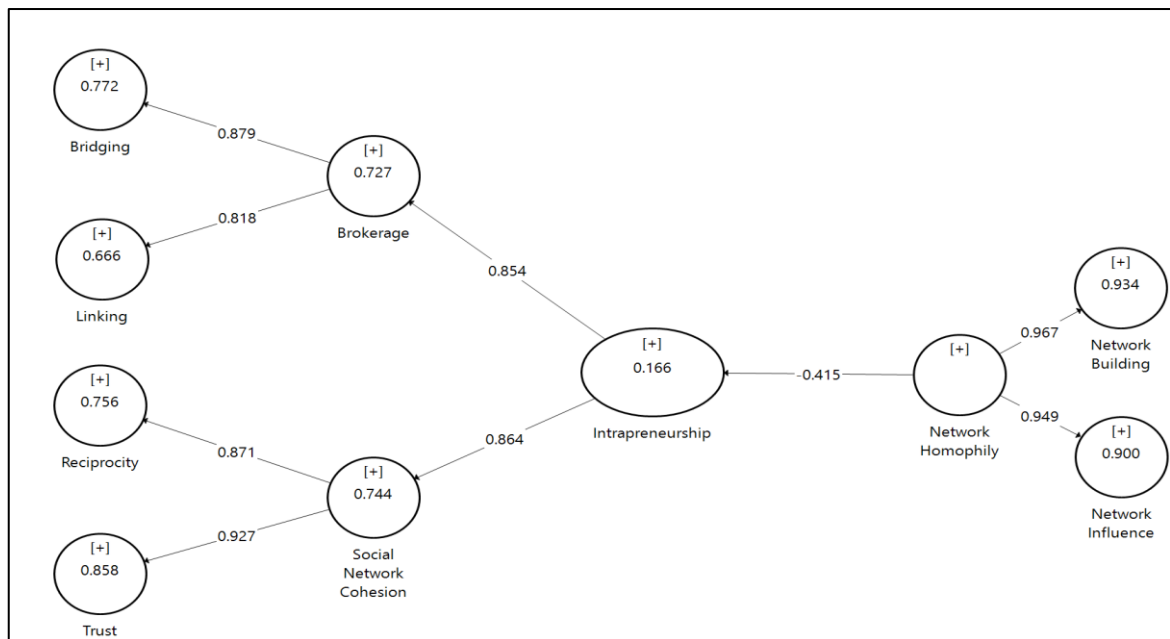
Table 13: Refined Model Descriptive Statistics (Constructs View)

Construct	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Bridging	140	4.09	0.66	-0.72	0.20	1.38	0.41
Linking	140	3.94	0.62	-0.06	0.20	-0.02	0.41
Network Brokerage	140	4.01	0.54	-0.43	0.20	1.80	0.41
Reciprocity	140	4.14	0.54	-0.14	0.20	-0.14	0.41
Trust	140	4.32	0.54	-0.46	0.20	0.04	0.41
Social Network Cohesion	140	4.23	0.48	-0.05	0.20	-0.50	0.41
Network Building	140	2.42	0.83	0.72	0.20	0.83	0.41
Network Influence	140	2.31	0.76	1.04	0.20	2.30	0.41
Network Homophily	140	2.37	0.76	0.86	0.20	1.77	0.41

5.6 Hypothesis Testing

Figure 3 below depicts the overall research model results from the PLS statistical technique.

Figure 3 : Refined Model (Research Results)



5.6.1 Research Question 1 – R(B)

The first research question, R(B), sought to evaluate if there was a positive significant association between Intrapreneurship and Network Brokerage. The first hypothesis in this research therefore sought to confirm if there was a positive path co-efficient within the model for the association between Network Brokerage and Intrapreneurship. As illustrated in **Figure 3** above, there was a positive and significant path co-efficient of 0.854 reported between Network Brokerage and Intrapreneurship ($p < 0.01$). Furthermore, the co-efficient of determination was reported as 0.727 which depicts the proportion of variation that can be explained between Intrapreneurship and Network Brokerage.

5.6.2 Research Question 2 – R(S)

The second research question, R(S), sought to evaluate if there was a positive significant association between Intrapreneurship and Social network cohesion. The second hypothesis in this research therefore sought to confirm if there was a positive path co-efficient within the model for the association between Social network cohesion and Intrapreneurship. As illustrated in **Figure 3** above, there was a positive and significant path co-efficient of 0.864 reported between Social network cohesion and Intrapreneurship ($p < 0.01$). Furthermore, the co-efficient of determination was reported as 0.744 which depicts the proportion of variation that can be explained between Intrapreneurship and Social network cohesion.

5.6.3 Research Question 3 – R(H)

The third research question, R(H), sought to evaluate if there was a significant negative association between Intrapreneurship and Network homophily. The third hypothesis in this research therefore sought to confirm if there was a negative path co-efficient within the model for the association between Network homophily and Intrapreneurship. As illustrated in **Figure 3** above, there was a negative and significant path co-efficient of - 0.415 reported between Network homophily and Intrapreneurship ($p < 0.01$). Furthermore, the co-efficient of determination was reported as 0.166 which depicts the weak proportion of variation that can be explained between Intrapreneurship and Network homophily.

5.7 Structural Model Fit Assessment

The Stone-Geisser Q^2 was used to evaluate the conceptual models predictive relevance based on the rationale provided in Chapter 4. Network building, Network influence, Bridging, Trust, Reciprocity and Linking reported large predictive relevancy values ($Q^2 > 0.35$). Social network cohesion and Network Brokerage reported medium predictive relevancy values ($Q^2 > 0.15$). Intrapreneurship reported a Q^2 of 0.05 which was regarded as poor but relevant.

Table 14 : Structural Model Fit Assessment (Stone-Geisser, SRMR)

Construct	SSO	SSE	$Q^2 (=1-SSE/SSO)$
Network Building	700	298	0.57
Network Influence	560	253	0.55
Bridging	420	198	0.53
Trust	560	308	0.45
Reciprocity	420	252	0.40
Linking	420	257	0.39
Network Brokerage	840	562	0.33
Social Network Cohesion	1120	759	0.32
Intrapreneurship	1820	1725	0.05
SRMR was reported at 0.14			

Furthermore, the SRMR value was evaluated and this reported a value of 0.14 indicating a poor model fit ($SRMR < 0.08$ for an acceptable good model fit) based on the recommendations by Henseler et al., (2014).

6 Discussion of Results

6.1 Introduction

The primary objective for this research was highlighted in Chapter 1, along with the business rationale. Chapter 2 presented a review on all the key constructs, their association with social capital and intrapreneurship as well as the second order constructs they were modelled with. Chapter 3 highlighted the key research questions and hypotheses which were addressed in Chapters 4 and 5 in terms of a methodology and results of the study. Chapter 5 also sought to analyse the results of the study through reliability and validity testing prior to the model being proposed and tested.

The purpose of this research was to study the relationship of social capital with intrapreneurship by studying the perceptions of middle managers on aspects of social capital in the form of *network brokerage*, *social network cohesion* and *network homophily*. The primary objective was to propose a refined theoretical/conceptual model as a result of this study.

The conceptual model proposed that there would be a positive significant relationship between *network brokerage* and *social network cohesion*, tested through reflective constructs, with intrapreneurship, and by default, the networks associated with intrapreneurship. The conceptual model also proposed that there would be a negative significant relationship between *network homophily*, tested through formative constructs, with intrapreneurship, and by default, the networks associated with intrapreneurship.

