Gordon Institute of Business Science
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Individual ambidexterity: A managerial perspective in relation to the dimensions of absorptive capacity

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Abstract

In today's world, in order to maintain and sustain a competitive advantage requires the organisations and managers to align their current goals with that of the changing environment. This is understood to be the concept of ambidexterity. There is a substantial amount of research that has largely focused on understanding ambidexterity at the organisational level and business unit level, but perhaps organisational success may be reliant on both exploration and exploitation activities of managers, individual ambidexterity. This paper provides an analysis of the influential factors of individual absorptive capacity regarding manager exploration and exploitation activities. Hypotheses are developed to test the dimensions of individual-level absorptive capacity and its associations with managers exploration and exploitation activities. Using quantitative data from 108 questionnaires, a bivariate correlation and simple-linear regression analysis was used to examine the relationship. The empirical findings indicate that managers efforts to identify, assimilate and utilise knowledge from external sources are most likely to engage in explorative activities–and are not likely to influence their exploitation activities. Understanding these factors may enable managers to be more balanced in their exploration and exploitation activities which could contribute to the competitive advantage of organisations.

Key Words:
Absorptive Capacity
Ambidexterity
Individual Ambidexterity
External Knowledge
Open Innovation

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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1. Chapter 1: Introduction to Research Problem

1.1 Introduction

In an incessantly challenging and competitive business environment, managers are faced with increasing demand to reconsider their traditional approach to business, continually seeking ways to renew; redefine or reinvent themselves in order to remain relevant in dynamic environments. The aim is achieving a sustainable competitive advantage (Vrontis, Thrassou, Santoro, & Papa, 2017). There is much literature on the need for organisations to explore and exploit opportunities so that the demands of an increasingly dynamic environment are met. Literature in organisational theory uses the term ambidexterity, which is the ability of individuals who can use both hands with equal skill, to describe organisations (Lubatkin, Simsek, Ling, & Veiga, 2006). In this regard, Mom, Fourne, and Jansen (2015) conclude that it is imperative for firms to act ambidextrously, that is, firms must be aligned and efficient in managing their current demands, while simultaneously adapting to the environmental changes of the market or industry. Exploitation is things captured in terms such as efficiency, refinement, choice, selection, implementation, and execution (March, 1991). The author also captures exploration in terms of alternatives, experimentation, innovation, and risk taking. By being actively engaged in exploration at the expense of exploitation, firms will find that they suffer the costs of producing many undeveloped ideas without actually gaining any benefit.

Conversely, focusing on exploitation at the expense of exploration, firms will find themselves in a competency trap. Therefore, maintaining an appropriate balance of dexterity between exploration and exploitation is critical for sustainability. However, the emergence of this concept has been found to create internal tensions. One instance is that firms are required to host different rationale associated with the opposing activities, exploration, and exploitation (March, 1991; Mom et al., 2015).

Academics reiterate that organisation's which are ambidextrous are efficient in their current markets (exploitation) and flexible enough to adapt to changes in the market (exploitation) (Gibson & Birkinshaw, 2004). Strategic objectives of the firm need to give attention to their current success, while also take into consideration long-term sustainability. Junni, Sarala, Vas, and Tarba (2013) go onto explain firms should strive to achieve and sustain a balance between exploration and exploitation activities, addressing short-term objectives while pursuing long-term goals simultaneously. The

main argument is firms that are involved in both exploration and exploitation perform better and sustain their competitive advantage versus a firm that only emphasizes one dimension (Junni et al., 2013). Theory on the topic has continued to increase, proposing different solutions the organisation can pursue: structural, sequential and contextual ambidexterity (Bonesso, Gerli, & Scapolan, 2014; Gibson & Birkinshaw, 2004; Tushman & O'Reilly, 1996). In order to cultivate both competencies, there is an increasing argument to suggest that ambidexterity may also stem from the ambidextrous behaviour of managers (O'Reilly & Tushman, 2013). Extant research posit ambidexterity is not only a construct about the organisational level, but should also be investigated at the team and individual levels (Rosing & Zacher, 2017). For example, a manager may be required to engage in paradoxical thinking, possess a repertoire of diverse activities and role, or pursue different kinds of learning (Mom et al., 2015). However, there are fewer studies which conceptually and empirically validate ambidexterity at the individual level. The research will aim to close the gap, by investigating the association the dimensions of absorptive capacity and managers exploration and exploitation activities. Extending literature is important because gaining insight to which factors influence ambidexterity at the individual level could provide managers of the organisation with a new outlook on ways to potentially build ambidexterity into their organisations. Thus, organisations can adapt to environmental and technological changes, establishing a sustainable competitive advantage that will be more successful in the short and long-term (Junni et al., 2013; Mom, Van Den Bosch, & Volberda, 2007).

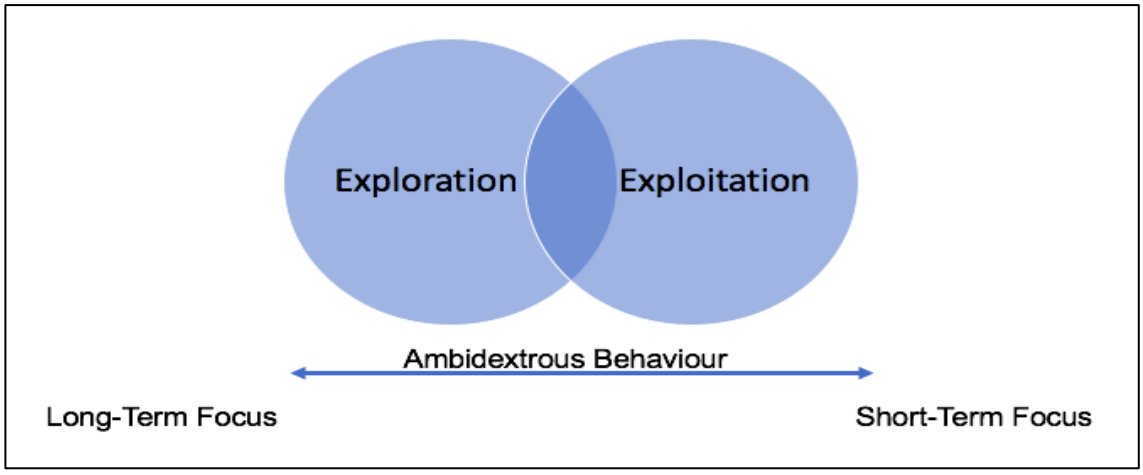

Figure 1: Ambidexterity Continuum

Exploration and exploitation activities should be viewed as a continuum, where managers can flexibly interchange between each mode, rather than making discrete choices between options. The study seeks to understand the impact of absorptive capacity on mangers ambidexterity, specifically how the dimensions (identification,

assimilation, and utilisation) contribute to the individual side of managers exploration and exploitative activities enable managers to find the optimal balance.

Empirical research has discussed the possible antecedents which influence the different ways ambidexterity is achievable. Although these views have been the building blocks into the phenomena of ambidexterity, we still need to develop our understanding as to what are the drivers of ambidexterity in a complex and dynamic environment. With a higher degree of focus, researchers are beginning to recognise the essential role managers play in developing conditions which will foster organisational ambidexterity (Carmeli & Halevi, 2009). The ability of the firm to do so is strongly reliant on the ability of the manager to search, discover, create and experiment with new opportunities as well as and select, implement, improve and refine existing capabilities.

In strategic management, ambidexterity is driven by the way managers handle large amounts of information, make trade-off decisions and deal with conflict and ambiguity (Lubatkin et al., 2006). Although there are only a few studies, individuals are an essential source for the organisation to be ambidextrous (Good & Michel, 2013; Lubatkin et al., 2006; Mom et al., 2007). These authors look into the way managers explore new information and also exploit their existing knowledge base. Based on this literature, managers ambidexterity defined as "a manager's behavioural orientation toward balancing exploration and exploitation related activities within a certain period of time" (Mom, van den Bosch, & Volberda, 2009, p.812). The manager's exploration behaviour includes activities such as approaching opportunities from a different perspective, looking out of the organisation for ideas, while exploitation behaviour is understood to be selecting improving and refine existing certainties (Rosing & Zacher, 2017).

1.2 Problem Statement

What makes organisations ambidextrous? Research has looked at how the individual's actions shape connections towards knowledge with that of the organisation's strategy, whether this be an explorative strategy or an exploitive strategy (Enkel, Heil, Hengstler, & Wirth, 2017). However, if managers are responsible for effectively contributing to exploratory and exploitative innovations of the firm, it would be worthwhile in determining how the successful absorption of external knowledge shapes the explorative and exploitative behaviour of managers too. Given the theoretical gap between the linkages of absorptive capacity and manager ambidexterity (Rosing & Zacher, 2017; Volberda, Foss, & Lyles, 2010), the aim of the research is to address the gap by investigating

whether there is a relationship between the dimensions of absorptive capacity (identification, assimilation and utilisation of knowledge from external sources) and managers ambidexterity (exploration and exploitation activities).

Literature in this field has continued to grow over the years, examining different ways which organisations can achieve ambidexterity namely, sequential and structural ambidexterity (Tushman & O'Reilly, 1996), as well as contextual ambidexterity (Gibson & Birkinshaw, 2004). Similarly, in the last three decades, it is almost unquestionable that knowledge is the core to creating and maintaining a competitive advantage (Grant, 1996; McEvily & Chakravarthy, 2002; Volberda et al., 2010). Cohen and Levinthal (1990) were one of the first authors to discuss absorptive capacity. In line with the original definition of absorptive capacity, Cohen and Levinthal (1990) define absorptive capacity as "the firm's ability to recognise, assimilate and apply knowledge" (p.128). These authors further explained individual absorptive capacity as those possessing the ability to acknowledge value from new information, understand the information and apply this for commercial purposes. Managers are seen as the frontline staff which allows the organisation to learn from external knowledge sources. The absorptive capacity of the firm depends on the ability of their individual members to recognise opportunity from valuable external sources in the environment, align this to the existing capabilities of the organisation and encourage utilisation within their organisation (Cohen & Levinthal, 1990; Ter Wal, Criscuolo, & Salter, 2011). Absorptive capacity has strongly been linked to things like organisational learning, innovation and firm performance (Volberda et al., 2010). Furthermore, firms who are innovative demonstrate greater success across multiple metrics, and absorptive capacity supports this innovation process (Volberda et al., 2010). The commercial application of acquired knowledge is discussed in the form of product innovation which differentiates the firms offering in the market (Todorova & Durisin, 2016). Also, process innovation can enhance the organisation's efficiency in business processes. Thus, the capacity to absorb knowledge from external sources has become crucial for many firms that seek out to develop a sustainable competitive advantage.

There is empirical evidence to suggest; people will absorb knowledge with greater ease when they are already familiar with this knowledge regarding expertise, training or background characteristics (McEvily & Chakravarthy, 2002). However, research has overlooked the role individuals play, not only their ability to absorb knowledge but how this knowledge can influence their ambidextrous behaviour. Instead, literature has mainly focused on how external knowledge sources contributes to organisational ambidexterity

(Benner, 2003; Gupta, Smith, & Shalley, 2006; Junni et al., 2013; Markides, 2013). More specifically, the role of external knowledge sources has been highlighted as the recognition of opportunity but discussed less with regards to how these sources can assist in exploiting or realising the identified opportunities. Firms run the risk of obsolescence when they source all their knowledge from internal sources. Thus, realising opportunities requires interactions with external sources which is left up to managers to pursue (Nicolai, Lyngsie, & Zahra, 2013).

Mom and colleagues state ambidextrous managers must be able to take on multiple roles, engage in activities which vary in complexity and utilise their paradoxical cognition (Mom et al., 2009). Exploration and exploitation pursue different objectives, each with their demands. Therefore, to pursue both activities with equal dexterity, managers need to engage in paradoxical thinking so tensions can be managed (Rosing & Zacher, 2017). Although prior studies emphasise individuals are essential sources to organisational ambidexterity (Mom et al., 2007), individual's must also have the ability to explore and exploit (Enkel et al., 2017), which is dependent on how knowledge is acquired, absorbed and integrated so that its full potential is realised (Raisch, Birkinshaw, Probst, & Tushman, 2009). These managers, the so-called gatekeepers act as carriers of information from external sources to internal sources. They also play a crucial role in coordinating the organisation's efforts, seeing as organisations operate in complex environments. Due to increasing competition and rapid development of customer and technological progress in different industries, organisation's must possess the ability to develop new products quicker than the competition and more effectively (Santoro, Ferraris, Giacosa, & Giovando, 2018). Therefore, managers should not only be gatekeepers but act as messengers of external ideas within and across their firm. Interestingly, there is also a lack in understanding the process of assimilation and utilisation of external knowledge (Tortoriello, 2015).

Primarily, both ambidexterity and absorptive capacity aim to improve the organisation's strategic intentions of serving its current and future contexts, pursuing both short and long-term successes which are orchestrated by managers. Although ambidexterity literature acknowledges that ambidextrous managers have to pursue activities of an incompatible nature and manage tensions (Bonesso et al., 2014), what makes managers correctly pursue the ambidextrous role remains unclear. Accordingly, how the individual characteristics of absorptive capacity contribute to the mangers ambidexterity could highlight critical factors essential to ensuring the organisation becomes ambidextrous themselves. Therefore, it remains crucial to organisations and the respective managers

to develop a deeper understanding of the relationship between the dimensions of absorptive capacity and exploitation, and exploration, as well as the impact these factors have on the ambidextrous behaviour. The body of literature does provide valuable insights, but the literature has limitations. Following the review of the literature, prior studies which have adopted analysing ambidexterity at the organisational level, assume individuals are homogenous, overlooking how the decisions managers make may influence the ability of the firm to pursue a balance between exploration and exploitation (Bonesso et al., 2014). Also, although there are rich theory and empirical data to support ambidexterity, the influential or predictive factors that contribute to the specific actions of managers remains unclear(Turner, Swart, & Maylor, 2013).

For organisation's to survive in today's complex and dynamic environments, they require the ability to exploit existing knowledge while simultaneously also explore new knowledge domains (March, 1991; Walrave, Romme, van Oorschot, & Langerak, 2017). Ultimately, pursuing this kind of strategy is based on managers activities. Absorptive capacity plays a different role for exploration activities compared to exploitation activities (Enkel et al., 2017). However being able to excel at both is exceptionally challenging (Gupta et al., 2006), thus implying managerial challenges of ambidexterity is not only having the ability to balance both exploitation and exploration but also integrate external and internal knowledge. Despite the challenges managers face, developing insights as to how their behaviours are influenced should be addressed. How managers develop the capabilities in mastering contradictory tensions arising from the organisations strategy, culture, and processes (exploitation), and at the same time adapt to the surrounding environment (exploitation) is a key theoretical puzzle still missing (Carmeli & Halevi, 2009).

The two distinct competencies are associated with the understanding of exploration and exploitation activities, which ambidexterity suggest managers should be able to do both equally well. However, the main body of previous studies discusses ambidexterity on an organisational level (Junni et al., 2013; Nosella, Cantarello, & Filippini, 2012; O'Reilly & Tushman, 2013). Mom et al. (2007) argue that organisational ambidexterity is not only an organisational level construct, but it can be reached on an individual level, namely the managerial level (Mom et al., 2009, 2007). Surprisingly, there is little known about the factors that influence ambidexterity at the individual level.

1.3 Research Purpose

This purpose of this study is to investigate whether there is a relationship between the dimensions of absorptive capacity-identification, assimilation, and utilisation of knowledge from external sources, and managers ambidexterity-exploration and exploitation activities.

We follow the broad definition of ambidexterity as “an organization’s capacity to address two organisationally incompatible objectives equally well” (Birkinshaw & Gupta, 2013, p.291), attempting to further the understanding that this definition is also applicable to the individual manager and their decisional challenges. The implications of this research will guide managers to develop a broader understanding of the influential factors in individual ambidexterity and potentially could provide managers of organisations with new methods or techniques to build ambidexterity into their organisations potentially. This could mean organisations understand how they can adapt to environmental and technological changes, establishing a sustainable competitive advantage that will be more successful in the short and long term.

Absorptive capacity as a concept has been established as a supportive measure for change and innovation, thereby emphasising its importance in management research (Flatten, Adams, & Brettel, 2015). By investigating the relationship between the dimensions of absorptive capacity the association with exploration and exploitation activities, we strive to enrich our understanding of the roles managers play in absorbing external knowledge and the behavioural implications for taking up these roles. We understand, in particular, managers come from different backgrounds and experiences. Therefore, their ability to internalise knowledge may not be the same as another individual. Internalisation does not guarantee the manager will assimilate this knowledge. Furthermore, this particular absorbed knowledge may not be directly useful for the manager but has the potential for the organisation as a whole. Therefore, by understanding the relationship, managers and organisations alike can be more focused in their efforts when engaging with external knowledge sources and are more likely to influence ambidexterity for the manager and the firm.

Figure 2 below was developed to conceptualise these constructs, the relationships and the studies research objectives.

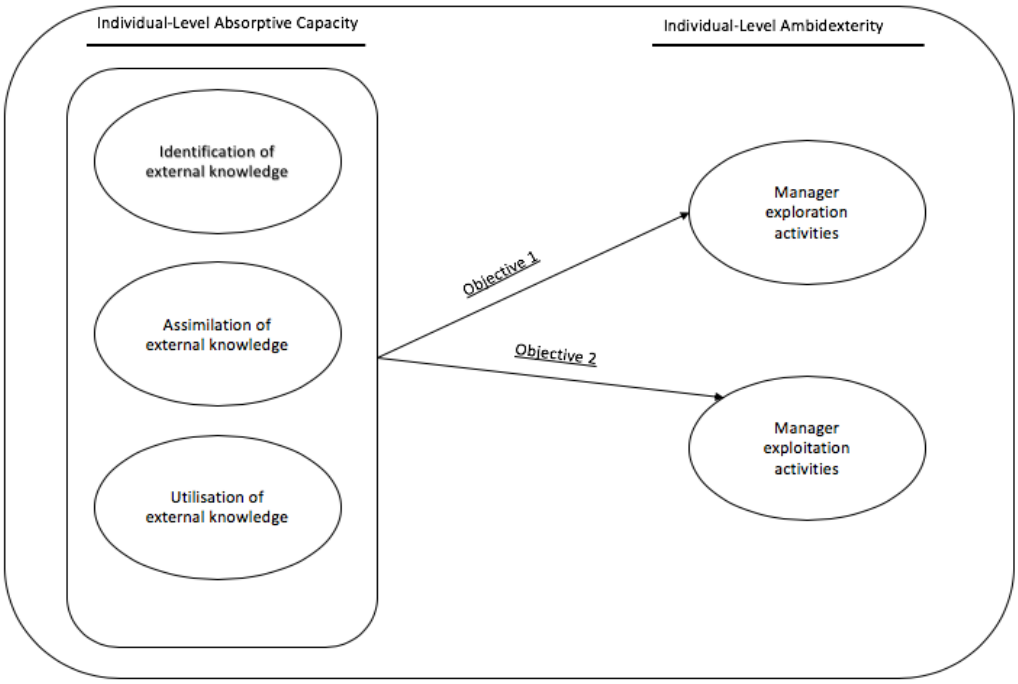

Figure 2: Conceptualisation of Research Purpose

1.4 Document Purpose and Structure

This chapter provides an introduction to the research problem, its contributions to theory and business. The chapter concludes with the findings and concluding remarks. The remainder of the document has been structured in the following way:

Chapter Number	Chapter Overview
Chapter 2	Any available academic literature has been reviewed so that the fundamental constructs of the research are identified, and how these constructs are related
Chapter 3	Based on the literature review, a research objective and hypotheses are developed
Chapter 4	A research methodology was formulated to gather the quantitative data and what analyses would be performed to support or disprove the hypothesised relationships
Chapter 5	The results obtained from statistical analysis on the quantitative data

Chapter 6	Based on the statistical analysis of the quantitative data, the researcher discusses how these results relate to literature and the formulated hypotheses relationships
Chapter 7	Concluding remarks on the findings of the study, what the implications of these findings are for business, its limitations and recommendations for future research.