Research Question 1, R(B), aimed to determine the nature of the relationship between *network brokerage* through the associated reflective constructs of resource bridging, relational bonding and stakeholder linking with intrapreneurship.

Research Question 2, R(S), aimed to determine the nature of the relationship between *social network cohesion* through the associated reflective constructs of trust, reciprocity and risk propensity with intrapreneurship.

Research Question 3, R(H), aimed to determine the nature of the relationship between *network homophily* through the associated formative constructs of network formation, network expansion and network influence with intrapreneurship.

This chapter discusses the research findings which were outlined in Chapter 5 and is structured in a similar fashion.

The findings of the research indicated that there was indeed a significant relationship between the second order constructs of *network brokerage*, *social network cohesion*, which were positive, and *network homophily*, which was negative, with intrapreneurship. Furthermore, the overall model fit, using a metric specifically suggested for scale and model development, resulted in an acceptable value.

6.2 Sample Overview

Middle managers were requested to complete the survey exclusively in order for the findings to be extrapolated to the population of middle managers in general. This was done in line with the thinking of researchers who put forward that middle managers have an integrative role in enabling the reconciliation of executive outlooks with implementation issues emerging at lower organisational levels, owing to their unique positions (Hornsby et al., 1993; Kuratko et al., 2014, 2005). The unique position of being sandwiched between the top and bottom levels of an organisation allow middle managers to influence and shape intrapreneurial behaviour through brokerage, their networks and the ability to mobilise and extract resources in the organisation (Morikuni et al., 2019). In addition to this, middle managers are at the intersection of information flow within an organisation and are able to act as change and communication agents within an organisation (Morikuni et al., 2019).

To build on this line of thinking further, middle managers are often seen as resource brokers within an organisation and add value by brokering resources and identifying resource gaps within the organisation (Glisby & Holden, 2003; Nonaka & Takeuchi, 1995). Often, as a result of their position and access to valuable resources, middle managers are able to facilitate and support the pursuit of intrapreneurial activities (Soda et al., 2018). This research bolstered the decision of the researcher to target middle managers as the sample population exclusively.

The descriptive statistics obtained for the sample sized used to generate results comprised of 100% of middle managers, with 58% of these individuals being male, the majority of respondents, 42%, being between 26 and 35 years of age. In terms of geographical spread, business orientation and industry, 73% of the respondents were based in South Africa, with 57% of respondents employed in business-oriented roles and approximately 59% of the sample comprised of middle managers working

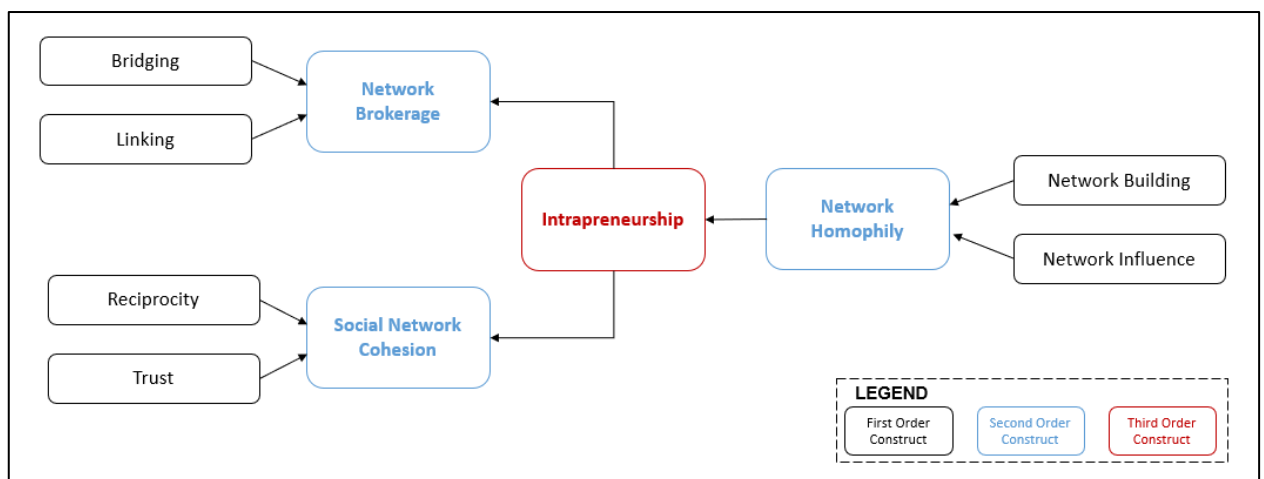
in Information Technology. These sample characteristics provide an approximate view of the of the general population that the findings of this study can be applied to.

6.3 Discussion of the Model

The conceptual model was assessed and evaluated in line with the methodology outlined in Chapter 4 to propose a new refined model that has met all the statistical tests, is significant and has an appropriate fit. The journey started with a factorability analysis of the pilot/conceptual model using PCA.

Based on the results from the PCA, using the varimax rotation method, each of the second order constructs (*network brokerage*, *social network cohesion* and *network homophily*) extracted two components each. This result was found to oppose the originally hypothesised allocation of three components per construct in the conceptual model. The new groupings were named according to the majority of the measured variables that were allocated to each extracted component and resulted in bridging and linking becoming the first order constructs for *network brokerage*, reciprocity and trust becoming the first order constructs for *social network cohesion* and network building and network influence becoming the first order constructs for *network homophily*. All of the new first order constructs reported Cronbach alpha scores which were greater than 0.65 (Taber, 2018; van Griethuijsen et al., 2015). These groupings of first and second order constructs can be found in **Table 8** and can also be seen in **Figure 4** below.

Figure 4: Refined Model (Construct View)



Post the outcomes of the PCA , the refined model (**Figure 4**) was then evaluated according to the method prescribed by Chin (2010) and Hair et al. (2017).

6.3.1 Model Reliability and Validity Assessment

The outer model was assessed for reliability through the use of Cronbach alpha and composite reliability scores as discussed in Chapter 4. The results of this evaluation can be found in **Table 9** and shows that the Cronbach's alpha for each latent variable exceeded the adopted lower bound limit of 0.6 prescribed by Chin (2010) and the minimum lower bound of 0.7 as prescribed by Hair et al. (2014). In addition to this, the reliability of the outer model was established through the composite reliability measure as all latent variables exceeded the lower bound threshold of 0.7 as proposed by Chin (2010) and Hair et al. (2017). Convergent validity of the outer model was assessed through AVE values and factor loadings and factor loadings less than 0.7 were removed from the model as per the prescribed threshold by Chin (2010). All AVE scores presented above the minimum threshold of 0.5 per construct and required no further action (Hair et al., 2017). Based on the above, the convergent validity of the outer model was confirmed. The discriminant validity of the outer model was also assessed by evaluating the HTMT criterion. None of the inter-item correlations exceeded the value of 0.9 put forward by Henseler et al, (2015) which confirmed that there were no discriminant validity issues with the outer model.

In addition to outer model analysis, inner model analysis was conducted using VIF to test for collinearity issues. The outcome of this test can be found in **Table 12**. All the calculated VIF per measured variable ranged from 1.2 – 3.6, which were all well below the upper bound of 5 proposed by Hair et al. (2017). This confirmed that there were no collinearity issues present in the inner model for the remaining measured variables.

6.3.2 Model Descriptive Statistics

Based on the refined model and newly defined first order constructs, the descriptive statistics were compiled in **Table 13**. Means for the first order constructs showed that reciprocity and trust were the highest, reporting values of 4.14 and 4.32 respectively. In line with this, *social network cohesion*, the second order construct related to reciprocity and trust reported the highest overall mean of 4.23. Standard deviation within a data set is an indication of the spread of the data (Doane & Seward, 2011; Ghasemi & Zahediasl, 2012). Within the second order constructs, *network homophily* demonstrated the greatest spread or standard deviation, at a value of 0.76, followed by *network brokerage* at 0.54 and *social network cohesion*, showing the lowest

spread of 0.48. A similar trend was spotted with the first order constructs, with network building having the highest standard deviation value of 0.86 and reciprocity and trust, both linked to *social network cohesion*, having the lowest of values, both being 0.54. Skewness within a data set is a measure of the asymmetry of the probability distribution of a variable about its mean (Doane & Seward, 2011; Ghasemi & Zahediasl, 2012). A distribution skewed to the left indicates that the tail on the curve's left hand side is longer than the tail on the right hand side and that the mean value is less than the mode value whilst the opposite is true for a distribution skewed to the right (Doane & Seward, 2011). Based on the model and the final constructs, all of the constructs were skewed, some more so than others, indicating that there was not a perfect normal distribution present. Social network cohesion and *network brokerage* showed a negative skewness and *network homophily* was positively skewed for the second order constructs. The lowest skewness value was -0.05 for *social network cohesion* and the highest value was 1.04, allocated to network influence. Kurtosis, within a sample, refers to the degree of the presence of outliers in a distribution (Decarlo, 1997; Doane & Seward, 2011). All second order and first order constructs exhibited levels of Kurtosis, indicating the presence of outliers in the distribution.

6.3.3 Model Fit Assessment

The Stone- Geisser Q^2 value was used to evaluate the predictive relevance of the conceptual model based on the rationale provided in Chapter 4 (Chin, 2010; Hair et al., 2011, 2017; Sarstedt et al., 2014). Based on this, the first order constructs of network building, network influence, bridging, trust, reciprocity and linking demonstrated large predictive relevance values of Q^2 greater than 0.35. The second order constructs of *social network cohesion* and *network brokerage* reported medium predictive relevancy values of Q^2 greater than 0.15. Intrapreneurship, the third order construct of the study, reported a Q^2 value of 0.05 which, whilst regarded as a poor score, is still deemed relevant (Chin, 2010; Hair et al., 2011, 2017). It's imperative to take heed that a Q^2 value was not calculated for the second order construct of *network homophily* as it is modelled as an independent variable.

The SRMR value of the model was found to be 0.14, indicating a poor model fit as per the thresholds of the test. However, based on the rationale provided in Chapter 4, the results of the Stone-Geisser test were taken as the more fitting measure owing to the social science inclination of the study and the risk of adopting the SRMR test

as the measure for PLS-SEM based models (Chin, 2010; Hair et al., 2013; Sarstedt et al., 2014).

Based on this assessment, based on predictive accuracy, the overall model can be classified as significant and relevant (Hair et al., 2019).

6.4 Discussion of Research Question 1 – R(B)

The first research question, R(B), sought to corroborate the theorised relationship between *network brokerage*, an independent variable, through its reflective constructs of relational bonding, stakeholder linking and resource bridging with intrapreneurship, the dependent variable. As a result, the research question and hypotheses were proposed as:

R(B): Is there a positive relationship between Network Brokerage and Intrapreneurship?

H(B)₀ - Null: There is no significant positive relationship between network brokerage and intrapreneurship

H(B) - Alternate: There is a significant positive relationship between network brokerage and intrapreneurship

Network brokerage is defined as the bridge connections from one cluster or network to another which generally results in the broker benefitting from differential access to resources and advantages (Burt, 2005; Soda et al., 2018).

The activities associated with *network brokerage* have been linked to increased levels of social capital within an intrapreneurial network allowing for bonding and bridging with peers and as a result, providing access to non-redundant and valuable resources and unlocking intrapreneurial activity in the process (Akhtar & Kang, 2016).

This access to resources as a result of *network brokerage* is imperative for intrapreneurs seeking to develop new ideas and expand their thinking beyond existing organisational boundaries, divisions and levels as this facilitates open mindedness and the discovery of new opportunities (Bjornali & Støren, 2012; Blanka, 2018). An intrapreneurs network position and behaviour, coupled with strategic orientation, assist the acquisition and dissemination of resources within a network,

using brokerage (Jonczyk et al., 2014; Kellogg, 2014; Li & Gao, 2003; Nonaka & Takeuchi, 1995).

With regards to the research question around the link between *network brokerage* and intrapreneurship, utilising the same reasoning presented by literature, it was anticipated that there would be a positive and significant relationship between *network brokerage* and intrapreneurship. Positioned in a different way, it was estimated that higher levels of *network brokerage* and its perceived value would lead to increased intrapreneurial success.

The results from the study, for the second order construct of *network brokerage* and its relationship with intrapreneurship were evaluated using the PLS-SEM technique and resulted in a positive, significant, high, path coefficient of 0.854 between *network brokerage* and intrapreneurship. This number and the relation to the greater model can be found in **Figure 3**. Based on this, we can reject the $H(B)_0$ -Null and accept $H(B)$ -Alternate.

The percentage of variability accounted for by *network brokerage*, the independent variable, relative to intrapreneurship, the dependant variable as a result of the coefficient of determination was 73%. This inferred that an expected 73% of variance is estimated in intrapreneurship as a result of variance of the construct of *network brokerage*.

This relationship being positive and significant is coherent with the findings of (Urbano et al., 2013) who proposed that social capital and its' existence within a network provides an advantage by producing imperfect competition and creating opportunities for those who have social capital as opposed to those individuals who do not. Researchers also emphasised the relationship between intrapreneurship and social capital based on the creation of connections within networks which would aid the intrapreneurial process (Burt, 1997; N Lin et al., 2001). Other studies went further to highlight that personal networks can be seen as a capability for intrapreneurship as it has the ability to ease the flow of resources and takes into account the ripple effect of releasing additional resources in a network when mobilising and socialising an opportunity and its requirements (Blyler & Coff, 2003; De Carolis & Saporito, 2006).

In order to test for the second order construct of *network brokerage*, three first order constructs were selected in order to unpack the concept of *network brokerage*

through the lens of social capital. For the purposes of this study, those first order constructs were relational bonding, stakeholder linking and resource bridging.

Stakeholder linking, in social capital, refers to the relations between diverse groups (Woolcock & Narayan, 2000). This was tested in relation to stakeholders and how the act of linking has the ability to broker connections to diverse groups and individuals within an organisation. Relational bonding refers to the horizontal relations, amongst equals or within a peer group and is inward looking (Aldridge et al., 2002). This was also tested in relation to how bonds and relationships are created amongst peers within an organisation through brokering. Resource bridging refers to the phenomenon that occurs between different groups, is outward looking and based on trust (Aldridge et al., 2002).