2 Literature Review

2.1. Organisational Ambidexterity

Organisational growth described through a pattern of evolution, commonly known as the S-curve. Over time, as a firm moves through the different stages of growth, its strategy, structure, skills, and culture evolve as does the change in markets and technology (Tushman & O'Reilly, 1996). As change occurs, the organisation has to realign their business units to handle the new strategic challenges posed by the external environment. For example, Apple in its inception stage was formed by a small group of people, and as the company experienced growth, a formal organisation started to take place. As firms continue to experience success, more structure and systems are established to obtain efficiency and control, and even the strategy changes as the firm's product or service offering broaden to stay competitive in the market. Thus, what has worked in the past for a smaller, more focused firm is no longer suitable for a firm which is now larger and differentiated (Tushman & O'Reilly, 1996). In an environment which is stable and experiences gradual change, the firm can survive through incremental change, and however, in a fast-changing world, this does not suffice. Therefore, when environmental conditions change, the firm needs to be able to redefine itself through the adoption of a new strategy or structure that can deal with the changing conditions of the environment. The term organisational ambidexterity emerged to explain and support how the organisation should initiate and execute phases of growth. Organisational ambidexterity was defined as the organisation's ability to simultaneously pursue explorative (radical) and exploitative (incremental) innovation (Junni et al., 2013). The influential work by March (1991) unpacks the dual structures of exploration and exploitation as two distinct activities, whereby exploration is associated to "search, variation, experimentation and innovation" and exploitation is associated to "refinement, efficiency, increased productivity, selection and implementation" (p. 71). Extant literature from multiple scholars have argued, organisations which are engaged in both explorative and exploitative activities will perform better than those companies which only pursue one of these activities (Gibson & Birkinshaw, 2004; March, 1991; Tushman & O'Reilly, 1996). However, empirical evidence on the association between organisational ambidexterity and performance are mixed: studies have found a positive relationship (Gibson & Birkinshaw, 2004; Lubatkin et al., 2006), where others have found a negative relationship (Junni et al., 2013).

2.1.1 Tensions between Exploration and Exploitation

Exploration and exploitation are opposing activities in nature, which is derived from constrained resources and the allocation of resources, organisational inertia as well as strategic objectives of the firm (Lavie, Stettner, & Tushman, 2010). Organisations must first make the conscious decision which activity they will support, deciding how they will allocate their resources, either towards the support of an explorative strategy or and exploitative strategy. Prior studies continue to discuss that both exploration and exploitation are a prerequisite for the firm's survival and prosperity. However, firms tend to favour one over the other due to the limited availability of resources (Lavie et al., 2010). Thus, the tension between exploration and exploitation is affiliated with the firm's decisions to trade-off short-term productivity for long-term sustainability, and visa-versa.

2.1.2 Approaches to Achieving Ambidexterity

Over several years, how ambidexterity is achieved has been discussed extensively, suggesting that organisations can achieve ambidexterity in different ways, namely: sequential approach; simultaneous or structural approach; and contextual approach (Hill & Birkinshaw, 2014; O'Reilly & Tushman, 2013).

Sequential Ambidexterity**:** In the face of changing market conditions, organisations evolve and adapt their structure to realign to the change in market conditions (O'Reilly & Tushman, 2013). The sequential approach suggests, firms move back and forth between exploration and exploitation over time to be ambidextrous (Hill & Birkinshaw, 2014). The sequential approach is more beneficial to firms which are smaller in size, lack the resources to pursue exploration and exploitation simultaneously and operate in more stable environments, not affected by much change (O'Reilly & Tushman, 2013). However, moving back and forth requires the strategy and structure of the organisation to change, suggesting its attempts at exploration may fail once it has made the transition from exploitation.

Simultaneous or Structural Approach**:** The second approach discussed, explains how the organisation balances the exploration/exploitation trade-off through creating a business unit with an explorative-orientation, while simultaneously having an established exploitative-orientated business unit working (Hill & Birkinshaw, 2014). Each business unit possesses distinctively different competencies, systems, incentives, processes and cultures which management then tasked with integrating approach (Hill & Birkinshaw, 2014; O'Reilly & Tushman, 2013).

The separate business units aim is to provide the organisation with the ability to sense and seize business opportunities simultaneously through its exploration and exploitation activities. More so, structural ambidexterity is characterised as separate structural business units with their own autonomy for exploration and exploitation, and managers capable of managing the tensions from the different and contradictory structures (O'Reilly & Tushman, 2013). Should the separate business units be managed inefficiently, barriers to integration would prevent beneficial synergies between the business units the firm can use (Markides, 2013).

Contextual Ambidexterity*:* Exploration and exploitation activities create tensions between one another, but sequential and structural ambidexterity does try to resolve these tensions through a structural process. In prior studies, authors have gone on to propose tensions in the organisation can be resolved at the individual level which is understood as 'contextual ambidexterity' (O'Reilly & Tushman, 2013), defined as "an interplay of system capacities for alignment and adaptability that simultaneously permeate an entire business unit" (Gibson & Birkinshaw, 2004, p.211). The creation of a supportive organisational context will encourage individuals to divide their time between exploration and exploitation (Hill & Birkinshaw, 2014). Although the idea of ambidexterity continues to be discussed as the capacity of the organisation to achieve adaptability and alignment simultaneously, there is a growing debate suggesting ambidexterity is best achieved when the business builds an environment allowing individuals to decide for themselves, how to divide time to address the conflicting demands of adaptability and alignment (Gibson & Birkinshaw, 2004). Given the varying views, contextual ambidexterity might be similar in some ways to sequential and structural ambidexterity, however contextual ambidexterity places emphasis on the individual rather than the business units making adjustments between exploration and exploitation (O'Reilly & Tushman, 2013).

While there is an intense debate between which approach is more feasible, in reality, organisations are at different stages of the organisation life-cycle, which require different exploration and exploitation approaches (O'Reilly & Tushman, 2013). Extant research has found, pursuing both exploration and exploitation can positively influence a firm's performance (Junni et al., 2013). Especially when the firm is able to obtain the optimal mix, being highly effective at both exploitation and explorative activities in dynamic markets (Hill & Birkinshaw, 2014; Li, 2011). Although balancing the activities between exploration and exploitation may be beneficial to the firm, pursuing both activities simultaneously has the tendency to create organisational tension and conflict, seeing

each business unit competes for scarce resources of the firm (Papachroni, Heracleous, & Paroutis, 2015), and suggesting ambidexterity is a trade-off between available resources.

2.1.3 Environmental Context

Academics further argue, firms operating in a more dynamic environment tend to have an explorative orientation, while firms operating under stable environmental conditions are orientated to be more exploitative (Tamayo-Torres, Roehrich, & Lewis, 2017). Stable environments experience change at a much slower rate, allowing firms time to identify threats and opportunities with more precision (Simsek, 2009). These type of firms can predict change more stably and adapt to externalities accordingly.

Simsek (2009) argues, firms operating in markets with less volatility do not necessarily require radical innovation to enhance performance but will instead enhance performance through exploitative activities such as refining and improving established practices and processes. Therefore, organisational ambidexterity should not be looked at as competing activities, but rather the process of simultaneously integrating both exploratory and exploitative activities to enhance financial performance and sustainability (Li, 2011). However, some prior empirical research argues pursuing both activities does not necessarily guarantee performance (Siren, Kohtamaki, & Kuckertz, 2012), but instead, firms with higher levels of absorptive capacity obtained more significant benefits from exploration and exploitation strategies.

2.1.4 Dynamic Capabilities

Teece et al. (2008) define dynamic capabilities as "The firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments (p.516). Rangus and Slavec (2017) explain that firms must possess the ability to integrate, build and reconfigure internal and external competencies by seizing technological and market opportunities originating outside of the boundaries of the firm to address the rapidly changing environment and develop or sustain their competitive advantage. While the body of research continues to grow and examine how an organisation can both explore and exploit, there is a general agreement in that dynamic capabilities is at the core of an ambidextrous organisation (O' Reilly & Tushman, 2007; O'Reilly & Tushman, 2011). Based on the perspective of the dynamics capabilities, the emphasis is placed on firms to continuously develop, improve and renew their products and processes. Doing so protects the firm against competitors imitating them, and over time, overcome the challenges of technological obsolescence due to the industry moving

through its life cycle (Teece et al., 2008). Knowledge supports firms creating, transferring and applying acquired knowledge for commercial purposes (Villar, Alegre, & Pla-Barber, 2014). Acquiring knowledge is a major factor for an organisation to achieve a long-term competitive advantage, which further supports the organisation's capability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. Thus, dynamic capabilities derived through knowledge not only helps the organisation explore new market trends, but it also enables the organisations ability to reassess existing routines and competencies based on customer demands.

Ambidexterity requires managers to perform two critical tasks: (1) Sense changes taking place in the external environment, (2) Be able to act on opportunities and threats, seizing them by reconfiguring assets (tangible and intangible) to meets the demands of today and the challenges of the future (O'Reilly & Tushman, 2011). Literature in this field continues to develop, hypothesising successful managers can achieve ambidexterity, as they possess the ability to swiftly change between the different modes while the environment and organisation changes around them (Gibson & Birkinshaw, 2004; Good & Michel, 2013), but this domain still lacks convicting evidence on how managers and firms actually do so.

2.1.5 Organisational Ambidexterity and Innovation

Organisational literature recognises, a firm must be able to develop both exploitative and explorative innovation (Tushman & O'Reilly, 1996). It is clear what dilemma organisations and managers face. In the short run, while addressing current demands, they must continuously refine or increase the alignment of the organisation's strategy, structure, and culture (Tushman & O'Reilly, 1996). However, this is not enough for sustainability in a world which is continuously evolving. When looking at the future, managers may then have to seek new ways to serve the market, discontinuing the routine behaviours which were factors for its success (Tushman & O'Reilly, 1996). The managerial implications mean managers must operate the business partly in a stable environment which requires incremental innovation, while the other part being engaged in radical innovation.

There is a general understanding that innovation is an outcome of ambidexterity, however, the term is still discussed very broadly. It is known that Innovation can occur internally or through open innovation, but, firms which place more emphasis on developing innovation internally is susceptible to lost opportunities which are found outside the boundaries of the organisations current business (Rosing, Frese, & Bausch, 2011). Firms expand their knowledge base when using knowledge from external sources

(Forés & Camisón, 2016), which develops their ability to recognise opportunities and threats, as well relieve pressure on scarce resources, fostering ideation that promotes the development of new products and services. As a result, the firm will enhance its existing knowledge and improve its capabilities that transform its operations (Cohen & Levinthal, 1990; Forés & Camisón, 2016; Gupta et al., 2006).

Traditionally, ambidexterity has been studied as the ability to do two different things at the same time, and its relationship to organisation performance (Gibson & Birkinshaw, 2004; Lubatkin et al., 2006). In more recent literature, these terms have been extended and studied as firms which can engage in explorative (radical) innovation and exploitive (incremental) innovation to better describe organisational ambidexterity (Lin, McDonough III, Lin, & Lin, 2013). For many organisations across different sectors, innovation plays a crucial role in the firm's strategy as it seeks to establish a competitive advantage. In the business context, competition is more fierce as a result of globalisation, technological advancements and consumers buying behaviours changing (Vrontis et al., 2017). As the demands of customers increase and markets become more competitive, innovative firms will be required to build and maintain a competitive advantage through the development of products and services which achieves a sustainable position.

Exploration is associated as the process of developing new knowledge and seeking variety in other areas, which are different to the organisation's routine activities. Radical innovation thus can be referred to as the development of new technology, products or services which render existing ones obsolete (Enkel et al., 2017). On the other hand, exploitation is when the firm extends and refines existing knowledge on its practices, processes, and structures (March, 1991). Therefore, exploitative innovation practices improve existing products and services to become more efficient (Enkel et al., 2017). Firms which pursue incremental innovation in response to the needs of customers and markets are useful, but they are prone to imitation and can easily be substituted (Lin et al., 2013). Furthermore, if a firm applies all their efforts in the exploitation of their current competencies at the cost of exploration, the organisation runs the risk of stagnating due to path dependency which will prevent the firm from adapting to the changing environment (March, 1991).

On the other hand, engaging in exploration at the cost of exploitation, the organisation will fail to acquire distinctive competencies and implement many underdeveloped new ideas (March, 1991). Other authors have also explained, placing too much emphasis on radical innovation the company may drive itself into the ground as it does not have the opportunity to profit from its investment (Lin et al., 2013). Therefore, the organisation can

undoubtedly benefit from pursuing both types of innovation activities, as there is a positive influence on firm performance, whether it be the increase in sales, innovation, market share or the continuing operations of the firm.

Innovation management literature strongly agrees, as new technological advancements continue to emerge, firms need to make use of both internal and external sources of knowledge to accelerate innovation (Vrontis et al., 2017). The reasoning for searching outside the boundaries of the firm is that it enables the firm to access external sources of knowledge, and combining different types of knowledge has a positive influence on innovation (Vrontis et al., 2017).

2.1.6 Overview of Organisational Ambidexterity

Although there are different conceptualisations of ambidexterity in the literature (Gupta et al., 2006), this research focuses on investigating the association of external knowledge on individual ambidexterity, looking specifically at managers across multiple levels. Individuals on a daily basis face choices on how to spend their time so that the strategic goals of the organisation can be achieved (Gibson & Birkinshaw, 2004). Many authors have emphasised, managers who are both explorative and exploitative is advantageous to the firm (Rosing et al., 2011). However, the firm must create such a context which fosters this kind of behaviour for individuals. Intrestingly, it is managers that create this context for themselves rather than the organisation. Essentially, organisational ambidexterity is a construct with multiple dimensions, with exploration and exploitation each constituting a separate, but interrelated, non-substitutable element (Gibson & Birkinshaw, 2004). When the organisation creates the context for ambidexterity, managers can deliver value to existing products and services, while also being on the lookout for changes in the environment that are beneficial to the organisation. Therefore, an ambidextrous organisation is therefore created by how the managers independently spend their time being explorative or exploitive (Rosing et al., 2011).

2.2. Individual-Level Ambidexterity

The earlier work by Mom, Van Den Bosch, and Volberda (2007b) attempts to develop the understanding of ambidextrous behaviour at the managers level. Their paper defined the explorative behaviour of the manager as “searching for, discovering, creating, and experimenting with new opportunities” and exploitative behaviour as “selecting, implementing, improving and refining existing certainties” (Mom et al., 2007, p910).

Organisational ambidexterity research continues to acknowledge the important role of individuals. While the studies mentioned earlier above give critical insights that support ambidexterity at the organisational level, literature analysing ambidexterity at the individual levels is scarce. Although few in numbers, some studies have given suggestions that a source to organisational ambidexterity is through individuals (Gibson & Birkinshaw, 2004; Mom et al., 2007, 2009).

Exploration at the individual level are the activities which include experimenting, seeking alternative ways to accomplishing a task and learning from mistakes (Rosing & Zacher, 2017). The behaviour when exploring also characterised as deviating from routines, try something new in solving problems as well as not relying on established knowledge. Conversely, exploitation at the individual level involves being dependant on previous experience and steadily improving on actions which have been learned well (Rosing & Zacher, 2017). This kind of behaviour is characterised as managers of the firm who continue to do things as they have always been done and conform to the existing set rules and routines without questioning the status quo. When synthesising the characteristics as mentioned earlier, our understanding of exploration is when an individual's take actions in an increasingly variable manner, and exploitation is the individual's behaviour that reduces this variability. Individual ambidexterity is thus the combined balance of being explorative and exploitative (Mom et al., 2009). Ambidextrous managers allocate resources to implement existing business efficiently, while also identifying new business opportunities for the focal firm (Rogan & Mors, 2014). Thus, managers need to have autonomy in their decision-making process if they are to allocate resources in a balanced manner.

Organisations consider managers to be human capital, more specifically they are either generalists or specialists. Bonesso et al. (2014) describe specialist human capital as more exploitative since these individuals are better at acquiring and assimilating new knowledge for specific tasks. Their role is more functional, which reduces their ability to apply or combine new knowledge beyond their specialised role. On the contrary, generalist human capital is more explorative and can view problems and situations from multiple perspectives without a fixed bias. However, individual ambidexterity is not the role of managers allocating explorative or exploitative orientated tasks, but instead changing their attention scope from broad to narrow and vice-versa when making decisions based on external knowledge from outside the organisation (Bonesso et al., 2014). Specifically, these authors discuss how individuals search for alternatives and are creative when their scope is broadened (explorative), on the other hand when the same

individual focuses their efforts to solving specific problems their attention is narrowed (exploitative).

2.2.1. Dynamic Contexts

The context in which firms operate influences the orientation of the manager. The changing behaviour of the external environment plays a role in the strategic decisions managers must make, especially with regards to exploration and exploitation. The cognitive capacity of individuals to explore and exploit is challenged by these dynamic contexts (Good & Michel, 2013). These authors further discuss how individual ambidexterity may be more necessary for success in an environment that continues to become more dynamic and unpredictable. Constituents of such contexts which require individuals to manage exploration and exploitation activities are having to solve complex tasks constrained by time and resources. Although prior studies continue to argue the necessity of balance between both exploitation and explorative activities in dynamic markets (Hill & Birkinshaw, 2014; Li, 2011), there is still a gap in the literature to how this balance can be achieved (Simsek, 2009).

2.2.2. Managers Networks

In a study by Rogan and Mors (2014), managers utilise different parts of their networks to pursue explorative and exploitative activities. They further explain, networks with fewer people as oppose to densely connected networks provide managers with new knowledge and information. The exploration of new opportunities requires novel ideas and knowledge from outside the firm (Rogan & Mors, 2014). Having contact with sources outside of the firm will also drive the manager's performance, for example, the manager provides information about new business opportunities, or even identify and facilitate the access needed to resources outside the firm. Therefore, managers are suggested to have networks which are diversified, sitting outside of the organisation when pursuing exploration activities.

On the contrary, managers should themselves have dense networks within the firm to exploit current business opportunities, aiding in the rapid diffusion of information and implementation of existing business activities (Rogan & Mors, 2014). Thus, while dense external networks have little effect on exploration activities, dense internal networks are a prerequisite to mobilise firm resources for exploitation activities successfully.

However, limited resources require resource allocation which supports separating exploration and exploitation, but at the same time, getting new perspectives from ideas

requires the integration of exploration and exploitation (Rosing & Zacher, 2017). To facilitate such a process, managers must be involved in the identification and transferring of knowledge from external sources (Rogan & Mors, 2014). The challenges, however, lie in how the organisation can be successful in its efforts to encourage and enable managers to absorb external knowledge. More importantly, how the external knowledge can shape their behave so that their organisations can benefit.

2.2.3. Knowledge Inflows

Managers are in the position to take advantage of knowledge from external sources when they are able to combine internal and external knowledge. Mom et al. (2007) hypothesise, depending on the direction (top-down and bottom-up) of knowledge will influence the manager's exploration and exploitation activities. The top-down flow of knowledge allows managers to respond to problems in familiar ways, increasing their ability to perform routine activities effectively and efficiently (Mom et al., 2007). Their view suggests that the knowledge being transferred is explicit, positively relating to managers exploitation activities and unlikely to have any relation to the manager's exploration activities because they are already familiar with this knowledge. Given that firms have limited resources managers tend to rather pursue their existing business demands over new business opportunities (March, 1991).

The bottom-up flow of knowledge stems from lower hierarchical levels, mainly subordinates (Mom et al., 2007). Frontline managers, accumulate knowledge directly from their interactions with customer demands and changing market conditions, as well as technological developments. These individuals provide higher level managers with the information which expands their understanding of change with regards to products, processes, and markets (Mom et al., 2007). These interactions trigger managers to then revise their approach to existing routines, searching and developing new solutions to emerging problems. Organisations require their managers to have the ability to explore and exploit, balancing responses to external knowledge being received (Good & Michel, 2013). However, the study by Mom et al. (2007) argues that bottom-up and horizontal knowledge flowing to managers positively relate to exploration activities while having no association with managers' exploitation activities.