As an outcome of the rotation of the data for *network brokerage*, using the Varimax rotation method and PCA, it was found that, in contrast to the original three first order constructs proposed in the conceptual model, the results showed that there were in fact two first order constructs which were a combination of the original or proposed three. The first order constructs related to relational bonding and resource bridging were combined as a single construct and stakeholder linking was held as a single construct.

As a result of this combination, relational bonding and resource bridging were combined to form a final first order construct under the heading bridging, as this refers to the act of brokering for resources or relationships between two disparate groups or individuals when looking at both definitions (Adler & Kwon, 2002; Aldridge et al., 2002). This construct was also termed bridging owing to the fact that the majority, two thirds, of the questions related to bonding were deemed unreliable and a single question, closely related to the concept of bridging was maintained and combined.

Based on these two final first order constructs, the results showed that Bridging had a higher path coefficient with *network brokerage*, indicating that between bridging and stakeholder linking, bridging has a greater influence on the concept of Network Brokerage. That said, the path coefficients of bridging and stakeholder linking, being 0.88 and 0.82 respectively, were not vastly different in values. This means that stakeholder linking also has an influence on the concept of Network brokerage. Positive path coefficients for both constructs indicate that as bridging and

stakeholder linking activities increase, it is expected that *network brokerage* as a concept will increase as well.

The percentage of variability accounted for by bridging, the new construct, relative to *network brokerage*, the second order construct, as a result of the coefficient of determination was 73%. This inferred that an expected 73% of variance is estimated in *network brokerage* as a result of variance of the construct of bridging. Furthermore, the percentage of variability accounted for by linking, the new construct, relative to *network brokerage*, the second order construct, as a result of the coefficient of determination was 67%. This inferred that an expected 67% of variance is estimated in *network brokerage* as a result of variance of the construct of linking.

The findings around bridging and brokerage are in line with the findings of (Adler & Kwon, 2002; De Carolis et al., 2009; Leana & Van Buren, 1999; Scott Shane & Venkataraman, 2000) who postulated the bridging social capital is related to the connections, value and resources an intrapreneur is able to obtain based on their brokering competencies. Further to this, information, resources and influence are identified a benefits of social capital and brokering through bridging based on increased access and reduced time to receive and exchange resources (Adler & Kwon, 2002; Burt, 2004; De Carolis et al., 2009).

The findings around stakeholder linking and *network brokerage* are in line with the findings of (Burt & Merluzzi, 2014; Granovetter, 1985; Moran, 2005) who postulated that the stakeholder linking, *network brokerage* and intrapreneurship are related. Furthermore, the benefits of stakeholder linking, using brokering and social capital have been inferred to originate from non-redundant ties in a network, taking the form of structural holes (Burt, 1997). As a result of these structural holes, information or resources shared through this brokering process is non-redundant and therefore more valuable (Moran, 2005).

6.5 Discussion of Research Question 2 – R(S)

The second research question, R(S), sought to corroborate the theorised relationship between *social network cohesion*, an independent variable, through its reflective constructs of relational trust, risk propensity and reciprocity with intrapreneurship, the dependent variable. As a result, the research question and hypotheses were proposed as:

R(S): Is there a positive relationship between Social Network Cohesion and Intrapreneurship?

H(S)₀ - Null: There is no significant positive relationship between social network cohesion and intrapreneurship

H(S) - Alternate: There is a significant positive relationship between social network cohesion and intrapreneurship

Social network cohesion is defined as the state of interactions within a network that are characterised by a set of attitudes and norms as well as their behavioural manifestations (Chan et al., 2006; Fleming et al., 2007)

The activities associated with *social network cohesion* have been linked to increased levels of social capital within an intrapreneurial network allowing for the development of relational trust, reciprocity within the network as well as increased risk taking propensity with intrapreneurs thus unlocking intrapreneurial activity in the process (Chan et al., 2006; DiMaggio & Garip, 2012; Fleming et al., 2007; Liao & Welsch, 2005).

Social network cohesion, linked to relational social capital, speaks to the ability of an intrapreneur to both receive and provide informational, physical and emotional support in the pursuit of intrapreneurial ventures through the enablement of trust and communication within a cohesive network (DiMaggio & Garip, 2012; Liao & Welsch, 2005). Furthermore, the resources and information embedded on cohesive networks are crucial to the formulation, support and mobilisation of intrapreneurial endeavours (De Carolis & Saporito, 2006). A key benefit to cohesive networks is that individuals within the network are able to quickly acquire and share information owing to an increased level of trust between individuals as opposed to less cohesive network (Fleming et al., 2007).

With regards to the research question around the link between *social network cohesion* and intrapreneurship, utilising the same reasoning presented by literature, it was anticipated that there would be a positive and significant relationship between *social network cohesion* and intrapreneurship. Positioned in a different way, it was estimated that higher levels of *social network cohesion* and its perceived value would lead to increased intrapreneurial success.

The results from the study, for the second order construct of *social network cohesion* and its relationship with intrapreneurship were evaluated using the PLS-SEM technique and resulted in a positive, significant, high, path coefficient of 0.864 between *social network cohesion* and intrapreneurship. This number and the relation to the greater model can be found in **Figure 3**. Based on this, we can reject the H(S)₀-Null and accept H(S)-Alternate.

The percentage of variability accounted for by *social network cohesion*, the independent variable, relative to intrapreneurship, the dependant variable as a result of the coefficient of determination was 74%. This inferred that an expected 74% of variance is estimated in intrapreneurship as a result of variance of the construct of *social network cohesion*.

This relationship being positive and significant is coherent with the findings of SA Shane, (2003) who postulated that social capital, embedded in a social network can provide an intrapreneur differential access to resources and information , making this a desirable state for the acquisition of resources and knowledge when pursuing an intrapreneurial opportunity. Furthermore, social relationships which are built on a basis quality bring an intrapreneur the ability to mobilise individuals in a common direction and share knowledge and ideas with individuals within a social network, thus bolstering intrapreneurial success (Brass et al., 2004; Burt, 1997; Chadam & Pastuszak, 2005; Lesjak & Vehovar, 2005; Liao & Welsch, 2005; Tsai, 2000; Yew Wong, 2005).

In order to test for the second order construct of *social network cohesion*, three first order constructs were selected in order to unpack the concept of *social network cohesion* through the lens of social capital. For the purposes of this study, those first order constructs were relational trust, risk taking propensity and reciprocity.

Trust, for the purpose of this study, is characterised as an individual's willingness to be vulnerable and is associated with a positive sentiment towards individuals behaving and acting in a beneficial manner to each other (Rousseau et al., 1998). This relational trust often arises from individuals being embedded in a social network (Nahapiet & Ghoshal, 1998). Risk taking propensity has been defined as an individual's tendency to either avoid or take risks and frames decisions in conditions of uncertainty (Kahneman & Tversky, 2013). With the lens of intrapreneurship, risk taking propensity is framed from the perspective of the quick quest for opportunities

or resources as well as bold actions in intrapreneurial pursuit (Lumpkin & Dess, 1996). Reciprocity has been defined according to the notion of “I’ll do this for you now, but you will do something for me later.” (Adler & Kwon, 2002)

As an outcome of the rotation of the data, using the Varimax rotation method and PCA, for *social network cohesion*, it was found that, in contrast to the original three first order constructs proposed in the conceptual model, the results showed that there were in fact two first order constructs which were a combination of the original or proposed three. The first order constructs related to trust, risk propensity and reciprocity and their related questions loaded in combination between all three constructs.

As a result of this combination, a few results from reciprocity and risk propensity loaded with all of the trust results and owing to the majority of the constructs in this combination as well as the general theme of the combined results, the new construct was called Trust. The second construct was made up of a few results from both risk propensity and reciprocity and owing to most of the constructs in the combination and the general theme, this construct took on the name Reciprocity.

Based on these two, final first order constructs, the results showed that Trust had a higher path coefficient with *social network cohesion*, indicating that between trust and reciprocity, trust has a greater influence on the concept of *social network cohesion*. That said, the path coefficients of trust and reciprocity, being 0.93 and 0.87 respectively, were not vastly different in values. This means that reciprocity also has an influence on the concept of *social network cohesion*. Positive path coefficients for both constructs indicate that as trust and reciprocity activities increase, it is expected that *social network cohesion* as a concept or phenomenon will increase as well.

The percentage of variability accounted for by trust, the new construct, relative to *social network cohesion*, the second order construct, as a result of the coefficient of determination was 86%. This inferred that an expected 86% of variance is estimated in *social network cohesion* as a result of variance of the construct of network building. Furthermore, the percentage of variability accounted for by reciprocity, the new construct, relative to *social network cohesion*, the second order construct, as a result of the coefficient of determination was 76%. This inferred that an expected 76% of variance is estimated in *social network cohesion* as a result of variance of the construct of reciprocity.

These findings were in line with the work of researchers who put forward that trust has the ability to product joint efforts in the direction of a goal and to formulate support more often than when trust does not exist in a relationship(Tsai, 2000; Tsai & Ghoshal, 1998). Additional studies went further to suggest that strong relational ties and *social network cohesion* associated with trust facilitate the flow of resources within a network (Gulati, 1998; Rowley et al., 2000). In addition to this, trust promotes the development and longevity of relationships with minimal maintenance requirements (Stone, 2001; Tymon & Stumpf, 2003).

Studies by (Burt, 1997; Granovetter, 1985) suggested that stronger social ties provide increased motivation for individuals to be of assistance to each other and promote social considerations such as the desire to reciprocate or maintain balanced relationships using reciprocity. Group norms and *social network cohesion* , according to the work by (Reagans & McEvily, 2003; Uzzi, 1996), increase the willingness of individuals to share valuable and rare resources owing to a sense of confidence that this will be reciprocated. This sentiment is echoed by (Burt, 1997; Levin & Cross, 2004; Nancy Lin et al., 2019; Putnam, 2000).

6.6 Discussion of Research Question 3 – R(H)

The third research question, R(H), sought to corroborate the theorised relationship between *network homophily*, an independent variable, through its formative constructs of network formation, network expansion and network influence with intrapreneurship, the dependent variable. As a result, the research question and hypotheses were proposed as:

R (H): Is there a negative relationship between Network Homophily and Intrapreneurship?

H(H)₀ - Null: There is no significant negative relationship between network homophily and intrapreneurship

H(H) - Alternate: There is a significant negative relationship between network homophily and intrapreneurship

Network homophily is defined as the principle that contact between similar individuals occurs at a higher rather than with dissimilar individuals through the notion that similarity breeds connection (De Carolis et al., 2009; Fischer, 1982; McPherson et al., 2001)

The activities associated with *network homophily* have been linked to both increased and decreased levels of social capital within an intrapreneurial network as a result of the actions taking by intrapreneurs in forming, expanding and influencing their networks (Ciriello et al., 2013; McPherson et al., 2001; Reagans & McEvily, 2003). This variation is as a result of the availability, variety and diversity of resources an intrapreneur has access to as a function of the makeup of their network (Ciriello et al., 2013; McPherson et al., 2001).

With regards to the research question around the link between *network homophily* and intrapreneurship, utilising the same reasoning presented by literature, it was anticipated that there would be a negative and significant relationship between *social network cohesion* and intrapreneurship. Positioned in a different way, it was estimated that higher levels of homophily in a network and its perceived value would lead to decreased intrapreneurial success.

The results from the study, for the second order construct of *network homophily* and its relationship with intrapreneurship, were evaluated using the PLS-SEM technique and resulted in a negative, significant medium path coefficient of -0.42 between *network homophily* and intrapreneurship. This number and the relation to the greater model can be found in **Figure 3**. Based on this, we can reject the $H(H)_0$ -Null and accept $H(H)$ -Alternate.

The percentage of variability accounted for by *network homophily*, the independent variable, relative to intrapreneurship, the dependant variable as a result of the coefficient of determination was 17%. This inferred that an expected 17% of variance is estimated in intrapreneurship as a result of variance of the construct of *network homophily*.

This relationship being negative and significant is coherent with the findings of (McPherson et al., 2001) who put forward that homophily in a network can influence and limit the diversity and flow of resources and information within a network as well as the attitudes and interactions of individuals in the network. Networks are integral to connect intrapreneurs with various opportunities and facilitate organisational growth through the nurturing of innovation, the spreading of risks and the access to resources (De Carolis et al., 2009). Building on that thinking as a basis, individuals connected to diverse and rich networks are more likely than not exposed to a plethora of world views and are able to synthesise and evaluate challenges from multiple

perspectives (Reagans & McEvily, 2003). Furthermore, intrapreneurs in diverse networks are more likely to identify a need for discussion and collaboration than those who are in similar or homogenous networks (Reagans & McEvily, 2003). The stance that innovator and thus intrapreneurial networks should disclose lower levels of homophily in order to promote collaboration between complementary individuals as opposed to substituting individuals was also put forward by (Ciriello et al., 2013)

In order to test for the second order construct of *network homophily*, three first order formative constructs were selected in order to unpack the concept of *network homophily* through the lens of social capital. For the purposes of this study, those first order constructs were network formation, network expansion and network influence.

As highlighted in previous chapters, in this study, network formation was identified as the extent to which networks and connections span across existing boundaries to obtain benefits and resources obtained in network connections (Forret & Dougherty, 2001; Reagans & McEvily, 2003). Network expansion was defined as the networking behaviours or building activities of intrapreneurs to initiate and maintain relationships within their networks (Forret & Dougherty, 2001). Network influence, for the purposes of this study was defined as the notion of appealing to an individual within a network to gain commitment for a request in an attempt to influence the attitudes and behaviours of another (S. Lee et al., 2017).

As an outcome of the rotation of the data for *network homophily*, using the Varimax rotation method and PCA, it was found that, in contrast to the original three first order constructs proposed in the conceptual model, the results showed that there were in fact two first order constructs which were a combination of the original or proposed three. The first order constructs related to network formation, network expansion and network influence along with their related questions loaded in combination between all three constructs.

As a result of this combination, a few results from network formation loaded with all of the network influence results and owing to the majority of the constructs in this combination as well as the general theme of the combined results, the new construct was called Network Influence. The second construct was made up of a few results from both network formation and network expansions and owing to most of the

constructs in the combination and the general theme, this construct took on the name Network Building.

Based on these two final first order constructs, the results showed that Network Building had a higher path coefficient with *network homophily*, indicating that between network building and network influence, network building has a greater influence on the concept or phenomenon of *network homophily*. That said, the path coefficients of network building and network influence, being 0.97 and 0.95 respectively, were not vastly different in values. This means that network influence also has an impact on the concept of *network homophily*. Negative path coefficients for both constructs indicate that as network building and network influence activities increase, it is expected that the extent to which a network is homophilic in nature will decrease.