2.2.4. Innovation or Efficiency

It is understood that exploration and exploitation are two essential activities for innovation and efficiency, but failing to balance the two activities suggests the individual is unable

to embrace the contradictions which will arise from exploration and exploitation activities (Rosing et al., 2011; Rosing & Zacher, 2017).

Studies have suggested that in order for managers to obtain some form of innovation performance, they need to be ambidextrous. The task of managers is to ensure competitiveness for the present business activities, while still sensing for future opportunities to grow the existing business (Papachroni, Heracleous, & Paroutis, 2016). Being able to do both is quite challenging, particularly it requires managers to take a step back from existing operations allowing them the needed time to explore potential ideas and opportunities for the future. Rosing and Zacher (2017) hypothesised that innovation performance is positively related to managers being able to balance explorative and exploitive activities. However, innovation performance has not been clearly articulated, nor necessarily explaining what it is that leads to innovation performance. Innovation performance, relies on integrating opposing views and paradoxical tensions, which is where the value for individual ambidexterity lies (Rosing & Zacher, 2017). Inherently, managers face a tension between innovation and efficiency.

Prior research on innovation has described innovation as tensions, paradoxes, and contradictions (Rosing & Zacher, 2017). Innovation seems to conflict with the existing internal efficiencies of the organisation because its underlying value is to challenge the status-quo (Papachroni et al., 2016). The authors explain, managers who are responsible for growing existing business find that the relationship between innovation and efficiency conflict because resources are scarce and pursuing the different goals requires different capabilities. The opposing goals create paradoxes, and thus, given such a context, when the businesses profitability is under pressure, managers tend to focus on efficiency rather than innovation. Based on the paradox perspective the value to gain from individual ambidexterity comes from the integration of contradictory requirements and paradoxical tensions (Papachroni et al., 2016).

While exploration and exploitation are opposing activities, managers have to integrate the two by understanding the adverse effects of each activity in order to obtain a positive outcome. For example, placing too much emphasis on exploration may confuse other members in the organisation, while too much emphasis on exploitation will lead to rigidity. Managers pursuing exploration might just cause confusion for others, but pursuing exploitation can inhibit approaching situations from new perspectives (Rosing & Zacher, 2017) Thus, managers must utilise paradoxical thinking, based on their knowledge of the

external environment, and integrate the opposing actions while still understanding the adverse effects of exploring at the cost of exploiting and vice versa.

With the review from theory on behavioural complexity, active managers should be behaviourally complex, meaning they must be able to respond to shifting circumstances inside and outside the organisation (Carmeli & Halevi, 2009). Prior research has also proven, managers that can take on multiple roles such as being involved in exploration and exploitation activities, achieve enhanced organisational performance (Carmeli & Halevi, 2009). However in another study, although managers that are more flexible can increase overall innovation and performance, they may also hinder the innovation and performance of the organisation (Rosing et al., 2011). An example of a situation such as this would be a manger that communicates their vision which inspires innovation, provided this vision foster experimentation. Conversely, efforts to innovate are hindered when the manager's vision stops employees from thinking out the box given that they are so absorbed in this managers vision (Carmeli & Halevi, 2009).

Nevertheless, at the individual level, the manager or managers must be able to effectively manage the contradictions from exploration and exploitation through divergent thinking processes. These processes include differentiation (the ability to identify and assimilate distinctions) and utilisation (identifying linkages to integrate within potentially) (Carmeli & Halevi, 2009). The characteristics are also part of the absorptive capacity of the same individual.

2.2.5. Creativity and Implementation

Being innovative and efficient requires creativity and implementation, two distinct and opposing processes which have some form of connection to exploration and exploitation activities (Rosing et al., 2011). These authors further explain, due to the complexity of the innovation process, the requirements to be explorative and exploitative are in a constant cycle of change. (Rosing et al., 2011). March (1991) explained that creativity has a close link to exploration activities, seeing that creativity requires the individual going beyond their normal routines and common assumptions.

On the other hand, exploitation activities are linked to the implementation of an idea. Implementing ideas requires an individual to be efficient, execute routines with precision and orientate themselves to a specific goal (March, 1991; Rosing et al., 2011). Although creativity and implementation have clear connections to exploration and exploitation

respectively, creativity does require some exploitation and implementation must also be explorative.

Creative ideas are new, but these ideas must be useful which calls for the exploitation of existing knowledge. When an individual explores at the expense of exploitation, they most likely will produce highly creative and unique ideas. Although unique, the ideas may not develop further because they still require exploitation activities, meaning focus and structure (Rosing & Zacher, 2017). Individuals may be actively engaged in experimenting and trying out different things in their organisation, but they are unable to generate results from their efforts because they are never fully realised (Rosing & Zacher, 2017). In contrast, empirical results found that the individual managers who exploit more than explore are good at putting things into action, but are not flexible or willing to experiment and fail to create new and original ideas (Rosing & Zacher, 2017). They are efficient in routine behaviours, but they do not develop creative ideas further. Taking creative ideas, which are radical and implementing them requires the individual to explore new strategies, especially when faced with resistance in the organisation (Rosing et al., 2011).

2.3. Organisational Absorptive Capacity

Studies into absorptive capacity continue to receive increasing attention, as the emphasis on intangible assets such as new information and knowledge is required to innovate in response to the changing environment. Innovation for firms is becoming ever more demanding as societies needs and preference evolve. Innovative output, firm performance and economic welfare rely on the ability of the organisation to identify and absorb external knowledge successfully (Antons & Piller, 2015), which stems from enriching the firms existing knowledge base (Enkel et al., 2017). Absorptive capacity was first defined by Cohen and Levinthal (1990), which is known as the ability to identify value from external knowledge, assimilate the newly acquired knowledge and utilise the information to create a competitive advantage (Gao, Yeoh, Wong, & Scheepers, 2017).

In order for the firm to uphold its competitive advantage in this fast-changing environment, it must continuously advance and develop its resources (Rangus & Slavec, 2017). Importantly, firms need to identify, shape and seize technological and market opportunities to address the rapidly changing environment. However, it is the managers of the firm who search, identify and select useful knowledge, assimilate and utilise newly acquired knowledge for commercial use in its products and services (Martinkenaite & Breunig, 2016). Besides, managers play an integral role in developing and sustaining

the firm's capabilities. Mainly because they inherently have developed the capabilities needed to identify, integrate, and combine technology and knowledge acquired externally back and apply this for commercial use (Rangus & Slavec, 2017). Thus, the organisation requires their employees to possess the capability to search the external environment and identify potential ideas that are useful and link them with internal capabilities, which is potentially another source of the firm's competitive advantage (Rangus & Slavec, 2017). The challenge for organisations is to ensure the organisational environment encourages and enables managers to absorb external knowledge.

2.4. Individual-Level Absorptive Capacity

Individual-level absorptive capacity is the ability of the individual to recognise the value of new information, understand it and apply this for commercial purpose in the firm (Seo, Chae, & Lee, 2015). Other studies refer to absorptive capacity as the efforts of managers to identifying, assimilate and utilise newly acquired knowledge from external sources (Enkel et al., 2017). Cohen and Levinthal (1990) argue individual members are critical to embedding new external knowledge throughout the firm. They reference research from cognitive and behavioural sciences which have an underlying role in learning and knowledge acquisition. Learning is a cumulative process and that the ability of the manager to recognise value, assimilate and utilise new knowledge acquired from outside the firm relies on the prior knowledge accumulated from past experiences. It is clear that knowledge from external sources provides an opportunity to combine and recombine knowledge which leads to innovation (Martinkenaite & Joachim, 2015). However, managers tend to rely on internal knowledge which is accessible, safe and already well aligned with organisations capabilities (March, 1991). Notably, organisations must therefore successfully overcome the challenges of encouraging and enabling managers to absorb external knowledge.

Prior studies have found a particular bias influencing individuals decision making when it comes to absorbing external knowledge, this being the not-invented-here syndrome (Antons & Piller, 2015). Accumulated knowledge and previous experiences individuals encounter, shape how they approach developing new business ideas which are potentially viable for the firm (Saemundsson & Candi, 2017). Furthermore, authors have emphasised that prior related knowledge of individuals incorporate multiple domains which complement each other (Martinkenaite & Breunig, 2016). Complementary knowledge allows the firm's managers to make new strategic linkage and associations specifically to the firm's strategic context which can be facilitated through interactions

with the organisation's structure and knowledge management routines. In contrast to the suggestions of these authors, taking advantage still requires absorptive capacity, which is determined by individual cognition, motivation, action, and interaction (Enkel et al., 2017). Similarly, Gao et al. (2017) also argued that the firms absorptive capacity is a function of the cognitive ability of managers, therefore suggesting that the firms absorptive capacity can be improved by investing in activities which increase the absorptive capacity of individuals.

In contrast, managers attitude-bias towards external knowledge can damage the organisation economically, especially when knowledge is rejected even though it has potential value (Antons & Piller, 2015). The most commonly discussed bias when it comes to absorbing external knowledge for innovation is the not-invented-here syndrome. Research on the concept of the not-invented-here syndrome has found that individuals generally have a negative attitude towards knowledge which originated from sources that are outside of the organisations boundaries (Antons & Piller, 2015). However, there is still the view that managers are responsible for creating, restructuring and applying new knowledge which forms the basis for the organisation to create knowledge (Pedrosa, Välling, & Boyd, 2013). Based on this perspective, the role managers play when looking outside of the firm to source potential ideas from external sources is crucial.

Managers are the gatekeeper of information, which means they need to ensure newly acquired knowledge is compatible with the firm's values and cultures, as well fit the existing process of the firm. The process requires them to also act as messengers of external ideas within and throughout their organisation too. Obtaining the organisation's goals of increased innovation and efficiency rely on the activities managers in the firm pursue (Salter, Ter Wal, Criscuolo, & Alexy, 2015). Managers may potentially generate new ideas from their interactions with suppliers, attending conferences and forums, or even engage with consultants or even universities which act as sources of external knowledge (Salter et al., 2015). Developing absorptive, retentive and exploitative capabilities to use acquired knowledge, enables individuals to formulate and sustain competitive advantage for their firm (Gao et al., 2017). An example of this is managers are often involved in the sharing of knowledge which can be used across the entire organisation (Pedrosa et al., 2013). Therefore, agreeably, engaging with external sources assists with building the existing knowledge base of managers and firms.

Although literature seems to reach a similar conclusion, other studies are of the view that managers of a firm do not experience or interpret new knowledge equally (Martinkenaite & Breunig, 2016). Prior research in the social cognitive domain argues individuals in organisations are driven by the interactions of their routine behaviour, cognition and surrounding environment (Apriliyanti & Alon, 2017). Through this cognitive process, a person's behaviour can be determined by the context of the external environment, and their absorptive capacity influenced by their cognitive structure (Apriliyanti & Alon, 2017). It is these cognitive structures which provide the capability for individuals to identify and choose which information to process, therefore, determining their behaviour and decision making (Apriliyanti & Alon, 2017). Subsequently, individual managers should also be building awareness about what others know, how they can assist and who can take advantage of the new knowledge to influence their behaviour (Martinkenaite & Breunig, 2016). Because organisational knowledge requires dissemination, the organisation's role is to provide the necessary decision making structures and networks of intra-firm relationships. Doing so absorption of external knowledge can be leveraged and deployed throughout the organisation by managers (Tortoriello, 2015). The importance of building these structures will either facilitate or inhibit the knowledge sharing amongst the firm's employees as well as their behaviour (Martinkenaite & Breunig, 2016).

Strategic goals of the organisation can set the search agenda for managers (Dahlander, O'Mahony, & Gann, 2016). However, the individual is still responsible for filtering any new information which contests their values and beliefs, while taking on information that resonates with their attitudes (Antons & Piller, 2015). Rangus and Slavec (2017) state, absorptive capacity at the individual level can be increased through the exchange of knowledge and innate ideas, facilitating managers to gain valuable experience, which then develops their skills to assess and implement innovations for the firm. Furthermore, the authors explain absorptive capacity is higher for individuals who are highly competent, possessing superior abilities to transfer perceptions internally. They can then facilitate incremental of radical innovation activities (Rangus & Slavec, 2017).

2.4.1. Transformation of Knowledge

Realising the real potential of innovation requires the individuals determining how to separate their attention towards external information sources, while still acknowledging their organisation's internal needs so that any idea sourced externally is relevant (Dahlander et al., 2016). Sources of external knowledge are beneficial, however, efforts in searching for knowledge from these sources incur opportunity costs. Time as an expense will be required in the external search process. Time is needed to understand

the value of new external knowledge, specifically how external knowledge can be integrated with the firms existing processes (Dahlander et al., 2016). Based on the above, the limitations in processing information will direct the manager's attention to the challenges of the firm, and how managers direct their time will give us an understating of the actions they will take. Therefore, understanding the behaviour of the individual can give us an understanding of how their behaviour will affect that of the organisation, especially the internal mechanisms that create an environment which is both current and future orientated.

On the one hand, identifying and assimilating knowledge assists the organisation in being strategically flexible, while on the other hand being able to transform newly acquired knowledge enhances the firm's innovativeness and efficiency (Saemundsson & Candi, 2017). Depending on the knowledge acquired from external sources, it may or may not bring unique and diverse elements which could potentially be combined and integrated into the organisation (Tortoriello, 2015). Literature from the field of organisational studies agrees that the absorptive capacity of the firm will influence their ability to innovate as this will determine the extent to which they can take advantage of external knowledge. Conversely, at the organisational level, there is the possibility of adverse outcomes when searching for opportunities from external sources. Firms which place too much emphasis on the external knowledge sources will at some point produce negative results given the limited absorptive capacity of the firm (Dahlander et al., 2016). When the firm gathers and produces more knowledge than what can be used, this excess knowledge potentially leads to a waste of resources. Then the cost of integration far exceeds the benefits of acquiring knowledge from external sources (Dahlander et al., 2016). In this view, limited absorptive capacity may be more relevant for individuals, as their search time is finite than that of the organisation. Given this, developing our understanding of the role or relationship the dimensions of absorptive capacity has on the manager's exploration/exploitation activities remains important.

2.4.2. Identification

Individuals start identifying external knowledge through a search process, which includes individuals monitoring market environments, new technologies and competitors to best recognise any opportunities that may be valuable to the firm itself (Enkel et al., 2017). During the identification process, the firm requires deploying its resources (production, sales, and marketing), encouraging employees to actively be involved in identifying external knowledge (Nicolai et al., 2013). Previously, the R&D departments were at the center of identifying external knowledge, however, it is rather beneficial for firms to

provide managers with the autonomy to actively engage in the search of new opportunities. A successful search for new ideas is dependent on the manager who stands on the fence, between the firm and the environment (Dahlander et al., 2016). Benefits in the search process have been proven, but how managers conduct search activities is still unclear, and formal rules of the firm may impede or restrict experimentation and therefore miss out on potential opportunities.

Following the review of the literature, identifying external knowledge is based on four factors. Individuals are required to be alert and open to new opportunities and experiences, which shall inspire new business concepts (Enkel et al., 2017). Strategic opportunities more often than not emerge from unusual contexts. Thus, alert individuals driven by curiosity tend to broaden the sources explored to identify ideas for their industry or organisation (Nicolai et al., 2013). Secondly, independent thinking positively influenced by self-reflection and is understood as abstracting from the firm the unique idea and attempt to implement variational elements (Enkel et al., 2017). Third, the research identified that individuals with a higher degree of ambition are more committed to the process of searching for external knowledge. They help the firm recognise the value of new knowledge and combine this with existing internal knowledge (Roberts, 2015). Fourth, possessing interactive skills help facilitate key learnings from external sources. Being interactive and growing professional networks supports the individual's ability to broaden its external sources, thus identifying new knowledge compatible with the firms existing knowledge base (Enkel et al., 2017).

The individual manager more often than not seeks and selects information which resonates with their personal beliefs and attitudes (Antons & Piller, 2015). These authors go on further to explain, a mangers attitude will guide their thinking, decision making, and behaviour which is likely to lead to biased decision making. Consequentially, identifying external knowledge incorrectly hurts any form of innovation (Lichtenthaler & Ernst, 2006), more specifically is that it has now wasted scarce resources such as time and money that could have potentially been used elsewhere.

2.4.3. Assimilation

Firms rely on its members to bring external knowledge into the organisation enabling strategic opportunities to be pursued (Nicolai et al., 2013). The development of such opportunities requires appropriate knowledge transfer through internal communication. Enkel et al. (2017) explain that for any new knowledge to be contributed by its members

requires assimilation of knowledge, so efforts are not wasted. Assimilation described as the ability of individuals to reconfigure and redeploy resources, so the firm is ready to act on external information (Apriliyanti & Alon, 2017). Studies which already exist in the field primarily looked at absorptive capacity from the perspective that measures the number of patents developed by the research and development department, and the return on its innovation activities (Tortoriello, 2015). The emphasis on investment in research and development has dominated literature, neglecting equally essential aspects of how managers will assimilate knowledge throughout the organisation (Tortoriello, 2015).

The manager who have been able to develop their assimilation capabilities are more likely to be better at spotting trends developing in the external environment and internalise this knowledge (Flor, Cooper, & Oltra, 2018). This may not always be the case when the wrong incentives drive behaviour, impeding ideation and creativity. According to Antons and Piller (2015), some organisations reward for the number of ideas generated, assessing the value it brings to the organisation. Given this kind of situation, ideas which have been sourced from external sources but have not been assessed to extract value for the organisation potentially can be rejected due to the not-invented-here syndrome, leading to wastge of valuable resources.

Sharing knowledge across the organisation rather than keeping the knowledge within a tight circle enables access to diverse sources of knowledge. Exposing acquired knowledge to different departments provide an opportunity for different divisions of the organisation to use the knowledge (Tortoriello, 2015). In one such instance, strategic opportunities can help the firm either maintain or sustain better performance than competitors by taking advantage of the first-mover advantage. Although this is the outcome from external knowledge, it is still the responsibility of individuals to share the knowledge with other delegates and integrate the newly acquired knowledge with existing internal knowledge (Flor et al., 2018). Communicating this knowledge throughout the firm facilitates knowledge retention into corporate memory (Gao et al., 2017). Managers should constantly communicate, especially knowledge. Acquired knowledge may not always be useful to a particular managre, but has value for other departmnets and the organisation as a whole. The ability to transfer knowledge relies on the absorptive capacity of recipients (Apriliyanti & Alon, 2017). However, it is incredibly challenging to assimilate external knowledge from these external sources with internal knowledge due to incompatibility if the existing conditions of the firm do not permit (Enkel et al., 2017).

Furthermore, some firms value ideas generated internally by managers more prestigious than ideas generated from external sources (Antons & Piller, 2015). Therefore, organisation's need competent individuals who possess the capability to acquire, store and process knowledge which has been identified from external sources (Apriliyanti & Alon, 2017). On the other hand, Nicolai et al. (2013) found individuals who encouraged internal communication between business units, explaining the relevance of knowledge transfer increased the number of pursued strategic opportunities. In essence, the value from external knowledge is not apparent until it managers communicate and integrate this with the existing knowledge of the firm.

Following on from the literature reviewed, these main factors were identified as crucial aspects for individuals to assimilate external knowledge. Firstly, members of the organisation will analyse the potential value external knowledge brings to their organisation (Tortoriello, 2015). Thus, individuals will evaluate and quantify the market potential of the new idea for the organisation (Enkel et al., 2017). These individuals should possess profound knowledge about their organisation's abilities. Secondly, being involved in sourcing external knowledge and attempting to internalise creates tensions (Flor et al., 2018), predominately due to external knowledge not being conducive to the organisation's unique language or culture (Enkel et al., 2017). Thus, managers need to have the ability to simplify the ideas so that other in the organisation can see its potential.

Furthermore, achieving internal coordination and the transferring of knowledge requires effectively using firm resources, which entails aligning strategic opportunities to existing and routine activities (Flor et al., 2018). Thus, in order to be successful at any attempt of new insight, knowledge transferred should be compatible with existing knowledge. Individuals require a well-developed framework produced from external ideas to withstand any judgment from internal sceptics. Third, building upon prior research, individuals must be highly connected (Enkel et al., 2017; Tortoriello, 2015) so external knowledge is shared within the organisation (Flor et al., 2018). The individual with a social network, internally connected is able to be more influential in having external knowledge accepted internally. On this same note, Salter et al, 2015; Ter Wal, Criscuolo, and Alexy (2015) argue, individuals must continuously inspire and engage with their peers in order for them to realise the underlying potential of external knowledge too. Articulating the value and benefits of external knowledge requires telling a story. Managers who can convince their colleagues of the organisation to buy-in will further develop the idea. In addition, storytelling should resonate with the organisation, its heritage as well as its current position (Enkel et al., 2017).

2.4.4. Utilisation

The utilisation of external knowledge is the process where individuals attempt to internalise the newly acquired knowledge. It measures the individual's capability to use and implement the newly acquired and assimilated knowledge together with existing routines, operations, and competencies of the firm (Ali, Seny Kan, & Sarstedt, 2016). While identifying and assimilating is crucial, additional effort from managers is required in the utilisation phase. In this context, being explorative will require additional shared work, adapting and integrating external knowledge in the firm effectively (Flor et al., 2018). Specifically, external knowledge requires overcoming the greatest challenge of all, resistance from risk-averse managers. According to Antons and Piller (2015), other managers tend to demote the power of their peers by portraying the new knowledge acquired is not distinct and valuable enough so as to protect their decision power. This kind of behaviour manifests from the individual's attitude. Managers who resist, form such attitudes of another person or group external to them (Antons & Piller, 2015). Ultimately, the focus is being able to champion an idea so that it is introduced to the market for commercial purpose, as well as implemented internally aligned to existing competencies (Salter et al., 2015). Successful implementation and adoption are more likely to happen when the idea is consistent with the values, culture and strategic objectives of employees and the organisation (Antons & Piller, 2015). Thus, success is achievable when the individual's efforts are backed by discipline, resilience, high levels of energy and while also having a high frustration threshold (Enkel et al., 2017). Full utilisation of external knowledge acquired is necessary for the development of true breakthroughs.

The individual's ability to combine and utilise external knowledge with their existing knowledge not only improves existing operations, routines and competencies, it further enhances their decision-making process with regards to the organisation's internal innovation processes, including product innovation, process innovation and management innovation (Ali et al., 2016; Flor et al., 2018). To build momentum, individuals should create the proper context for other members to feel committed to the learning process, share knowledge, and ultimately be willing to apply their knowledge to new products, services or even existing processes (Enkel et al., 2017; Flor et al., 2018). The ability to combine and integrate knowledge from an external source is usually a process of trial and error, requiring time and patience in order to fully understand its benefit for innovation (Flor et al., 2018). Managers must promote the collaboration of employees for transferring and connecting externally acquired knowledge to the firm's

internal capabilities if utilisation of external knowledge is to be successful (Rangus & Slavec, 2017).

Using knowledge within the organisation requires managers to share and communicate with other employees who need it. Worthy to note, sharing knowledge is critical for any organisation. However, due to the prevailing bias of individuals, utilising an idea from external sources is considerably challenging. Often, traditional practices are already established which causes tension seeing as externally derived knowledge may conflict with traditional activities (Flor et al., 2018). The inability to manage such tensions will inhibit the firm adapting to a new situation, thus, leading to under-utilisation of ideas generated falling to realise their full potential (Lichtenthaler & Ernst, 2006). Being too reliant on the use of external knowledge can also have detrimental effects on the firm. Comparing the benefits from ideas generated from external sources, efforts to utilise the knowledge may not affect any exploitative innovation or existing working methods (Enkel et al., 2017).

2.5. Synthesis

The two theories discussed provided synergistic benefits, both for organisational learning literature and that of strategic management. Improving the process of absorptive capacity requires learning, which is the refinement of what is already known or alternatively implies managers exploitation activities. The repeated use enables better identification and assimilation, suggesting individual's will identify knowledge which is new but related to that of the organisation and assimilated accordingly because they leverage off existing knowledge, also known as the managers exploration activities.

Understanding potential influential factors in individual ambidexterity have the potential to provide managers with a clearer understanding of how ambidexterity could be built into organisations. Literature has noted both implicitly and explicitly that exploration and exploitation involve knowledge processes which are contradictory in nature. Tacit knowledge bases are used in exploration activities, which entails combining and externalising knowledge so that new opportunities can be developed (Lubatkin et al., 2006). Essentially exploration is the manager experimenting and seeking a variation to pursue new markets and solve problems in new unique ways.

On the other hand, exploitation involves the use of explicit knowledge so that incremental refinements to the organisations routine processes and technologies are made, and the

needs of existing customers' are further met (Lubatkin et al., 2006). In the strategic management literature, a key assumption is that the availability of knowledge with regards to the external and internal environment plays an important role in the strategic process and decision making of the organisation (Torres, Drago, & Aqueveque, 2015). The task of managers is to ensure competitiveness for present business activities, while still sensing for future opportunities to grow the existing business (Papachroni et al., 2016). Managers are responsible for searching, identifying and selecting valuable knowledge which is then assimilated and utilised in products and services (Martinkenaite & Joachim, 2015). While we understand that managers are given autonomy over their work, little is known about how absorbing knowledge from external sources influences the manager's exploration and exploitation activities (Dahlander et al., 2016). Empirical research has found that organisations and individuals have the tendency to rely on internal knowledge, and the reason for this is that internal knowledge is safe, accessible and has already been aligned to existing capabilities (March, 1991; Ter Wal, Criscuolo, & Salter, 2011b). However, the bibliometric analysis of absorptive capacity by Apriliyanti and Alon (2017) emphasise clearly that external sources of knowledge in itself provide an opportunity for individuals to combine and recombine knowledge and therefore innovation.

Studies have mainly focused on understanding the effects of separate activities, such as how individuals divide their time between exploration and exploitation (Lin et al., 2013). In order for the development of ambidexterity to, organisations are required to combine practices which positively produce high levels of radical innovation and incremental innovation simultaneously (Lin et al., 2013). Using the study by Enkel et al. (2017) as a foundation, this research uses the lens of absorptive capacity to develop insight how the dimensions of absorptive capacity, namely; identification, assimilation, and utilisation of knowledge from external sources and the relationship associated with the managers explorative and exploitative activities.

Dahlander et al. (2016) explain that the task of managers is to direct people's attention to the critical challenges of the firm. Furthermore, the actions people take depends on the information they are exposed to, thus affecting the type of solutions people develop to address the firm's challenges. Thus, managers allocating their time to the absorption of external knowledge is critical to gaining insight into how individual behaviour will affect the behaviour of the organisation at a more granular level. Producing high levels of radical innovation and incremental innovation is critical for firms to develop a sustainable competitive. However, a sustainable competitive advantage of the firm relies on the

manager's ability to bring and integrate current knowledge with acquired knowledge (Lin et al., 2013). In a study by Lubatkin et al. (2006), they concluded in saying “Ambidexterity results from and manifests itself at both individual and organisational levels; ambidexterity is the outcome of a dynamic process that involves both the simultaneous and subsequent attention to exploitation and exploration; and ambidexterity depends on the ability to integrate internal and external knowledge bases for synergistic benefits" (p. 693). Thus, managers who act ambidextrously affect the organisation's ambidexterity and knowledge have a role to play.

The search process involves acquiring knowledge which starts with individual managers, characterised as the gatekeepers of the organisation, responsible for identifying and acquiring knowledge and get the knowledge to flow through the organisation by pursuing both exploration and exploitation activities (Mom et al., 2009). By acquiring new and diverse knowledge the manager possibly benefits, for instance, they can develop new skills and abilities, allowing them to pursue exploration activities and find unique solutions to problems in the organisation (Mom et al., 2009). At the same time, external knowledge also has the potential to benefit the manager, whereby the external knowledge may be related and complementary, which improves or refines their existing skills and abilities or even pursue incremental innovations and refine existing practices of the focal firm (Mom et al., 2009). Similarly, Raisch et al. (2009) discuss that acquired knowledge may have a positive influence on the reconfiguration of existing knowledge bases. This being said, internal and external knowledge processes is a prerequisite for ambidexterity, however, external knowledge has to be absorbed and integrated to unlock its full potential.

In other studies, increasing the external search breadth of the manager's network is associated with the increasing ability of the manager to acquire and understand complex knowledge (Mom et al., 2009), and the action they take in processing the information (Dahlander et al., 2016). Managers shall be enabled to reduce the uncertainty surrounding exploration activities. Furthermore, the study argues, if the manager does not extend the breadth of their search, relying only on internal sources of information, they may fail to enjoy the benefits of exploiting new knowledge, reducing their ambidexterity (Dahlander et al., 2016). Possessing the autonomy to make decisions on how and which tasks they perform, stimulates their willingness to search and become aware of the market and technological opportunities available (Mom et al., 2009). However, much of the focus in prior studies have been dedicated to technical and scientific experts, excluding the contributions from other managers (Dahlander et al.,

2016). Individual's external search plays a significant role in the rate of innovation for the individual and the organisation. How managers spend their time deepens the understanding of how the individual's behaviour affects the firm's behaviour. There is growing interest in this field of research which agree, the ability of the individual to explore and exploit is the seed for ambidexterity of the organisation (Enkel et al., 2017; Tushman & O'Reilly, 1996). Most studies consider innovation as the only outcome of absorptive capacity and generally discuss the commercial application of acquired knowledge. Thus, the research attempts to fill the gap, further developing our understanding of the factors that influence individual ambidexterity through the three dimensions of how external knowledge is absorbed, which enables the ambidextrous behaviour of managers.

2.6. Chapter Conclusion

Opposing views remain, but clearly evident is that managers can benefit if the take advantage of knowledge. New knowledge acquired can potentially improve innovation performance because this brings new elements into the organisation which can potentially increase the number of innovations. In the same regard, managers can leverage off new knowledge to be more effective in changes to existing products and services. Synergies between the two elements potentially lead to better performance, or alternatively suggested, firms which do not have ambidextrous managers potentially perform worse than organisations that do. From reviewing the literature, authors which have assessed ambidexterity consider exploration and exploitation as possessing synergistic characteristics (Gupta et al., 2006; Rosing & Zacher, 2017), which exploitation is associated with assimilating and utilising new knowledge while exploration is regarded as identifying new knowledge.

3. Chapter 3: Hypothesis Development

3.1. Introduction

Hypothesis statements are developed to test existing theories, and the aim in this research is to test the dimensions of individual-level absorptive capacity and its associations with exploration and exploitation activities termed managers ambidexterity. The purpose will be to understand the driving factors of individual-level absorptive capacity and its effects on exploration and exploitation. Therefore, to reach answers on the aim of this research, the following hypothesis has been developed:

3.2. Conceptual Framework

Multiple studies on organisational ambidexterity propose individuals are an essential source to develop this ability. Extant research agrees with the ability of the individual to explore and exploit is the seed for ambidexterity (Enkel et al., 2017; Tushman & O'Reilly, 1996). However, the link between individual-level absorptive capacity and the individual's ambidexterity behaviour is underdeveloped.

Figure 3 shows an adapted conceptual model from prior theoretical models. The aim of the research was to understand the impact of absorptive capacity to measure individual ambidexterity.

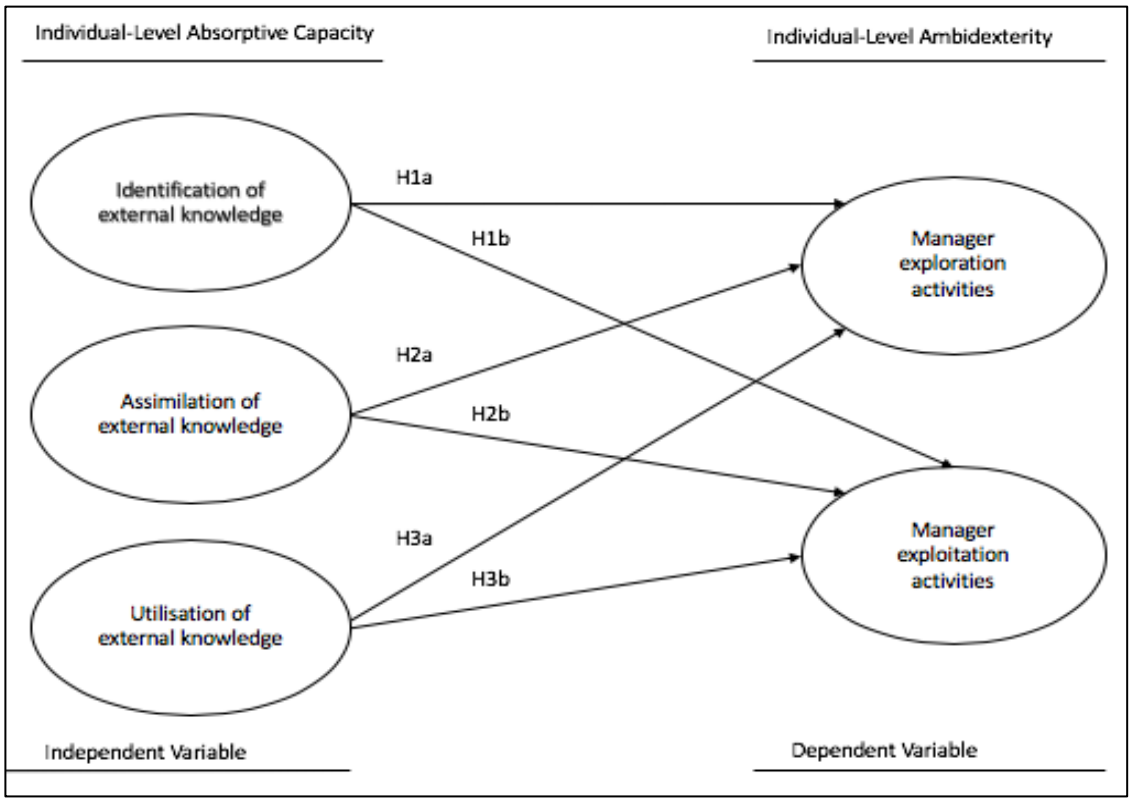

Figure 3: Conceptual Model

3.3. Hypotheses

Mom et al. (2007) hypothesise that depending on the direction (top-down and bottom-up) flow of knowledge this will influence the manager's exploration and exploitation activities. The top-down flow of knowledge allows managers to respond to problems in familiar ways, increasing their ability to perform routine activities effectively and efficiently (Mom et al., 2007). Personal interactions with different parties support individuals in reaching external sources that add new knowledge to their existing knowledge base. However, even when contradictory information pertaining to a positive assessment of the market potential for novel products and services is available, the manager will still rely on their initial assessment of how knowledge is similar to what they already know (Antons & Piller, 2015). Thus, the search process involves acquiring knowledge which starts with individual managers, characterised as the gatekeepers of the organisation, responsible for identifying knowledge so they can pursue both exploration and exploitation activities.

$H1_0$: Identifying knowledge from external sources has no positive relationship with the manager's exploration activities.
$H1_1$: Identifying knowledge from external sources has a positive relationship with the manager's exploration activities.

The individual manager more often than not seeks and selects information which resonates with their personal beliefs and attitudes (Antons & Piller, 2015). The manager's attitude will guide their thinking, decision making, and behaviour which is likely to lead to biased decision making. Consequentially, evaluating external knowledge incorrectly hurts any form of innovation (Lichtenthaler & Ernst, 2006). However, external sources can give managers the opportunity to improve their skills and abilities.

$H2_0$: Identifying knowledge from external sources has no direct relationship with the manager's exploitation activities.
$H2_1$: Identifying knowledge from external sources has a direct relationship with the manager's exploitation activities

Assimilation is described as the ability of individual's to reconfigure and redeploy resources, so the firm is ready to act on external information (Apriliyanti & Alon, 2017). Sources for opportunity recognition and exploring remains more distant from the individuals dominant logic than being exploitative (Stettner & Lavie, 2014), suggesting that radical, innovative ideas generated through external sources require a greater

degree of assimilation that would be the case for incremental innovation ideas from external sources. Managers of the organisation must analyse and understand the value of external knowledge before disseminating this within their organisation (Tortoriello, 2015). Thus, individuals will evaluate and quantify the market potential of the new idea before communicating these to the organisation (Enkel et al., 2017). Managers possess profound knowledge about their organisation's abilities and therefore can integrate newly acquired knowledge.

H3$_0$: Assimilation of externally acquired knowledge has no direct relationship on the manager's exploration activities

H3$_1$: Assimilation of externally acquired knowledge has a direct relationship on the manager's exploration activities

H4$_0$: Assimilation of externally acquired knowledge has no direct relationship on the manager's exploitation activities

H4$_1$: Assimilation of externally acquired knowledge has a direct relationship on the manager's exploitation activities

Utilising ideas when they have been generated from external sources is quite challenging, given that they conflict with established working modes. Therefore, the efforts of the individual to utilise external knowledge may be crucial. External knowledge may have no impact on improving activities of the individual which have already been established over time. As an individual attempts to broaden their attention, the research for alternatives allows them to be more creative.

On the other hand, external knowledge obtained will not affect the manager's exploitive activities as their attention is narrowed down, focusing on solving problems in routine ways. However, managers who have high levels of competence have absorptive capacities (Rangus & Slavec, 2017), meaning their ability to transfer perceptions internally is superior. Thus, it is important for the manager to transfer and connect externally acquired knowledge with internal capabilities for successful utilisation. Based on the aspects discussed, the proposed hypotheses are:

H5$_0$: Utilisation of externally acquired knowledge has no direct relationship on the manager's exploration activities

H5$_1$: Utilisation of externally acquired knowledge has a direct relationship on the manager's exploration activities

H6$_0$: Utilisation of externally acquired knowledge has no direct relationship on the manager's exploitation activities

H6$_1$: Utilisation of externally acquired knowledge has a direct relationship on the manager's exploitation activities

3.4. Conclusion

The hypotheses are explored in the context of Absorptive Capacity, and Ambidexterity theories and herein factors such as identification, assimilation, utilisation as well as exploration and exploitation activities are thus considered in the research.

4. Research Design and Research Methodology

4.1. Introduction

The research philosophy that will be used is positivism in nature. For this study, positivism has been used to investigate and understand the measurable variables which relate to the manager's ambidextrous orientation (exploration and exploitative activities), and the dimensions of absorptive capacity at the individual level. This section outlines the strategy that will be used, which will ensure the stated objectives are achieved. In addition, the following sections namely; the methodology, population, sample size, and sampling method, unit of analysis, measuring instrument, data collection process, and data analysis will be discussed further.

4.2. Research Design

The study has been designed to examine the relationship between the individual manager's ambidexterity activities and absorptive capacity at the individual level. The study is deductive, as it involves the testing of hypotheses which has been developed based on the literature review (Saunders & Lewis, 2012). This approach is appropriate for the study as it answers the research question through objective criteria which examines the relationship, assesses the nature of the relationship and develops possible insights into the causality of these relationships. The research design is the plan which will allow for the assessment of the nature of the relationship. The research design can take place in several forms. The work by Saunders and Lewis (2012) explain that research design can be done in any of following forms: experiment (laboratory or field); survey (interview or questionnaire); secondary data analysis; case study work; grounded theory; ethnography; and action research. For this study, a survey design with a survey questionnaire being the main instrument of inquiry. An online self-administered questionnaire will be sent to a selection of the sample population.

The design of this research was considered to be useful and appropriate as it enabled the researcher to achieve the following:

- Administer similar questions in nature to a large number of people, which is likely to make the responses from different participants more comparable and fair (Saunders & Lewis, 2012),
- Collecting a large amount of data was cost-effective in using this approach (Saunders & Lewis, 2012),
- All responses would be documented and not left to interpretation minimising the bias of the researcher (Saunders & Lewis, 2012),

- Subject bias would be minimised by limiting the exposure to participants (Saunders & Lewis, 2012),
- Confidentiality of the participants would be ensured(Saunders& Lewis,2012),
- Participants could complete the questionnaires without needing the researcher needed to be present (Saunders & Lewis, 2012).