The percentage of variability accounted for by network building, the new construct, relative to *network homophily*, the second order construct, as a result of the coefficient of determination was 93%. This inferred that an expected 93% of variance is estimated in *network homophily* as a result of variance of the construct of network building. Furthermore, the percentage of variability accounted for by network influence, the new construct, relative to *network homophily*, the second order construct, as a result of the coefficient of determination was 90%. This inferred that an expected 90% of variance is estimated in *network homophily* as a result of variance of the construct of network influence.

The concept of network building, or the creation of both internal and external networks, has been found to be quintessential to the mobilisation of resources and intrapreneurial activities (Baker & Nelson, 2005; Halme et al., 2012). The nature of a network as well as how it is built or created, in the form of its extent of homophily, has the ability to facilitate the concept of bricolage in how scarce resources are attained and stakeholders are mobilised within a network (Di Domenico et al., 2010; Halme et al., 2012). Bricolage as a result of a diverse network, and the expansion thereof, is able to seek out scarce resources as well as facilitate and unblock intrapreneurial endeavours (Halme et al., 2012).

When utilising the concept of bricolage, intrapreneurs often seek to obtain resources in their current and expanded networks utilising novel means, resulting in a requirement for persuasion and influence tactics to be deployed (Antoncic & Hisrich,

2001; Di Domenico et al., 2010; Halme et al., 2012; Hoang & Antoncic, 2003). This is supported by studies which state that the pursuit of intrapreneurial activities often requires an intrapreneur to go outside of conventional and traditional limitations in order to unlock value, resulting in a need for enhance persuasion and influence tactics with key stakeholders (Moriano et al., 2014).

6.7 Conclusion

The main objective of this research was to study the relationship of social capital with intrapreneurship by researching the perceptions of middle managers on aspects of social capital through the lenses of *network brokerage*, *social network cohesion* and *network homophily*. It was expected that the primary outcome of this research would be the proposal of a refined theoretical model highlighting the relationships between social capital and intrapreneurial networks.

The results presented in Chapter 5 along with the discussion of the results in this chapter sought to validate, verify and discuss the outcomes of the initial conceptual model that was proposed. The research questions and hypotheses were statistically tested using PLS-SEM and it was found that all three hypotheses were statistically significant.

The outcome of the research has put forward a refined model which reflects the relationship between social capital and intrapreneurial networks through the lenses of *network brokerage*, *social network cohesion* and *network homophily*. The proposed refined model is both statistically relevant and significant.

As a result of the new, proposed theoretical and refined model, the implications and findings applicable for both academia and business will be discussed in the proceeding chapter.

7 Conclusion

7.1 Introduction

This research sought to provide insight and deepen the level of understanding on individual level intrapreneurship and intrapreneurial networks through the lens of social capital. The primary objective of this research was to propose a theoretical model of the relationship of intrapreneurship and intrapreneurial networks with social capital in the form of *network brokerage*, *social network cohesion* and *network homophily*. The hypothesised and conceptual model was developed in line with existing literature of the social constructs as well as their relationship with intrapreneurship and tested from an individual level by middle managers and their perception of intrapreneurship as illustrated in **Figure 1**.

To date, the majority of research conducted within the field of intrapreneurship has not focussed on intrapreneurship at the individual level, focussing instead on the organisational level (Blanka, 2018). Monnavarian & Ashena, (2009) also highlighted that limited empirical studies have been undertaken which recognises the impact of social capital and associated competencies for intrapreneurs. From an organisational perspective, the effects of intrapreneurship, such as new venture creation and strategic renewal, have been identified as quintessential for success (Belousova & Gailly, 2013; Ireland et al., 2009). However, the current literature on intrapreneurship from an individual level has been identified as being fragmented, leading to a limitation on the theoretical advancement of the field of employee or individual intrapreneurship (Blanka, 2018; Gawke et al., 2019). As such, this study aimed to contribute to the body of knowledge by assessing this gap between intrapreneurship and social capital.

This chapter aims to summarise the principle findings and outcome of the research in the form of the new and refined model as reported in Chapter 5 and discussed in Chapter 6. In addition, this chapter will highlight the anticipated impact that this research will have on business and management practices by way of contribution to the theoretical body of knowledge. Lastly, this chapter will present recommendations for future research as well as highlight the limitations of this study.

7.2 Principle Findings

The research contributed to the field of individual level intrapreneurship, through the lens of social capital and intrapreneurial networks by proposing, testing and amending a formulated theoretical model. This model was developed based on relationships within literature, which were used to formulate measured variables to test the relationships. The research aimed to test the nature of the relationships between constructs as well as the relevance and applicability of the overall model from the perspective of middle managers in particular. As a result, this research highlighted that the existence of social capital in an intrapreneurs network the form of *network brokerage* and *social network cohesion* facilitates intrapreneurship, whilst the existence of *network homophily* can have a detrimental impact on intrapreneurial endeavours.

7.2.1 Research Questions

For the second order constructs, three research questions were proposed and hypothesised, mainly testing for significant relationships between the second order constructs and intrapreneurship. From these second order constructs, both *network brokerage* and *social network cohesion*, which were modelled as reflective constructs, exhibited a significant, positive relationship with intrapreneurship thus rejecting their associated null hypotheses, $H(B)_0$ and $H(S)_0$. This meant that higher levels of *network brokerage* and *social network cohesion* within an intrapreneurs network leads to increased intrapreneurial activity. Network homophily, the only second order construct modelled as formative, exhibited a significant, negative relationship with intrapreneurship, thus rejecting the associated null hypothesis, $H(H)_0$. This meant that higher levels of *network homophily* within an intrapreneurs network leads to decreased intrapreneurial activity.

7.2.2 Refined Model

The conceptual model was amended through a construct validity process which identified six key first order constructs as opposed to initially proposed nine first order constructs. In the refined model, the first order constructs were named according to their key themes and measured variable allocations as per **Figure 4** and **Table 8** as bridging, linking, trust, reciprocity, network building and network influence. These new first order constructs and groupings were supported by

literature as highlighted and discussed in Chapter 6 as they exhibited similar characteristics, both in the way that the measured variables were defined and the underlying concepts between the original conceptualised constructs.

For the second order construct of *network brokerage*, it was found that the first order construct of bridging had a higher path coefficient with *network brokerage*, indicating that between bridging and stakeholder linking, bridging has a greater influence on the concept of Network Brokerage. This was echoed in the coefficients of determination which highlighted that bridging would have greater variability with *network brokerage* than linking. For the second order construct of *social network cohesion*, it was found that the first order construct of trust had a higher path coefficient with *social network cohesion*, indicating that between reciprocity and trust, trust has a greater influence on the concept of *social network cohesion*. The same was found for the coefficients of determination for both constructs, with trust exhibiting a higher percentage of variability with *social network cohesion* than reciprocity. For the second order construct of *network homophily*, it was found that the first order construct of network building had a higher path coefficient with *network homophily*, indicating that between network influence and network building, network building activities had a stronger influence on *network homophily*. Network building also exhibited a higher percentage of variability with *network homophily* than network influence.