In addition to the above criteria, the design is suitable in that the variables from the research hypotheses can be measured using a set of predetermined questions developed from existing theory (Saunders & Lewis, 2012). It was also considered that participants would consider time as a factor. Therefore, sending an online questionnaire to participants so they could complete the questionnaire on their own accord would be likely to improve the response rate and obtain good results. Those participants considered for the study would more than likely have access to smartphones and computers. The purpose of the research will be descriptive and explanatory. The research will describe the characteristics or constructs that makeup ambidexterity and the dimensions of absorptive capacity at the individual level. Furthermore, the explanatory nature of the research is to test the theory examined in the literature review and purpose statement.

4.3. Research Methodology

This research study has been designed to explain links or predictive relationships between variables, with the main focus on a link between the constructs identified. Quantitative research has been developed from the concept known as positivism (Warner & Allen, 2018). Quantitative methods are an empirical approach to gather data and test the theory on literature informed variables which is measured using numbers and statistical techniques to explain theorised relationships (Warner & Allen, 2018). Based on the literature reviewed, hypothesised relationships were formulated, and the study design will seek to determine if causal relationships exist. Quantitative research measures relationships between variables so the phenomena of interest can be explained (Warner & Allen, 2018). Furthermore, adopting this approach contributes to studies describing the concept of absorptive capacity (Enkel et al., 2017) and managers ambidexterity (Mom et al., 2015; O'Reilly & Tushman, 2013; Raisch et al., 2009). Lastly, deductive reasoning will be used so that the nature of the relationship can be answered, based on the literature reviewed, further making the quantitative approach ideal for this study (Saunders & Lewis, 2012).

4.3.1. Population

The sample consists of managers from multiple organisations. Managers are considered the gatekeepers to their particular organisation and carry ideas into and across the organisation by connecting external sources with internal capabilities (Enkel et al., 2017). The manager's responsibility is to implement strategic decisions pertaining to exploitative and explorative activities which are aligned with the strategic objectives of the organisation (Li, 2011). Besides, managers implement the necessary practices to absorb external knowledge (Enkel et al., 2017). Managers from the respective organisations actively monitor the market through industry literature, conferences, workshops as well as engage with communities and personal networks either within the firm or with other companies

Most studies consider innovation as the only outcome of absorptive capacity and generally discuss the commercial application of acquired knowledge. Furthermore, absorptive capacity primarily focuses on technology-intensive firms. Thus, this research extends its setting to managers from multiple industries in order to enhance the validity of the construct, contributing to the existing theory. Choosing this population is thus relevant for South Africa as the context industries operate in are technological, economically and culturally diverse and examining managers ambidexterity seemed compelling. Although different organisations experience external factors differently, managers still have to navigate the turbulent environment. External factors force firms to explore due to changes in technology, customer demands, competition, and regulation, but at the same time firms must exploit due to short-termism factors such as competitive pressures, focus on efficiency and reaching economies of scale in order to reduce costs. Based on this current dynamic environment, businesses are continually operating at a rapid pace of change, therefore absorbing external knowledge is imperative for innovation, whether this it be incremental innovation or radical innovation as well as meeting the objectives of the organisation's strategy.

4.3.2. Sampling Method and Size

The sampling technique adopted was a two-layered non-probability technique which included convenience sampling and snowball sampling (Saunders & Lewis, 2012). Convenience sampling is known as the non-random sample of respondents which the researcher is able to draw conveniently. Subsequently, snowball sampling was then used to further increase the sample size by asking respondents to assist in identifying members of the target population (Saunders & Lewis, 2012). Although the sampling

technique adopted has limitations about the representation of the population, the technique is suitable when attempting to obtain a large number of respondents (Zikmund, Babin, Carr, & Griffin, 2010). The survey was then administered through the use of personal networks and direct contacts (convenience sampling) and requested the survey also be forwarded to other colleagues of the same status (snowball sampling) within their respective organisations. reflection of the population, a qualifier question was inserted prior to any respondent completing the survey. The purpose of the qualifier question was to ensure that the survey was not administered to a random group of people, thus reducing the reliability and validity of the data acquired for the purpose of the research. Samples are used so that vital data can be gathered quickly (Zikmund et al., 2010), seeing that research studies are sometimes bound by time constraints. The population is reasonably heterogeneous, thus for quantitative analysis, the sample size should be large enough to make inferences of the greater population with some level of confidence (Zikmund et al., 2010).

In statistical analysis, many complex formulas exist to determine the appropriate size and the general rule of thumb is that the sample size should not be below 50 respondents when conducting correlation and regression analysis (Wilson Von Voorhis & Morgan, 2007), but this number increases with the increase in independent variables. The authors provide an overview of the procedure to determine regression sample sizes and suggest $N > 50 + 8 m$ (where m is the number of independent variables) for testing the multiple correlations as appropriate (Wilson Von Voorhis & Morgan, 2007). This research study adopted three independent variables, which were adapted from the literature on the absorptive capacity field to test the association and relationship on the dependent variables- managers exploration and exploitation activities. By taking into the account, the formula proposed by Wilson Von Voorhis and Morgan (2007), Table 1 below indicates the minimum sample size of 74 would be required, where 3 represents the number of independent variables.

Table 1 : Minimum required sample size (Wilson Von Voorhis & Morgan, 200

$N > 50 + 8 m$
$N > 50 + 8 (3)$
Minimum Required Sample Size= 74

Through the use personal networks and direct contacts and requesting this to be forwarded on, the survey link was administered to a total of 313 respondents, reducing

the likelihood of error and increasing likelihood that the response rate would be greater than the minimum required sample size.

4.3.3. Unit of Analysis

For this research, the response from managers employed in the organisation's operating in South Africa was used as the unit of analysis.

4.4. Measurement Instrument

The following section explains the measurement instrument used for each of the variables. The final questionnaire has been constructed using items developed from previous studies and is appropriate for the current study. The questionnaire which was sent out to the sample can be seen in Appendix 1**: Questionnaire** of the document and can be referred to while the section is being read.

The first seven questions of the questionnaire related to the demographics of the participants and asked for their age, gender, tenure at their organisation, their highest level of qualification, management position and the type of industry in which the company conducts its operations.

To measure the five constructs as indicated in the conceptual framework, a measurement scale was adopted from literature where the scales had previously been validated in previous research (Wei, Zhao, & Zhang, 2014). The purpose of the measurement instrument is to record continuous interval data, utilising Likert type scales. Using a scale which had been previously validated ensures both reliability and validity of the constructs measured through the scale. The measurement instrument recorded the interval data, which consisted of a seven-point Likert-scale which ranged from one (Strongly Disagree) to seven (Strongly Agree). Subsequently, on each individual scale for each question pertaining to the construct being measured, the score of each question was aggregated to obtain a total score of that specific question. As per the suggestion of Zikmund et al. (2010), before aggregating the total score, the validity and reliability of each measure are tested, so the total score of the measure is valid for the construct. Although the constructs adopted in the scale have been used in many other studies, both proving valid and reliable, the researcher conducted a pre-test of the questionnaire. Subsequently, to the pilot study sent out, the researcher further simplified the questionnaire regarding the language so that those participating in the survey would be able to understand the questions clearly. Furthermore, some questions of similar nature were grouped before the final questionnaire was sent out.

4.4.1. Individual Ambidexterity

Individual ambidexterity is known as the ability of an individual being able to pursue and balance the efforts of exploitation and exploration (Mom et al., 2007). In order to measure the construct of individual ambidexterity (exploration and exploitation activities), the researcher adapted the work from previous authors, and a ten-item scale was used (Mom et al., 2007). The ten items are divided into two parts, five items to describe exploration activities and five items to describe exploitation activities. Managers were asked to specify to what extent ~~did~~ they engaged in work-related activities that were characterized as explorative or exploitative activities over the past year. The Likert scale shall range from 1 (very infrequently) to 7 (very often) (Mom et al., 2007). A mean score will be calculated, summarising to highlight to what extent the manager is engaged in explorative activities or exploitative activities, Literature of individual ambidexterity posits, managers need to be ambidextrous, pursuing both exploration and exploitation activities simultaneously. The quantitative data will be assessed, which can indicate whether the two are being pursued simultaneously, offering synergistic and complementary benefits or whether the one is sacrificed for the other.

4.4.2. Individual Absorptive Capacity

Individual absorptive capacity is regarded as the ability of the individual to identify, assimilate and utilise new external knowledge for the firm (Enkel et al., 2017). To measure the managers individual absorptive capacity (Identification, assimilation, and utilization) of external knowledge, multiple items were adopted from the study conducted by Enkel and colleagues (2017), inspired by the work of Jansen and colleagues (2006) (Enkel et al., 2017). A fourteen-item scale was used to measure the individual's efforts to Identify, assimilate and utilise of external knowledge. The Likert scale shall range from 1 (strongly disagree) to 7 (strongly agree) (Enkel et al., 2017).

4.4.3. Data gathering process

The Self-Administered Questionnaire had been explicitly designed to allow all respondents to interpret the question in the same way (Hair, Black, Babin, & Anderson, 2010; Zikmund et al., 2010). Zikmund et al. (2010) further suggest, self-administered questionnaires sent through means of the internet is a survey in which respondents take responsibility for reading and answering the questions which were posted through the link. Internet surveys have their advantages, one of them being the cost-effectiveness for gathering data from a large sample (Zikmund et al., 2010). Furthermore, due to the anonymity associated with these surveys, the likelihood of respondents being honest in

their answers increases. However, this method does have its disadvantages, one being that respondents have different perceptions which leads to them developing their own interpretations of the questions in many different ways (Hair et al., 2010). Another disadvantage associated with Self-Administered Questionnaires is that low response rates can be experienced, as well as technical difficulties, for example, respondents may be faced with connectivity problems to reach the platform itself (Saunders & Lewis, 2012).

An email link was sent to managers from the various companies in different industry types. Participation in the survey was voluntary, and the selected participants had the choice of removing themselves from participating at any given time. Furthermore, the survey was designed in a manner, which ensured that it could not be completed more than once on the same device. This ensured that the same respondents do not complete the survey more than once, which could interfere with results when analysis takes place.

The data that had been collected was used to test the set-out hypotheses. Following the suggestions of Taber (2017), separate questionnaires should be constructed to gather data of various independent and dependent variables in order to avoid any self-evaluation or common method bias so the results are interpretable and reliable.

The analysis first began by reviewing articles from top rated journals accessed from various databases (Google Scholar, Academic Search Premier (EBSCOHost), ABI/Inform Complete (ProQuest), etc) using titles, abstracts, keywords, subject or full text containing the expressions ‘individual ambidexterity’, ‘exploitation’, ‘exploration’, or ‘absorptive capacity.’ The purpose of the questionnaire was to gather primary data from the Self-Administered Questionnaires (SAQ), which included the responses from individuals with regards to the different constructs.

This data obtained relates to individuals’ current thoughts and perceptions at that specific point in time, otherwise known as a snapshot of current thinking (Saunders & Lewis, 2012).

4.5. Analysis Approach

Statistical analysis will be done using the commercial statistical package, SPSS, and excel. Before starting the analysis, the data collected was edited and coded so that this can correspond to terminology in the questionnaire.

4.5.1. Validity and Reliability

Before aggregating the measures, Cronbach's alpha coefficient for internal consistency reliability was calculated, this is imperative when using Likert-Type scales (Gliem & Gliem, 2003). In order to test the validity of the measurement scales used from prior literature, correlation analysis will be used for individual scores and total scores of the data collected (Young & Meyer, 1978). In order to ensure the validity of the measurement scales used from prior literature to measure each of the constructs, a bivariate correlation conducted by running a Pearson correlation. If the total score had a significant correlation ($p < .05$), then the questions in the construct were deemed valid.

The discussion above, explains that the importance of validity and internal reliability of measurement scales is crucial before any inferential statistics can take place. Zikmund et al., (2010), suggest using the Cronbach alpha to measure the reliability of each construct, as a Cronbach alpha greater than .80 indicates that the reliability of the construct is good. Based on the review of the literature, the questions which were used to develop for testing for reliability is to determine whether different questions converge to the same result. Validity is measured to determine whether scores obtained truthfully represent a construct (Zikmund et al., 2010).

4.5.2. Factor Analysis

Factor analysis is primarily used to summarise and reduce data (Hair et al., 2010). This is achieved by grouping and defining variables that are highly interrelated. Zikmund et al. (2010) define factor analysis as a "prototypical multivariate, interdependence technique that statistically identifies a reduced number of factors from a larger number of measured variables" (p. 593). Confirmatory factor analysis was the technique used since the measurement instruments used in this research has already been validated by prior studies. For each construct, the confirmatory factor analysis was conducted in order to confirm whether the questions asked per the specific construct measured only one factor. The eigenvalue one rule was also used to ascertain the number of components extracted during data analysis.

4.5.3. Hypothesis Testing

To test the significance of the results obtained from the hypothesis, a *p*-value of .05 was used.

i) Hypothesis One

Following the review of the literature, individuals who direct their efforts towards identifying external knowledge, are potentially more explorative as they seek new possibilities with regards to products, services, processes or markets.

ii) Hypothesis Two

Exploitative activities are the process of improving on established routine tasks. Therefore, the integration of newly acquired knowledge may inspire individuals to think out the box when it comes to routine tasks.

iii) Hypothesis Three

Assimilation is necessary when the individual requires taking new knowledge after evaluating the various options and attempts to combine this with existing knowledge in order to renew existing processes, products or services. Individuals need to determine whether the new idea will be beneficial for the firm and the market.

iv) Hypothesis Four

Assimilation is necessary when the individual requires taking new knowledge and attempts to combine this with existing knowledge. However, newly acquired knowledge faces challenges seeing as the firm may not be familiar with the external knowledge. Therefore, managers potentially fall into a competency trap due to being unwilling to experiment (Enkel et al., 2017).

v) Hypothesis Five

Following the external knowledge which has been assimilated, managers must exert additional efforts to facilitate the utilisation of external knowledge. Overcoming resistance requires managers to show passion for new ideas, and be willing to take risks for the new ideas to be realised as the adapt in work-related activities (Enkel et al., 2017).

vi) Hypothesis Six

External knowledge can conflict with the organisation's established working routines which impede the individual's efforts to utilise external knowledge as it does not fit with the existing policy of the firm (Enkel et al., 2017).

For each of the six hypotheses, the research aimed to predict the strength and association between the independent variables (identification, assimilation, and utilisation) and the dependent variables, managers exploration, and exploitation activities as well as quantify the relationship(Zikmund et al., 2010). The appropriate statistical analysis to run was a bivariate correlation analysis and interpret Pearson's *r* to understand the strength and association of these variables. A Simple linear regression analysis was also conducted since it allowed one to see the extent to which regression coefficients varied across the variable. Regression analysis indicates how the behaviour of predictor variables influence the behaviour of a dependent variable (Hair et al., 2010).

4.6. Synthesis

To develop a better understanding and to expand existing knowledge on the contribution the dimensions of individual absorptive capacity have to the manager's ambidexterity, multiple regression analysis of all independent variables will be used to test the dependent exploration and exploitation variables and the statistical significance of each.

4.7. Limitations

The electronic format of the survey inherently limited the respondents to individuals with computer and internet access. Internet-based surveys pose the risk of emails being filtered as spam, or even technical difficulties from running the survey online. The sample itself could be biased, as only certain individuals were contacted through convenience and snowball sampling methods, both non-probability sampling methods. These type of sampling methods could be unrepresentative of the actual population resulting in sampling error.

The identified sample runs the risk of being biased because only certain managers within the researcher's personal networks were contacted through convenience and snowball sampling methods, both non-probability sampling methods which could result in sampling error. This sampling method excludes relying on the randomness of the probability-based selection of the sample (Zikmund et al., 2010). Therefore, future

research should adopt other sampling techniques, especially when expanding beyond the borders of a single country, to ensure a more global perspective

This study looked at firms from multiple industries in South Africa. This could impact the results as organisations themselves are at different stages of the organisational life-cycle. Thus, their strategy to address the external environment will be different. This being said, pressures from the external environment can potentially impede exploration or exploitation activities because management has an obligation to meet strategic objectives laid out.

Furthermore, the study only looked at specific dimensions relating to the exploitation and exploration activities of the individual. Future research could potentially look at how the different stages of the organisational life-cycle influence the kind of activities the manager pursues, using this as either a moderating or mediating vriable. Also, the study is limited to the relationship on the manager's exploration activities and exploitation activities based on their efforts to identify, assimilate and utilises knowledge from external sources. In order to continuously contribute to academia, future research could look a case study replicating this study and determining real-life context.

5. Chapter 5: Data Analysis and Research Results

5.1. Introduction

This chapter presents the results and is set out in the overarching sections as follows: descriptive statistics, reliability and validity around the measurement instruments, and finally, inferential statistics to test the hypotheses. To test the hypotheses both correlation and linear regression analyses were used to predict the association and strength between the hypothesised independent variables (identification, assimilation and utilisation) and dependent variables (exploration and exploitation). According to Cohen (1992), the strength of the association in correlational analysis can be interpreted as weak when Pearson *r* is equal to or more than .1, moderate when Pearson *r* is equal to or more than .3, and strong when Pearson *r* is equal to or more than .5.

5.2. Descriptive Statistics

The survey link was distributed to a population of 311 potential respondents, of which 108 completed respondents were received. There was no incomplete response, thus all 108 responses were usable. This indicates a response rate of 34.7%.

Table 2 Below indicates the frequency distribution of the respondents age. Respondents between the ages 18 – 29 numbered 26 (24%), between 30 – 39 numbered 51 (47%), between 40 – 49 numbered 21 (19%), between 50 – 59 numbered 8 (7%), and 60 or older numbered 2 (2%).

Table 2: Age of Respondents

Age	Frequency	Percent[%]
18-29	26	24%
30-39	51	47%
40-49	21	19%
50-59	8	7%
60 or older	2	2%
Total	**108**	**100%**

Figure 4 Below displays the respondents by gender. Majority of the respondents were male, accounting for 82 (76%) and only 26 (24%) were female.

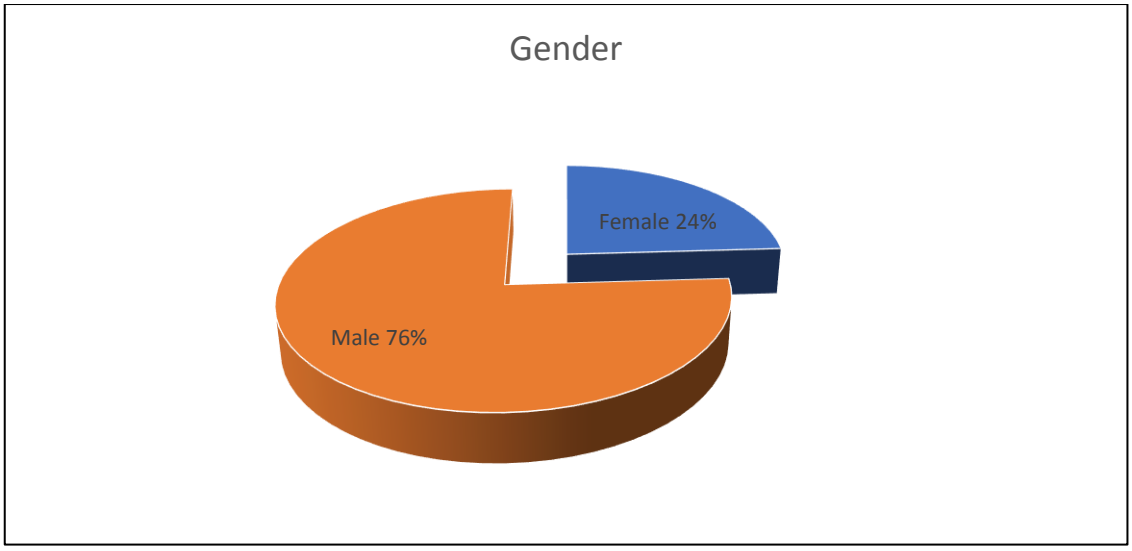

Figure 4: Gender of Respondents

Table 3 below indicates the frequency distribution of the number of respondents tenure at their organisations. Respondents that had been at their organisation for less than a year numbered 9 (8%), between 1 and 5 years numbered 46 (43%), between 6 and 10 years numbered 32 (30%), and a tenure more than 10 years numbered 21 (19%).