In terms of path coefficients, and the influence as a result, *social network cohesion* exhibited the highest amount of influence on intrapreneurship, followed closely by *network brokerage* and trailed by *network homophily*. Assessing the refined model from the standpoint of variability between the second order constructs and intrapreneurship, *social network cohesion* had the highest coefficient of determination, followed by *network brokerage* and *network homophily* respectively. This inferred that *social network cohesion* and intrapreneurship were closely linked and as a result, a high or low amount of *social network cohesion* in a network has the ability to significantly impact intrapreneurial success.

Assessing the refined model in its entirety, it was found that the first order constructs all demonstrated a large predictive relevance whilst the second order constructs of *social network cohesion* and *network brokerage* reported medium predictive relevancy. Intrapreneurship demonstrated a poor, but relevant predictive accuracy

value. Based on this assessment, the refined model was classified as significant and relevant based on the findings of both Chin (2010) and Hair et al., (2017).

These findings provide support for previous studies, as highlighted in Chapter 2 and discussed in Chapter 6.

7.3 Management Implications

According to previous researchers, studies have proven that the intrapreneurial roles and actions of managers are quintessential to unlock new venture creation and strategic renewal within an organisation (Belousova & Gailly, 2013; Blanka, 2018; Floyd & Lane, 2000). Middle managers, in particular, are able to do this by refining, championing and facilitating the communication of ideas to senior level managers as well as endorsing new ideas for more junior employees and the implementers or executioners of ideas (Belousova & Gailly, 2013). Blanka (2018) and Kuratko et al., (2005) build on this notion by postulating that middle-level managers are crucial for intrapreneurship owing to their ability to motivate employees, acquire and disseminate resources as well as selling ideas to senior management. As a result of these activities, it has been proposed that middle managers are, by default, intrapreneurs (Blanka, 2018; Kuratko et al., 2005). The encouragement and evaluation of intrapreneurial behavior has been proven to impact an individual's perceptions of intrapreneurship and lead to increased engagement intrapreneurial activities in the future (Blanka, 2018).

As a result of this, this study aimed to unpack the relationship of middle managers and intrapreneurship through the lens of social capital. Middle managers were targeted specifically owing to their unique positioning within the organisation as well as the integrative role they are able to play in mobilising resources and ideas (Kuratko et al., 2005). This ability to mobilise resources is mainly due to their ability to leverage their networks, utilise *network brokerage*, build on social cohesion, influence intrapreneurial behavior and act as change agents across the organisation (Kuratko et al., 2005; Morikuni et al., 2019).

This study makes a contribution to the fields of intrapreneurship, social capital and intrapreneurial networks with the proposed refined model highlighting the impact of social capital on intrapreneurship and , by default, intrapreneurial networks. The ability to identify the social capital skills and competencies required for middle managers to be able to unlock intrapreneurship through the enhancement and

development of social capital skills is imperative for organisations to consider when hiring and developing their talent pools (Blanka, 2018; Floyd & Lane, 2000; Kuratko et al., 2005) This research tested three key levers required for the development of social capital and associated competencies required to positively and negatively impact intrapreneurial endeavours within an organisation and should be looked to as a guide when assessing which skills to develop and unlock from employees.

7.4 Business Implications

Intrapreneurship has been proven to positively influence organisational growth and profits as well as increase overall organisational effectiveness and value creation (Bierwerth et al., 2015; Kearney & Meynhardt, 2016). Multiple researchers have put forward that intrapreneurship is crucial for an organisation to cultivate if they are inclined to thrive, survive or even just maintain their competitive advantages (Ireland et al., 2003; Morris et al., 2011). Intrapreneurship has also been associated with increased instances of strategic renewal and new venture creation within organisations (Belousova & Gailly, 2013; Ireland et al., 2009).

Within an organisation, intrapreneurs build the foundational basis for innovation as well as the creation of a competitive advantage as a result of intrapreneurial activities (Guerrero & Peña-Legazkue, 2013). This is bolstered by the ability of an intrapreneur to mobilise existing resources and operate in line with current policies (Baruah & Ward, 2015). As such, to unlock the value of intrapreneurship, it is imperative that organisations identify employees with the tendency to pursue intrapreneurial activities as well as unpack how they do so (Akhtar & Kang, 2016; Auer Antoncic & Antoncic, 2011; Rule & Irwin, 1988).

This research unpacked the social capital competencies required for an intrapreneur and their associated networks within an organisation as social capital has been proven to provide advantages to individuals in the form of increased cooperation, knowledge and resource exchange as well as competitive advantages (Arena & Uhl-Bien, 2016; Chisholm & Nielsen, 2009). Individuals with rich social capital have also been found to be more competent at creating value, breaking traditional silos and thus creating value and favourable results for an organisation (Arena & Uhl-Bien, 2016; Bourakova-Lorgnier, M. Bouzdine, 2004).

This research has put forward a refined model of social capital and its associated competencies that can mobilise organisations towards driving more social capital

building initiatives and to utilise the social capital of certain individuals and teams to unlock the benefits of intrapreneurship and as a result, strategic renewal, value creation and a sustainable competitive advantage. This research has also highlighted the importance of breaking down organisational silos to limit *network homophily* and allow intrapreneurs to access and mobilise resources using their networks to leverage trust, foster reciprocity, influence their networks and create relationships between disparate individuals or teams using *network brokerage*.

7.5 Recommendations for Management and Business

As a result of this research, management and business should take note of the important bridging roles middle managers have to facilitate, develop, ideate and unblock intrapreneurial activities as well as create an intrapreneurial culture for an organisation. Organisations looking to hire middle managers and foster an intrapreneurial culture should look to employ individuals who are capable of building social capital and enabling those around them to be intrapreneurial. Furthermore, should these competencies not be present in the existing stable of middle managers, these individuals should be trained in order to exploit the potential of these individuals to cultivate intrapreneurial culture and activities for the organisation.

Additionally, middle managers geared towards intrapreneurship have the ability to build self-efficacy within employees through the provision of support, guidance and feedback in their intrapreneurial endeavours. This has been proven in the work of Blanka (2018). Middle managers who are intrapreneurial will also allow employees to have a “safe place” to try new ideas and experiment without fear of the consequences of potential failure as highlighted by Arena et al. (2016) with a term called “adaptive space”. This speaks to culture and change management within an organisation, another competency that should be built if it doesn’t exist in the current stable of middle managers.

7.6 Limitations of the Research

Limitations of the PLS-SEM method used are related to the blindfolding and bootstrapping techniques employed to assess the significance of a model’s predictability using SRMR (Hair et al., 2017). This limitation was mitigated through the usage of the Stone-Geisser method to assess predictive accuracy based on the recommendations of prior researchers, some of which applied specifically to the social sciences (Hair et al., 2011, 2017; Pallant, 2005; Sarstedt et al., 2014).

Additional limitations around the statistical method utilised as well the limitations around not using an existing scale are unpacked extensively in Chapter 4.

Further to the above, the constructs identified for use in the conceptual model were not exhaustive and thus do not represent all the variables that could impact intrapreneurial success from a social capital or intrapreneurial network. An exhaustive list would provide a more wholistic model for businesses and management to use as a framework for encouraging and supporting intrapreneurship.

7.7 Future Research Recommendations

The proposed future research recommendations for this study include expanding the research effort beyond the network focus on social capital that was utilised in this study and will cater to some of the limitations of this study being mitigated in order to move the research agenda forward and refine the current model further.