Table 3: Tenure of Respondents

Tenure	Frequency	Percent
Less than a year	9	8%
1 and 5 years	46	43%
6 and 10 years	32	30%
More than 10 years	21	19%
Total	**108**	**100%**

Table 4 below indicates the frequency distribution of the managers educational levels. Although the lowest level within the group is a matric, this was a single occurrence. The majority of managers both male and female either have a post-graduate degree and or master's degree. This is confirmed in the frequency table with 54 (66%) males respondents and 26 (62%) female respondents. Together, 80 (74%) of the respondents have obtained either have a post-graduate degree and or master's degree.

Table 4: Frequency Table of Respondents Highest Qualification

	Male		Female	
Highest Qualification	Frequency	Percent	Frequency	Percent
Matric	1	1%	0	0%
Diploma	13	16%	3	12%
Undergrad Degree	13	16%	7	27%
Post-Graduate Degree	32	39%	9	35%
Masters	22	27%	7	27%
PHD	1	1%	0	0%
Total	**82**	**100%**	**26**	**100%**

Table 5 Indicates the managers level within their respective organisation. Of the sample group, respondents at a junior level numbered 18 (17), middle level numbered 40 (37%), senior level numbered 33 (31%) and executive director numbered 17 (16%). The managers level frequency was conducted to further develop our understanding of the constructs exploration and exploitation.

Table 5: Respondents Managerial Level

Manager Level	Frequency	Percent
Junior level manager	18	17%
Middle level manager	40	37%
Senior level manager	33	31%
Executive director	17	16%
Total	**108**	**100%**

The survey consisted of twenty-four questions, and it was, therefore, necessary to further analyse the individual scores for each of the questions asked to understand the constructs of the individuals further. Descriptive statistics of individual responses are presented below in Table 6.

Interestingly, all but one of the mean scores recorded were above 3.5, representing the middle score range suggesting that managers within the sample are to a large degree actively involved in activities which they identify, assimilate and utilise knowledge from external sources, as well suggesting they are involved in exploration and exploitation activities at their organisation. The constructs used in this study were derived from the literature reviewed (Enkel et al., 2017; Mom et al., 2007) and the mean scores and standard deviation results of this study were similar to that of these authors, thus suggesting further reliability in the interpretation of the results.

Table 6: Descriptive Statistics - Individual Responses

Descriptive Statistics: Identification, Assimilation, Utilisation, Exploration and Exploitation						
		N	Minimum	Maximum	Mean	Std. deviation
Identification	I am constantly analysing the advantages and weaknesses of existing products and services on the market	108	1	7	4,19	1,443
	I regularly attend lectures, seminars, and exhibitions outside our industry to acquire new knowledge on the latest developments	108	1	7	3,20	1,533
	When interacting with others, I always try to obtain information on the latest market needs or new technologies	108	1	7	4,34	1,185
	I regularly make exchanges with colleagues from other business areas within the company to gain knowledge on alternative technologies and market needs	108	1	7	4,24	1,282
Assimilation	I process external knowledge quickly to get a feeling for how it can reasonably be used in our company	108	1	7	4,44	1,097
	I critically assess the potential value of external knowledge with respect to our business requirements	108	1	7	4,47	1,072
	I take time to translate external knowledge to guarantee that it is understood by my colleagues	108	1	7	4,16	1,169
	I have a central function in the preparation of external knowledge for other business units in the company	108	1	7	3,69	1,438
	I frequently meet with colleagues to explain and discuss new knowledge that I gained externally	108	1	7	3,71	1,388
Utilisation	When dealing with external ideas that I believe can face resistance in the company, I try hard to ensure the idea is realised by others	108	1	7	4,05	1,088
	I take risks to convince decision makers to adopt and utilise the external knowledge	108	1	7	4,03	1,397
	I would do almost anything for my external ideas to be taken up by the company	108	1	7	3,54	1,278
	I am willing to take action to guarantee that the potential of external ideas that I believe in is realised	108	1	7	4,13	1,200
	I follow a fixed process to integrate partners with complementary capabilities in the utilisation process	108	1	7	3,51	1,257
Exploration	Activities requiring you to learn new skills or knowledge	108	1	7	5,22	1,248
	Searching new possibilities with respect to products/services, processes or markets	108	1	7	5,00	1,374
	Evaluate different options with respect to products/services, processes or markets	108	1	7	4,95	1,410
	Focus on renewing or refining products / services or process	108	1	7	5,10	1,427
	Activities in which you reach the limits of your knowledge and requires adaptability from you	108	1	7	4,99	1,293
Exploitation	Activities which you can conduct properly by using your existing knowledge	108	1	7	5,57	1,104
	Activities which serve existing (internal) customers with existing services/products	108	1	7	5,42	1,216
	Activities which it is clear to you on how to conduct them	108	1	7	5,56	1,079
	Activities primarily focused on achieving short-term goals of the organisation	108	1	7	5,53	1,307
	Activities which clearly fit into the existing company policy	108	1	7	5,53	1,256

A construct analysis was then applied in order to gain a deeper understanding of each of the constructs from the descriptive understanding is provided in Table 6 above.

Table 7: Mean Level of Individual Constructs

Construct Descriptive Analysis					
Variables	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Identification	108	1,50	6	4,00	1,040
Assimilation	108	1,60	6	4,09	0,957
Utilisation	108	1,00	6	3,85	1,000
Exploration	108	1,60	7	5,05	1,113
Exploitation	108	2,4	7	5,52	0,916

With reference to the construct analysis in Table 7 provided the mean and standard deviation for each construct in order to view what the average responses were for the sample. The responses were as follows: the identification construct produced a range of 1.50 to 6. with a mean of 4.00,and a standard deviation of 1.040. The assimilation construct produced a range of 1.60 to 6, with a mean of 4.09 and a standard deviation of 0.957. the utilisation construct produced a range of 1.00 and 6, with a mean of 3.85 and a standard deviation of 1.00. Exploration produced a range of 1.60 and 7, with a mean of 5.05 and a standard deviation of 1.113. The exploitation construct produced a range of 2.4 and 7, with a mean of 5,52 and a standard deviation of 0.916.

Based on this analysis, we can conclude that managers perceive themselves to be actively involved in enriching their knowledge base through external sources, and champion this within the organisation to realise the true potential of absorbed external knowledge. Furthermore, managers somewhat perceive that their roles require them to have a balanced behaviour. However, although marginal, managers seem to prefer relying on their dominant logic which is sticking to trusted routines rather than experiment or try something new. These findings are similar to that of Mom and colleagues (Mom et al., 2007).

5.3. Reliability

The Cronbach for each of the constructs can be seen in the **Error! Reference source ot found.** below, with the lowest Cronbach alpha measure at .76 and the highest .88. Gliem and Gliem (2003) provide the following rules of thumb: "_ > .9 – Excellent, _ > .8 – Good, _ > .7 – Acceptable, _ > .6 – Questionable, _ > .5 – Poor, and _ < .5 – Unacceptable" (p.87), thus, although the Cronbach alpha of identification is below.8, a

Cronbach alpha of .76 is still acceptable and the internal consistency of the scales is reliable.

Table 8: Cronbach's Alpha for Respective Scales

Scale Description	Cronbach's Alpha	N of Items
Identification	0,76	4
Assimilation	0,83	5
Utilisation	0,86	5
Exploration	0,88	5
Exploitation	0,82	5

5.4. Validity

To determine the validity of each question the specific measurements scale, bivariate correlation between each individual score and the total-item score was determined.

Table 9: Bivariate correlations between Identification Scale Questions and the Item-Total Score

Identification		Q. 8	Q. 9	Q. 10	Q. 11	TOTAL
Q.8	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	108				
Q.9	Pearson Correlation	.387**	1			
	Sig. (2-tailed)	.000				
	N	108	108			
Q.10	Pearson Correlation	.523**	.434**	1		
	Sig. (2-tailed)	.000	.000			
	N	108	108	108		
Q. 11	Pearson Correlation	.444**	.370**	.536**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	108	108	108	108	
TOTAL	Pearson Correlation	.710**	.736**	.758**	.753**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	108	108	108	108	108

** Correlation is significant at the 0.01 level (2-tailed).

Table 9 above displays the results of the bivariate correlations for the identification of external knowledge scale. Interpreting the bivariate correlation total, between each individual question and the item total score was calculated to determine the validity of each question in the specific measurement scale. By interpreting the results from the data obtained, the *p*-value for each correlation was below .05, total we found that the *p*-value for each correlation was below .01, which means that each question in the measurement scale was valid. The bivariate correlations for the remainder of the scales can be viewed in Appendix 3, and the data for all of the questions in the respective measurement scales were found to be valid.

5.5. Factor Analysis

Based on the data obtained, a factor analysis was done on each of the constructs, with the aim of determining whether the questions that was asked per the specific constructs measured only one factor. This section reports the results of the factor analysis.

Table 10: Identification Correlation Matrix

Identification Correlation Matrix				
	Q8	**Q9**	**Q10**	**Q11**
Q8	1			
Q9	0,387	1		
Q10	0,523	0,434	1	
Q11	0,444	0,37	0,536	1

Based on the interpretation of the Identification construct correlation matrix displayed in Table 10 above, the findings of all the variables had at least one correlation above .3. Based on the results of the outcome confirmed, it would not be necessary to remove any of the variables from the measurement scale. The results of the remaining constructs can be found in

Table 11: Identification KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.770
Bartlett's Test of Sphericity	Approx. Chi-Square	103.248
	df	6
	Sig.	.000

To check the suitability of the data for factors analysis, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value and the Bartlett's test of sphericity values were checked. KMO requires a value of 0.6 or above for data suitability. Bartlett's test of sphericity requires that the Sig. value be below 0.05.

Table 11 displays the KMO values and Bartlett's test of sphericity Sig. values derived from the analysis. All constructs were found to meet the criteria set out by KMO and Bartlett's test of sphericity. The KMO yielded a value of 0.770 which suggest that the result was middling (Dziuban & Shirkey, 1974), thus the sample used was adequate. Furthermore, the Bartlett's test of sphericity was significant due to the principal component analysis being suitable. The same methodology was followed for the remaining constructs

Table 12: Identification Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.354	58.847	58.847	2.354	58.847	58.847
2	.654	16.354	75.201			
3	.555	13.867	89.068			
4	.437	10.932	100.000			

Extraction Method: Principal Component Analysis.

The principal component analysis revealed 1 component per construct with an eigenvalue exceeding 1. Table 12 indicates the that only one component was extracted, representing 58.847% of the variance. This result confirms that the identification scale was only measuring one construct as it was meant to be. According to Hair et al. (2010), this factor loading is significant as it is greater than 55%, which is the recommended factor loading when the sample size is 100 or more.

The remaining four constructs factor analysis outputs were interpreted by following the same approach as explained above. It was confirmed that all four of the other measurement scales were only measuring one construct as they were intended to do. The results can be found in Appendix 3 for Total Variance explained on the remaining constructs.

5.6. Research Objectives and Hypotheses Testing

A regression analysis was run for each of the hypothesised relationships: identification, assimilation, utilisation, exploitation and exploration. From each analysis, the *R* statistic will be reported, along with the estimate for each coefficient and significance of the dependence relationship.

5.6.1. Identification and Exploration

Figure 5 below depicts a basic scatterplot drawn for Identification on the x-axis, and exploration on the y-axis.

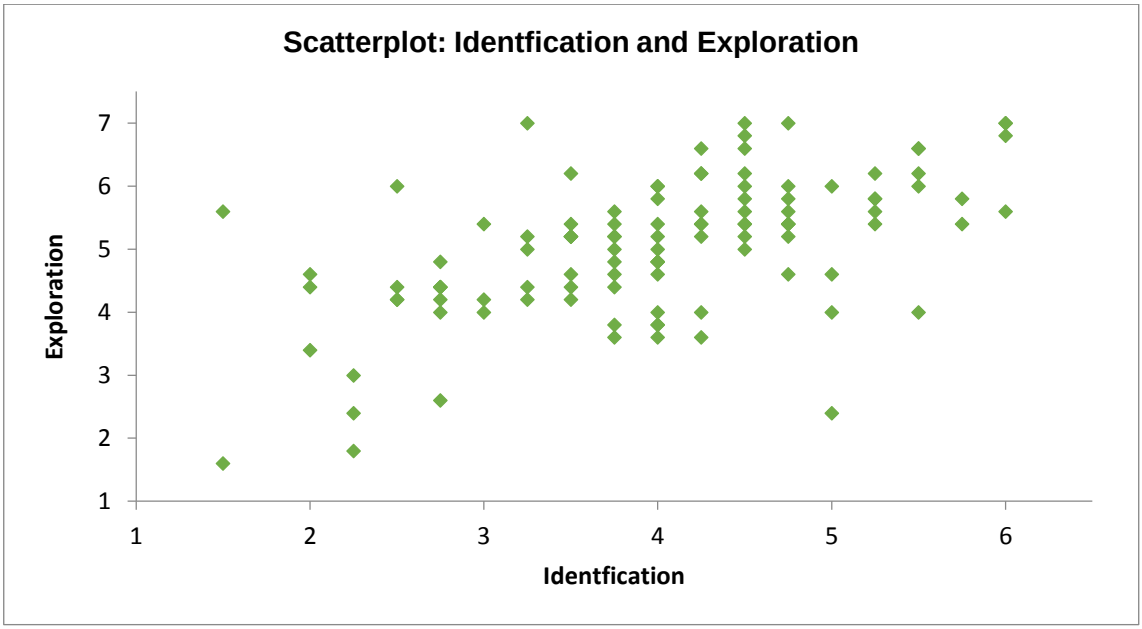

Figure 5: H1-Scatter Plot: Identification and Exploration

Following the review of the scatter plot, a positive linear relationship seems likely. The results of the regression analysis of Identification and exploration are shown in Table 13.

Table 13: Regression Analysis Identification and Exploration

Regression: Identification and Exploration		
R Square		0,317
Variables	**Coefficients**	**P-Value**
Intercept	2.644	0,00
Identification	0.603	0,00

Based on the interpretation of the regression analysis, it can be concluded that Identification accounts for 31.7% of the variation in exploration. The estimated coefficient

of identification is 0.603 and this relationship is significant as the p-value is less than 0.05 (*P < 0.05).*

5.6.2. Identification and Exploitation

Error! Reference source not found. below depicts a basic scatterplot drawn for dentification on the x-axis, and exploitation on the y-axis.

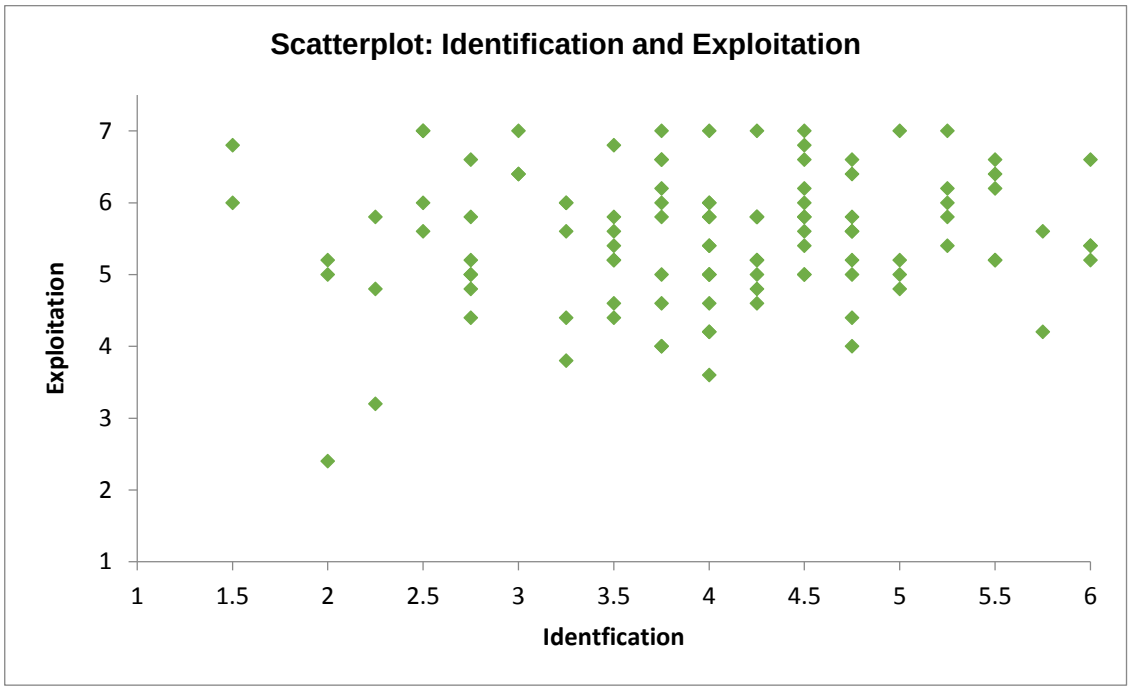

Figure 6: H2- Scatterplot: Identification and Exploitation

Following the review of the scatter plot, no linear relationship exists. The results of the regression analysis of Identification and exploitation are shown in Table 14

Table 14: Regression Analysis Identification and Exploitation

Regression: Identification and Exploitation		
R Square		0,011
Variables	**Coefficients**	**P-Value**
Intercept	5,159	0,00
Identification	0,091	0,29

Based on the interpretation of the regression analysis, it can be concluded that Identification accounts for 1.1% of the variation in exploration. The estimated coefficient of identification is 0.091 and this relationship is not significant with a p-value greater than 0.05 (*P > 0.05).*

5.6.3. Assimilation and Exploration

Figure 7 below depicts a basic scatterplot drawn for assimilation on the x-axis, and exploration on the y-axis.

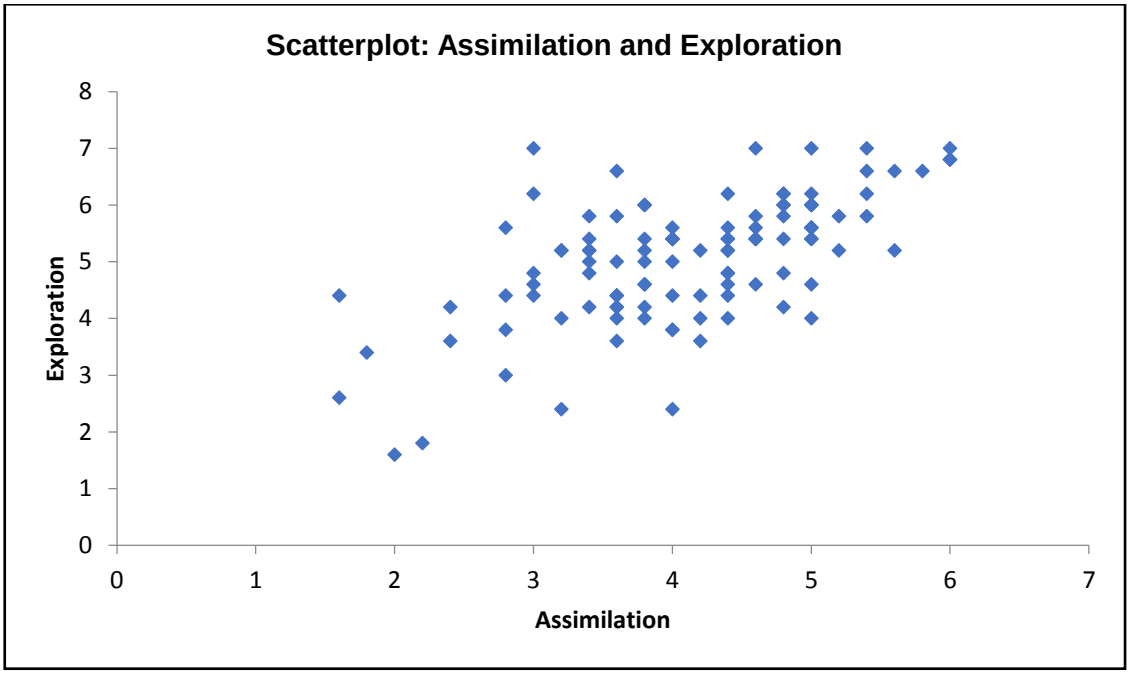

Figure 7: H3-Scatter Plot- Assimilation and Exploration

Following the review of the scatter plot, a positive linear relationship seems likely. The results of the regression analysis of assimilation and exploration are shown in Table 15.