1. The conceptualised second order constructs used for this research were not exhaustive, along with their associated first order constructs and measured variables. For researchers looking to enhance the model through predictive accuracy or fit, it is recommended that additional constructs be introduced and tested. Future enhancements could include aspects of communication, technology and resource exchange in relation to social capital as primary second order constructs, some of which have been proposed by (Monnavarian & Ashena, 2009).
2. Furthermore, whilst this research adopted a quantitative approach, the findings of this research and subsequent refined model should be tested for applicability through a qualitative research effort focusing on known and established intrapreneurs to either validate, bolster or disprove the refined model.
3. To unlock the value of intrapreneurship at an individual level, it is also important to assess the personality traits, characteristics and competencies required for intrapreneurs to be successful outside of just their social capital and social embeddedness. This will unpack the skills and competencies required to identify and mobilise resources, implement change and

transformational approaches as well as build momentum around ideas. This was put forward by both Blanka (2018) and Gawke et al., (2019) who identified that this is required to be understood in order to promote the development and support of intrapreneurs.

4. To build on this research further, the impact of social capital on intrapreneurship and intrapreneurial networks should be investigated through the lens of entrepreneurship, knowledge management, based on the work by Nonaka et. al. (1995) and associated absorptive capacity of intrapreneurs. Further to this, the impact of social capital on intrapreneurs and their self-efficacy can also be undertaken to enhance the current model and study.

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Appendices

Appendix A

Research Questionnaire

Positioning Statement

“Hi all,

I am conducting research that aims to understand the influence of networks and social capital on intrapreneurship, defined for the purposes of this study as “entrepreneurial behaviour within an organisation that often relates to innovation”

In order to conduct this research, I would sincerely appreciate your insights as well as approximately 10 minutes of your time by completing this short survey.

Your participation is voluntary, your responses will be kept confidential and anonymous and you can choose to withdraw from the survey at any point in time.

By completing this survey anonymously, you indicate that you have voluntarily opted in to be a part of this process.

If you have any questions or concerns, please feel free to reach out to myself or my supervisor as per the contact details below:

Kelisha Panday - 18361570@mygibs.co.za (Researcher)

Dr Jeff Y-J Chen, PhD - chenj@gibs.co.za (Supervisor)

Best regards,

Kelisha “

Questionnaire

Contextual Questions

1. What is your age?
2. What is your gender?
3. What is the primary industry that you work in?
4. What is your current role title?
5. Which country do you work in?

Construct Questions

When pursuing intrapreneurial endeavours, I believe that successful intrapreneurs ...

Please score the following questions accordingly:

1 = Strongly agree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly agree

#	QUESTION	OPTION
1	... build strong relationships within their network	1 to 5
2	... facilitate collaboration within their network	1 to 5
3	... introduce diverse individuals to each other within their network	1 to 5
4	... acquire resources for their network	1 to 5
5	... facilitate the exchange of resources within their network	1 to 5
6	... identify resource gaps within their networks	1 to 5
7	... connect their network to junior stakeholders in an organisation	1 to 5
8	... connect their network to senior stakeholders in an organisation	1 to 5
9	... connect their network to stakeholders in different business units	1 to 5
10	... engage in activities to attract individuals with a similar social background to their network	1 to 5
11	... engage in activities to attract individuals with similar expertise to their network	1 to 5
12	... engage in activities to attract like-minded individuals to their network	1 to 5
13	... establish networks by connecting with individuals with similar expertise	1 to 5
14	... establish networks by connecting with individuals with similar social backgrounds	1 to 5
15	... establish networks by connecting with like-minded individuals	1 to 5
16	... gain cooperation from individuals with similar expertise within their network	1 to 5

17	... gain cooperation from individuals with similar social backgrounds within their network	1 to 5
18	... gain cooperation from like-minded individuals in their network	1 to 5
19	... engage in the reciprocal exchange of resources with their network	1 to 5
20	... exchange favours "in kind" with their network	1 to 5
21	... willingly assist others within their network	1 to 5
22	... draw knowledge from their network to increase their risk-taking propensity	1 to 5
23	... leverage their network expertise to reduce risks in intrapreneurial ventures	1 to 5
24	... seek advice from their network to reduce risks in intrapreneurial ventures	1 to 5
25	... build trust within their network to allow for the sharing of resources	1 to 5
26	... ensure that they are dependable to individuals within their network	1 to 5
27	... maintain trust with individuals within their network	1 to 5

Appendix B

Variable Code Book

Variable code	Second order construct	First order construct	Question
NB_BONDING1	Network Brokerage	Bonding	... build strong relationships within their network
NB_BONDING2	Network Brokerage	Bonding	... facilitate collaboration within their network
NB_BONDING3	Network Brokerage	Bonding	... introduce diverse individuals to each other within their network
NB_BRIDGING1	Network Brokerage	Bridging	... acquire resources for their network
NB_BRIDGING2	Network Brokerage	Bridging	... facilitate the exchange of resources within their network
NB_BRIDGING3	Network Brokerage	Bridging	... identify resource gaps within their networks
NB_LINKING1	Network Brokerage	Linking	... connect their network to junior stakeholders in an organisation
NB_LINKING2	Network Brokerage	Linking	... connect their network to senior stakeholders in an organisation
NB_LINKING3	Network Brokerage	Linking	... connect their network to stakeholders in different business units
NH_NETEXP1	Network Homophily	Network Expansion	... engage in activities to attract individuals with a similar social background to their network
NH_NETEXP2	Network Homophily	Network Expansion	... engage in activities to attract individuals with similar expertise to their network
NH_NETEXP3	Network Homophily	Network Expansion	... engage in activities to attract like-minded individuals to their network

NH_FORMATION 1	Network Homophily	Network Formation	... establish networks by connecting with individuals with similar expertise
NH_FORMATION 2	Network Homophily	Network Formation	... establish networks by connecting with individuals with similar social backgrounds
NH_FORMATION 3	Network Homophily	Network Formation	... establish networks by connecting with like-minded individuals
NH_NETINF1	Network Homophily	Network Influence	... gain cooperation from individuals with similar expertise within their network
NH_NETINF2	Network Homophily	Network Influence	... gain cooperation from individuals with similar social backgrounds within their network
NH_NETINF3	Network Homophily	Network Influence	... gain cooperation from like-minded individuals in their network
SC_RECIP1	Social cohesion	Reciprocity	... engage in the reciprocal exchange of resources with their network
SC_RECIP2	Social cohesion	Reciprocity	... exchange favours "in kind" with their network
SC_RECIP3	Social cohesion	Reciprocity	... willingly assist others within their network
SC_RIPROP1	Social cohesion	Risk Propensity	... draw knowledge from their network to increase their risk-taking propensity
SC_RIPROP2	Social cohesion	Risk Propensity	... leverage their network expertise to reduce risks in intrapreneurial ventures
SC_RIPROP3	Social cohesion	Risk Propensity	... seek advice from their network to reduce risks in intrapreneurial ventures
SC_TRUST1	Social cohesion	Trust	... build trust within their network to allow for the sharing of resources
SC_TRUST2	Social cohesion	Trust	... ensure that they are dependable to individuals within their network
SC_TRUST3	Social cohesion	Trust	... maintain trust with individuals within their network