Table 15: Regression Analysis - Assimilation and Exploration

Regression: Assimilation and Exploration		
R Square		0,384
Variables	**Coefficients**	**P-Value**
Intercept	2,101	0,00
Assimilation	0,721	0,00

Based on the interpretation of the regression analysis, it can be concluded that assimilation accounts for 38.4% of the variation in exploration. The estimated coefficient of assimilation is 0.721 and this relationship is significant as the p-value is less than 0.05 (*P < 0.05).*

5.6.4. Assimilation and Exploitation

Error! Reference source not found. below depicts a basic scatterplot drawn for ssimilation on the x-axis, and exploitation on the y-axis.

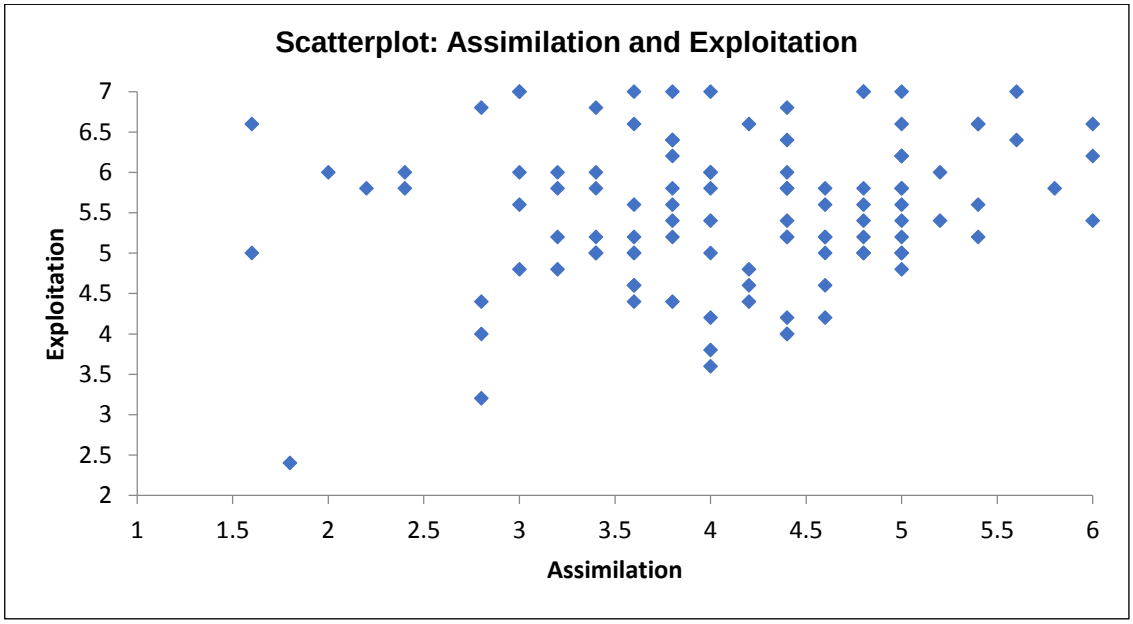

Figure 8: H4-Scatterplot: Assimilation and Exploitation

Following the review of the scatter plot, no linear relationship exists. The results of the regression analysis of assimilation and exploitation are shown in Table 16.

Table 16: Regression Analysis - Assimilation and Exploitation

Regression: Assimilation and Exploitation		
R Square		0,030
Variables	**Coefficients**	**P-Value**
Intercept	4,843	0,00
Assimilation	0,166	0,07

Based on the interpretation of the regression analysis, it can be concluded that assimilation accounts for only 3.0% of the variation in exploitation. The estimated coefficient of identification is 0.166 and this relationship is not significant as the p-value is greater than 0.05 (*P >0.05).*

5.6.5. Utilisation and Exploration

Error! Reference source not found. below depicts a basic scatterplot drawn for tilisation on the x-axis, and exploration on the y-axis.

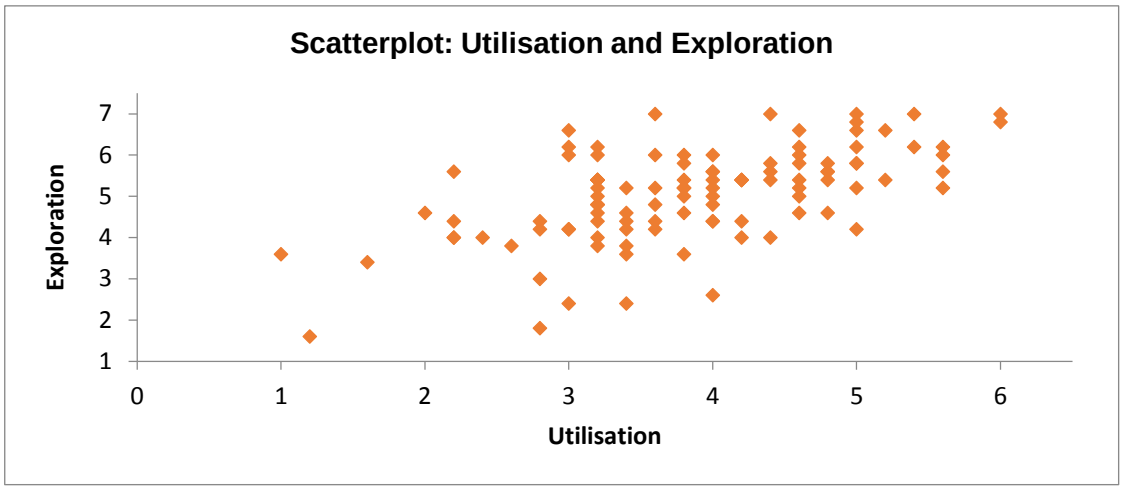

Figure 9: H5-Scatterplot: Utilisation and Exploration

Following the review of the scatter plot, a positive linear relationship seems likely. The results of the regression analysis of utilisation and exploration are shown Table 17.

Table 17: Regression Analysis- Utilisation and Exploration

Regression: Utilisation and Exploration		
R Square		0,345
Variables	**Coefficients**	**P-Value**
Intercept	2,538	0,00
Utilisation	0,654	0,00

Based on the interpretation of the regression analysis, it can be concluded that utilisation accounts for 34.5% of the variation in exploration. The estimated coefficient of utilisation is 0.654 and this relationship is significant as the p-value is less than 0.05 (*P < 0.05).*

5.6.6. Utilisation and Exploitation

Error! Reference source not found. below depicts a basic scatterplot drawn for dentification on the x-axis, and exploitation on the y-axis.

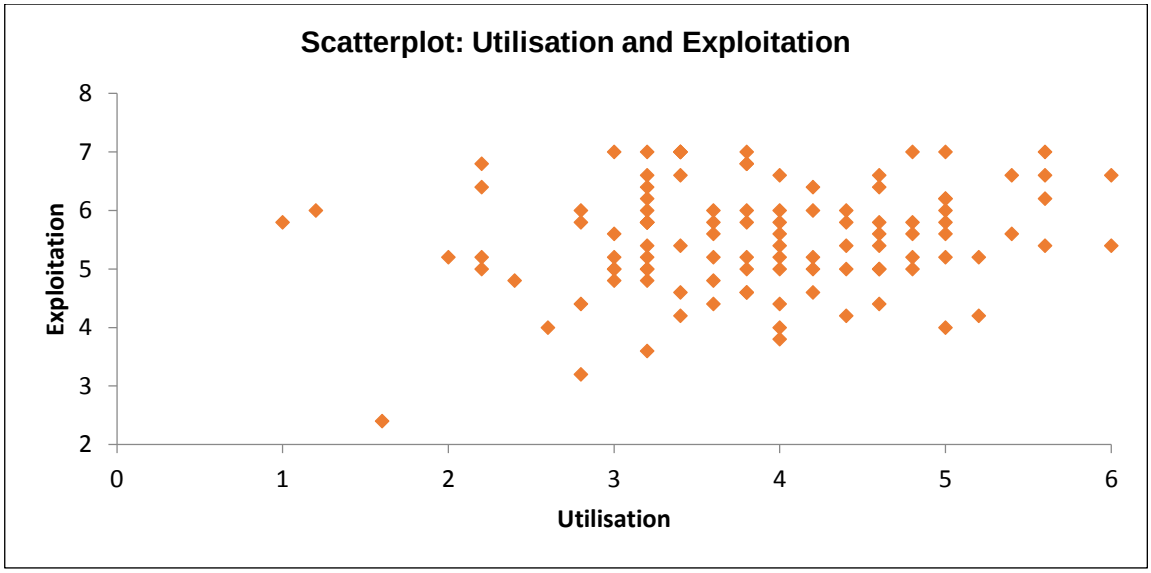

Figure 10: H6-Scatterplot: Utilisation and Exploitation

Following the review of the scatter plot, no linear relationship exists. The results of the regression analysis of utilisation and exploitation are shown in Table 18.

Table 18: Regression Analysis - Utilisation and Exploitation

Regression: Utilisation and Exploitation		
R Square		0,027
Variables	**Coefficients**	**P-Value**
Intercept	4,938	0,00
Utilisation	0,152	0,09

Based on the interpretation of the regression analysis, it can be concluded that utilisation accounts for 2.7% of the variation in exploitation. The estimated coefficient of utilisation is 0.152 and this relationship is not significant as the p-value is greater than 0.05 (*P > 0.05).*

5.7. Summary of the Hypotheses

The null hypothesis of hypothesis one states “Identifying knowledge from external sources has no positive relationship to the managers exploration activities.” With reference to Table 19, identification was significantly and positively related to exploration (r=.56, p (one-tailed) < .05). The null hypothesis of hypothesis one was therefore rejected in favour of the alternative hypothesis. We can thus conclude that there was a significantly strong positive correlation between identification and exploration.

The null hypothesis of hypothesis two states “Identifying knowledge from external sources has no direct relationship to the managers exploitation activities.” With reference to Table 19, identification has no significant correlation with exploitation (r=.10, p (one-tailed) < .05). The results fail to reject the null hypothesis in favour of the alternative hypothesis. The results could conclude that identifying knowledge from external sources does not predict any unique variance in the managers exploitive activities.

The null hypothesis of hypothesis three states “Assimilation of externally acquired knowledge has no direct relationship on the managers exploration activities.” With reference to Table 19, assimilation was significantly and positively related to exploration (r=.62, p (one-tailed) < .05). The null hypothesis of hypothesis three was therefore rejected in favour of the alternative hypothesis. As a result of these findings, it can be concluded that there was a significantly strong positive correlation between the managers efforts to assimilate knowledge and the their exploration activities.

The null hypothesis of hypothesis four states “Assimilation of externally acquired knowledge has no direct relationship on the managers exploitation activities.” With reference to Table 19, assimilation has no significant correlation with exploitation (r=.17, p (one-tailed) < .05). The null hypothesis of hypothesis four was therefore accepted. This result could conclude that the managers efforts to assimilate knowledge from external sources does not predict any unique variance to the managers exploitation activities.

The null hypothesis of hypothesis five states “Utilisation of externally acquired knowledge has no direct relationship on the managers exploration activities.” With reference to Table 19, utilisation of ideas from external sources was significantly and positively related to exploration (r=.59, p (one-tailed) < .05). The null hypothesis of hypothesis five was therefore rejected in favour of the alternative hypothesis. As a result of these findings, it can be concluded that there was a significantly strong positive

correlation between, managers efforts to utilise ideas from external sources and their exploration activities.

The null hypothesis of hypothesis six states "Utilisation of externally acquired knowledge has no direct relationship on the managers exploitation activities." With reference to Table 19, utilisation has no significant correlation with exploitation (r=.21, p (one-tailed) < .05). The null hypothesis of hypothesis six was therefore accepted. This result could conclude that managers efforts to utilise ideas from external sources does not predict any unique variance to the managers exploitation activities.

Table 19: Bivariate correlation between identification, assimilation, utilisation, exploration and exploitation

	Identification	Assimilation	Utilisation	Exploration	Exploitation
Identification	1				
Assimilation	0,68	1			
Utilisation	0,55	0,70	1		
Exploration	0,56	0,62	0,59	1	
Exploitation	0,10	0,17	0,17	0,21	1

5.8. Additional Analysis

Throughout the statistical analysis of this research, there were some unexpected results which required further investigation. To ensure thorough understanding of these findings, a few additional analyses were performed.

5.8.1. The Relationship between Absorptive Capacity and Ambidexterity

The correlation analysis provided indicated no relationship between dependent variables exploration and exploitation. Although not part of the conceptual model, it was important to understand if a group of predictor variables would be able to provide the best point estimate of the dependent variables, across a range of observations. Identification, assimilation and utilisation are the dimensions which form part of absorptive capacity, thus the research looked at the role of the dimensions as a single dimension construct as oppose to a multidimensional construct.

To determine the significance of the relationship between these variables, a multiple regression was performed, with absorptive capacity as the independent variable, and ambidexterity as dependent variable. Given that there was no theoretical basis developed from the literature for this relationship, the independent and dependent

variables were not easily indefinable. As a result, the multiple regression analysis was performed twice. The results of the analysis are shown in Table 20 below.

Table 20: Multiple Regression- Individual Absorptive Capacity and Individual Ambidexterity

Multiple Regression: Individual Absorptive Capacity and Individual Ambidexterity		
R Square		0,332
Variables	**Coefficients**	**P-Value**
Intercept	3,209	0,00
Identification	0,101	0,24
Assimilation	0,229	0,03
Utilisation	0,192	0,03

From the data in Table 20 above, it was evident that the variable identification did not contribute any unique variance to the dependent variable ambidexterity. This is concluded as the estimated coefficient is 0.101 and the relationship not significant as the p-value of 0.24 is greater than 0.05. The multiple regression was therefore rerun excluding the variable that did not contribute any unique variance to the dependent variable. The results of this analysis are shown below in Table 21 below.

Table 21: Multiple Regression- Individual Absorptive Capacity and Individual Ambidexterity

Multiple Regression : Individual Absorptive Capacity and Individual Ambidexterity		
R Square		0,323
Variables	**Coefficients**	**P-Value**
Intercept	3,292	0,00
Assimilation	0,293	0,00
Utilisation	0,207	0,02

From this, it can be concluded that assimilation and utilisation accounts for 32.3% of the variation in ambidexterity. The estimated coefficient of assimilation and utilisation is 0.293 and 0.207 respectively, and is significant as the p-value is below 0.05.

5.9. Conclusion

Descriptive statistics provided insight into the respondents, as well as the behaviour of the independent and dependent variables. A simple linear regression was used to investigate the objective set out for this research. The results from the regression analysis provided an indication of the extent to which the independent variables (identification, assimilation and utilisation) were associated with the dependent variables (exploration and exploitation activities). The findings indicated a strong linear relationship between the managers efforts to identify, assimilate and utilise ideas from external sources and their explorative activities. In contrast, the results indicated a weak association between managers efforts to identify, assimilate and utilise ideas from external sources does not predict any unique variance in their ability to be exploitive. A multiple regression analysis was thereafter used to investigate the dimensions as a single construct after some unexpected results became evident. The results indicate that efforts to assimilate and utilise ideas from external sources are a better predictor of manager ambidexterity. These results however do not indicate causality. The following chapter describes the relevancy of the results obtained in this chapter.

6. Chapter 6 Discussion of Results

6.1. Introduction

The purpose of this research is to determine the relationship between absorptive capacity and ambidexterity, in order to understand the determinants of ambidexterity and the role external knowledge sources have.

In Chapter 5, a statistical analysis of the secondary data obtained had been performed. Chapter 6 presents the results from the statistical analysis and the relevance, with specific reference to the literature reviewed and the research objective. Each of the research hypothesis that was formulated in Chapter 3 was subsequently interpreted based on the results obtained. The chapter concludes by summarising the results of the findings as well as present the limitations of these results.

6.2. Descriptive Statistics

With reference to Table 5, 40 respondents were middle management (37%), and 33 respondents occupied a senior management role (31%). The remaining 35 respondents (33%) either held a junior level position or were an executive director. Individuals who are ambidextrous are in the position to contribute to organisational ambidexterity. The managers link organisational boundaries between work roles, different divisions, and social groups, and are required to deal with contradictory intentions, diverse bodies of knowledge, and possibly conflicting expectations (Mom et al., 2007; Rogan & Mors, 2014). This supported the research's aim to measure ambidexterity of individuals across all of the different organisational levels, where previous studies typically focused only on senior level or middle-level management (Lavie et al., 2010; Mom et al., 2007).

Respondents rated the level of exploitation, with an average of 5.52 higher than the level of exploration, with an average of 5.05. Managers prefer exploitation above exploration as they tend to rely on what they already know, continuing with routine behaviour that has experienced success in the past (Good & Michel, 2013; Mom et al., 2007). Overall, the average rating for individual ambidexterity was relatively high, with an average of 5.29. Inference of this data suggests that respondents view themselves as ambidextrous. Although Tushman and O'Reilly (1996) argue, the ambidextrous manager is a prerequisite for organisational ambidexterity, the results from there is the risk of self-reporting bias where the respondents may think they are ambidextrous.

With reference to Table 3, 43% of the total respondents 'tenure was between 1 and 5 years; and 30% of the total respondents 'tenure 5 and 10 years. The remaining respondents, 8% and 19 % had a tenure less than a year and greater than 10 years respectively. Organisational tenure is a significant predictor of managerial behaviours which shapes their cognitive process, skill development and motivations (Mom et al., 2015). The researchers also argue tenure is one of the most salient demographic characteristics with linkage to ambidextrous behaviour. One of the ambidexterity dimensions also involves the integration of exploration and exploitation activities through the cross-fertilisation of knowledge between other divisions and teams within the organisation (Rogan & Mors, 2014). These authors found evidence which is consistent, and that internal ties and internal contact heterogeneity also play a role in ambidexterity behaviour. The results illustrated that employees possibly could be spending shorter durations at their employers as opposed to only moving jobs once or twice during their career. However, this is very much an explanatory observation with no empirical evidence to support the observation. The observation does suggest research gaps exist within in our existing knowledge and that additional research may be needed to understand better the impacts of organisational tenure and managers internal networks in determining ambidexterity of managers.

6.3. Research Objective

To investigate the objectives, as shown in Figure 11 below, a simple linear regression analysis was used. First, the relationship between the individual dimensions of identification, assimilation, and utilisation, and exploitation and exploration was investigated and after that, a multiple regression between the dimensions of absorptive capacity and individual ambidexterity.

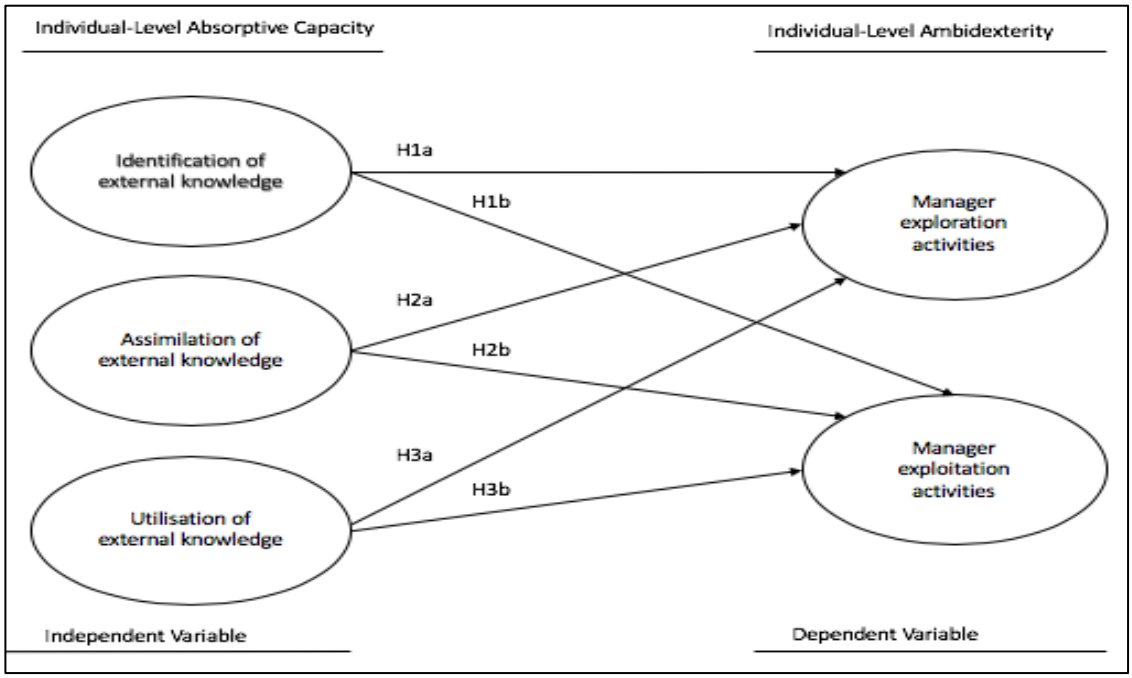

Figure 11: Research Conceptual Model

6.4. Introduction

The chapter below provides the discussion to the findings of this research, and how the factors of absorptive capacity are associated with exploration and exploitation activities of managers. After reviewing the literature, there is a consensual view which echoes the need for ambidextrous managers. Ambidexterity requires managers to accomplish two important tasks. First, they must be able to adopt a long-term orientation which includes sensing changes in their competitive environment and searching for new organisational norms, routines, structures, and systems to address these changes. Secondly, they must also adopt a short-term orientation so that they can improve or extend existing competencies, technologies, processes and products(Mom et al., 2007). O'Reilly and Tushman (2011) state, ambidextrous organisations, require ambidextrous managers. Furthermore, prior research has empirically validated that firms who are ambidextrous, achieve superior performance as well as achieve a sustainable competitive advantage in comparison to firms which focus on only one activity, either exploration or exploitation (Lubatkin et al., 2006; Mom et al., 2015; O'Reilly & Tushman, 2007).

6.4.1. Association between Identification of External Knowledge and Managers Exploration and Exploitation Activities

The p-value from the regression analysis for H1 was below 0.05, while the p-value for H2 was above 0.05. As a result, both Hypotheses H1 and H2 were supported. Thus, it can be concluded that the overall fit of the model was significant.

The statistical data presented in Table 13 finds that the relationship between identification and exploration is significant. Data presented in Table 14 finds no statistical relationship exists between identification and exploitation. Based on the results obtained, 31.1% of the variance in exploration activities is explained by identifying opportunities from external sources.

a) Identification of External Knowledge and Managers Exploration Activities

With reference to Table 13, the results indicated a positive and significant relationship between the identification of knowledge from external sources and the manager's exploration activities. The findings outline the key role of external knowledge sourcing. When existing knowledge and skills are converted into new intellectual capital through explorative activities, the firm may experience a positive effect concerning gaining a competitive advantage (Vrontis et al., 2017).

After reviewing previous literature in the field, it can be concluded that ambidextrous managers are considered individuals which refine their existing knowledge, skills, and expertise. Previous literature provides evidence that identifying external knowledge from multiple sources will give managers broader access to diverse knowledge, as a result enabling them to develop new and existing combinations of internal and external knowledge which will contribute to both exploratory and exploitative activities (Enkel et al., 2017). Mom et al. (2009) further implied, ambidextrous managers are required to process and acquire different kinds of knowledge and information, by engaging in search activities outside of the firm. There is also empirical evidence to suggest, the efforts of the individual to identify knowledge help the firm engage in exploratory and exploitative activities simultaneously, which can guide the organisation to achieve organisational ambidexterity (Enkel et al., 2017). The research findings do not support the views of the theories discussed above suggesting managers focus predominantly on only one learning orientation, exploration. In order to identify external knowledge, managers need to be alert to new opportunities in the environment, exhibit behaviour which is independent thinking, have ambition with strong social and communicative skills (Enkel et al., 2017). Thus, managers should focus on improving their competencies in these areas to potentially improve their levels of ambidexterity.

The results suggest, managers that are engaged in searching for new opportunities sourced outside of the firm, are more likely to be engaged in exploration activities. These activities can be in the form of searching for new opportunities or even reconsider

existing beliefs and decisions. Managers perceptions of their role requirements tend to influence the manager's activity. If they perceive their role requires more exploratory activities, they behave according to the learning orientation which is directed at exploration rather than exploitation (Bonesso et al., 2014). Conceptually, pursuing both exploitation and exploration activities, impose considerable challenges to management, as different behaviours are required (Mihalache, Jansen, Van Den Bosch, & Volberda, 2014). However, when managers are faced with complex and changing job demands which require them to switch between the different activities through the course of the day's work, tensions are created (Bonesso et al., 2014). Tensions tend to occur as the activities required for efficiency are contradictory to the activities needed to pursue variability activities. The reason for this is that when the firm is following a growth strategy, organisational factors force the orientation of managers to develop new ideas and look for new business opportunities. In line with our finding, research conducted by Bonesso and colleagues found that managers who perceive their role requires more exploratory activities will then behave according to learning orientation that is toward explorative activities (Bonesso et al., 2014). From a managerial perspective, the manager will aim to develop a network with external sources reinforcing this association further. Therefore, the strategy of the organisation potentially can explain how these perceptions are formulated influencing the manager's behaviour.

b) Identification of External Knowledge and Managers Exploitation Activities

Regarding Table 14, no statistical relationship exists between the identification of knowledge from external sources and managers exploitation activities. This finding was not what we expected. The finding is in contradiction to the studies conducted by Gupta et al. (2006), and Mihalache et al. (2014) who found synergies between exploration and exploitation. They argued that during the identification phase identifying external knowledge can provide useful contextual information, spurring the manager to improve existing processes and products which will be beneficial for the firm.

Identification of knowledge from external sources is explained in the literature as an essential consideration for manager ambidexterity, being that ambidexterity behaviour is the ability of the individual to not only recognise opportunities outside of one's field of expertise, but identify potential synergies and search for cooperation inside the organisation (Papachroni et al., 2016).

Research by Salter et al. (2015) discuss, external sources of knowledge increases the ability of managers to see opportunities which can potentially contribute to developing

novel solutions for existing problems, and no longer need to rely on the tried and tested from past success. However, while external sources open up opportunities to create new ideas, there is a point when these efforts are no longer beneficial. External sources all offer a unique and distinct idea which then requires a considerable amount of effort from the manager to integrate these ideas with existing knowledge. Also, the knowledge from external sources may be too diverse which inhibits the manager from effectively exploiting the newly acquired knowledge (Salter et al., 2015), which suggests they cannot manage conflicting tensions. The findings are also similar to those reported by Papachroni et al. (2016) who found, the lack of incentives and organisational support that enables flexibility and differentiation would direct the manager's orientation to focus on efficiency and considered knowledge from external sources as having little or no relevance to their working activities. Thus, managers may resort to relying on their prior knowledge, as opposed to identifying knowledge from external sources.

Research by Flatten, Adams, and Brettel (2015) also found no significant relationship between identification and managers exploitative activities. They discuss knowledge identification as a search process, and for exploitation of knowledge relies heavily on the abilities of the manager, which is driven by the individualistic characteristics of managers (Flatten et al., 2015). Managers have to make explicit decisions between exploration and exploitation activities, given their cognitive resources, which in other words is their attention. The uncertainty caused by the search process, as well as a risk-averse manager, will orientate them towards efficiency (Keller & Weibler, 2015), therefore suggesting they will prefer exploitation activities. Rosing and Zacher (2017), provided evidence and concluded, managers who focus too much on routine activities confined by the rules of the organisation will neglect experimentation and useful innovation.

Although the literature provides opposing views, commonality exists in that knowledge from external sources which is integrated with internal knowledge allow managers to combine exploration and exploitation activities in a balanced manner efficiently.

6.4.2. Association between Assimilation of External Knowledge and Managers Exploration and Exploitation Activities

The p-value from the regression analysis for H3 was below 0.05, while the p-value for H4 was above 0.05. As a result, both the hypotheses are supported. Thus, the overall fit of the model concluded as s significant.

The statistical data presented in Table 15 finds that the relationship between assimilation and exploration is significant. Data presented in Table 16 finds no statistical linear correlation exists between assimilation and exploitation. Based on the results obtained, 38.4% of the variance in exploration activities is explained through the individual's efforts to assimilate knowledge from external sources

c) Assimilation of External Knowledge and Managers Exploration Activities

Results from Table 15 indicate that the efforts of the manager to assimilate knowledge from external sources is associated with the manager's exploration activities. The assimilation of knowledge from external sources requires managers to assess the potential value and usefulness of the newly acquired knowledge, integrate this with existing knowledge, and communicate this throughout the organisation (Enkel et al., 2017). Theory on absorptive capacity does suggest, once knowledge from external sources has been identified, the knowledge needs to be adapted, communicated and shared across the organisation.

Theory suggests the manager's position inside the organisation and their internal knowledge-sharing network is a crucial factor when managers attempt to leverage external knowledge for explorative tasks. Managers assess ideas developed from external sources and determine whether to support or resist new ideas. They also decide the amount of effort they shall devote to this idea and how explicitly they shall communicate with others (Radaelli & Sitton-Kent, 2016). Tortoriello (2015) explains managers who have social systems that are close with one another have developed a shared sense of mental modes. Based on these perspectives, the manager's networks are a crucial factor to overcome resistance within the organisation, given that the potential value in the idea developed from external sources needs to be communicated across the organisation's boundaries.

Similarly, Ter Wal et al. (2011) found the efforts of managers to refine and adapt external knowledge into the language and organisational jargon of the firm are more likely to engage in explorative tasks. Radaelli and Sitton-Kent (2016) provide statistical evidence, managers that adopt the role of linking internal networks with external sources of knowledge have higher levels of divergent thinking and are more likely to engage in exploratory initiatives. However, the manager's ability and willingness to engage in assimilating newly acquired knowledge within and across organisational units is influenced by the level of formalised routines in that specific organisation (Martinkenaite & Joachim, 2015). Managers will more likely engage in exploratory initiatives when the

organisation provides cues about expected actions relating to their boundary position which is a manifestation of the strategic objectives for that firm. In line with the findings, Ter Wal, Criscuolo and Salter (2011), found that managers who give more effort to the assimilation of external knowledge are more willing to experiment which generates innovation.

Therefore, based on the above discussion, a manger which creates linkages between internal and external networks is more likely to engage in explorative activities based on these networks. Besides, this also signifies that the efforts of the individual to assimilate external knowledge into the firm is a powerful predictor of the individual's explorative activities.

d) Assimilation of External Knowledge and Managers Exploitation Activities

Based on the data obtained and analysis conducted, and reference to Table 16 no statistical relationship was found between the assimilation of external knowledge and the manager's efforts to exert exploitative activities, therefore the null hypothesis was accepted. However, contradiction remains. Ferreras-Méndez, Fernández-Mesa, and Alegre (2016) found a significant positive relationship between assimilating knowledge from external sources and exploitative activities. Their research found, applying assimilated knowledge is beneficial to improving existing products and processes. For example, the additional knowledge can be accessed by managers to solve problems in their value chain which may occur when knowledge is matched with processes and market opportunities (Ferreras-Méndez et al., 2016). Ter Wal et al. (2011) added by investigating the assimilation efforts of external knowledge and the innovation process. In their study, although external sources regarded as strictly external, managers can clearly, modify these ideas to serve the internal ideas of the organisation. Thus, the value of ideas from external sources is dependent on the managers capacity to assimilate and integrate what he or she already knows and can do, which then determines the receptive behaviour by the rest of the individual members of the organisation (Salter et al., 2015).

Research has found, risk-averse managers prefer exploitation since exploitation activities are more specific, immediate and routine (Lavie et al., 2010). Exploitation activities involve the use of existing knowledge, such that internalising and coalescing knowledge, incremental improvements to existing technology and marketing trajectories are made. The authors further added that the repeated use of exploitation activities generates positive feedback that improves existing competencies, enabling managers to evaluate the success of exploitation efforts better (Lavie et al., 2010). Although

successful exploitation efforts enhance the efficiency of existing technologies and processes, this restricts incorporating new knowledge into existing processes even after being evaluated as useful. The implications suggest that managers reinforce their bias towards short-term experimentation, which may lead to a “success trap” because they persistently pursue routine activities at the expense potentially improving on existing competencies. In conjunction with this perspective, Patterson and Ambrosini (2015) found that assimilating knowledge can be faced with resistance by other members in the firm, and this is the consequence of the not-invented-here syndrome. Although this may not always occur, when it does this can negatively impact the organisation. To this extent, the manager's bias towards exploitation may even cause the organisations to focus on exploitation at the expense of exploration.

While prior literature remains to have contradictory findings, the assimilation of knowledge is vital because although one individual may identify knowledge, it can be used by another for commercial ends within the organisation such as innovation, competitive advantage or even organisational performance (Gao et al., 2017; Pedrosa et al., 2013).

6.4.3. Association between Utilisation of External Knowledge and Managers Exploration and Exploitation Activities

The p-value from the regression analysis for H5 was below 0.05, while the p-value for H6 was above 0.05. As a result, the null-hypothesis for H5 was rejected in favour of the alternative, and the null-hypothesis of H6 accepted. Thus, it can be concluded that the overall fit of the model was significant.

The statistical data presented in Table 17 finds that the relationship between utilisation and exploration activities is positive and significant. However, data presented in Table 18 finds no statistical linear correlation exists between the utilisation of external knowledge and the manager's exploitation activities. Based on the results obtained, 34.5% of the variance in exploration activities explained through the individual's efforts to utilise knowledge from external sources.

The results indicated that individuals who exerted more effort at utilising knowledge from external sources were more likely to engage in explorative activities as opposed to exploitation activities.

e) The Utilisation of External Knowledge and Managers Exploration Activities

Knowledge utilising practices can be best described as knowledge exchange, training, and working together in teams, which more than likely develops the managers knowing capability (Seo et al., 2015). Experience of success in utilising external knowledge has a positive influence exploration, seeing that exploration benefits from knowledge accumulated. This research found managers involved in the utilisation of external knowledge will exert explorative activities.

Staying with the theoretical base from the seminal study by Cohen and Levinthal (1990), utilisation is the third dimension of absorptive capacity which refers to the use and application of newly acquired knowledge. Specifically, once knowledge is assimilated, managers convert the new knowledge into their existing operations as well as innovation activities (Pedrosa et al., 2013). The findings of this research has similar alignment to previous studies which explain that exploration activities is merely the experimentation of new alternatives for tasks (Good & Michel, 2013), and that the efforts of the individual to utilise external knowledge is positively related to the managers explorative activities and could potentially contribute to the firms exploration strategy (Enkel et al., 2017). The study by Salter et al. (2015) has similar findings to the proposed hypothesis, in that the exploration and utilisation of external sources of knowledge are positively related. Their study confirms, by being open to external sources, they benefit from diverse and valuable ideas which make them better prepared in creating unique, valuable ideas best suited for their organisation (Salter et al., 2015). What is worthy to note, managers more often do not know where their ideas will lead to for the organisation, however, sharing valuable ideas increases the chances their idea will be utilised and somehow add value to the organisation, growing into innovation of some sort.

f) Utilisation of External Knowledge and Managers Exploitation Activities

The findings of this research indicated that individuals who show efforts to utilise external knowledge are not likely to engage with exploitative activities.

Exploitation activities are the manager's ability to select, implement, improve and refine existing certainties by leveraging off acquired and assimilated knowledge (Mom et al., 2007; Patterson & Ambrosini, 2015). Exploitation reflects the manager's ability to incorporate acquired knowledge into their existing knowledge, as well as the operations of the organisation. Thus, exploitation is key in creating core competencies. Prior research by Nicolai et al., (2013) also discuss, utilising external ideas is crucial for

exploiting strategic opportunities. Their study suggests, in order to exploit valuable ideas which provide strategic opportunities for the organisation, the manager may have to rely on close collaboration with external sources of knowledge which may not necessarily be decisive for opportunity recognition. The above suggests that the utilisation of knowledge is positively related to a managers exploitation activities. The results of this research did not support this claim. Research by Walrave, Romme, van Oorschot, and Langerak (2017) provide insights into possible reasons to explain the differences in managers attention towards exploration or exploitation. In their research, they discuss managerial attention to exploration or exploitation is influenced by the environmental context of the organisation's operations. Therefore, when the organisation's environmental context is altered, for example, consumers preferences changing, managers direct their attention to exploration activities so that they can learn about the new environmental demands making it more likely that knowledge from external sources shall be utilised for the development of new products or services (Walrave et al., 2017).

Ter Wal et al., (2011) found only modest support of individual efforts to utilise external knowledge regarding exploitive activities. Similarly, managers are reluctant to utilise external knowledge due to the not-invented-here syndrome (Pedrosa et al., 2013). Furthermore, efforts to utilise external knowledge come against internal resistance, mainly if the manager was not responsible for undertaking the other elements of absorptive capacity (Ter Wal et al., 2011). Therefore, in itself will create internal barriers to be far too high, and the idea will not be intensively pursued. Ferreras-Méndez et al. (2016) found managers who place too much emphasis on exploring external sources for valuable ideas face challenges due to not identifying in advance the necessary structures required to support their efforts. Utilising knowledge which has no compatibility with the existing operations of the organisation, will prevent managers from utilising this new knowledge for refinement of existing competencies (Ferreras-Méndez et al., 2016). The contradiction is interesting, seeing that memory and past knowledge is seen as the basis for new knowledge (Volberda et al., 2010). Interestingly, however, respondents in this research perceive themselves to utilise external sources of knowledge for exploitative activities in the workplace

6.5. Additional Analysis

During the statistical analysis of this research unexpected results were obtained, which were further analysed to ensure thorough understanding. The means of managers' exploitation (5.52) and exploration (5.05) activities do not significantly differ from each other. Furthermore, the standard deviation for exploration is 1.113 while the standard

deviation for exploitation was 0.916 which indicates the differences in individuals responses from the sample population were marginally different, thus making inferences on the findings would be to some degree accurate. There existed a significant weak correlation between exploration and exploitation, with a correlation coefficient of 0.21. Thus, exploration and exploitation have a significant weak linear association. From this, if managers increase their levels of exploration activities, it would have a weak improvement in their exploitation activities and visa-versa. From the literature, the researcher found an opposing view which required further investigation.

The manager's ability to flexibly explore and exploit, directing their attention between the two different modes when the environment is changing is a representation of individual ambidexterity (Good & Michel, 2013). Prior studies argue, managers need to engage in high and similar levels of exploration and exploitation in order to be innovative (Rosing & Zacher, 2017), while Mom et al. (2009) are of the opinion that ambidextrous managers need to embrace the contradictory demands of exploration and exploitation by engaging in paradoxical thinking.

6.5.1. Multiple regression: Absorptive Capacity and Ambidexterity

From this, it is evident that the two separate activities can be discussed as one as opposed to being discussed separately. Consistent with the literature, particularly in the form of contextual and individual ambidexterity (Gibson & Birkinshaw, 2004; O'Reilly & Tushman, 2011).

Data obtained from the results which can be seen in Table 20 suggest, the multiple regression analysis indicated that identification efforts do not significantly contribute to any variance in individual ambidexterity, but rather assimilation and utilisation efforts have a significant linear relationship to individual ambidexterity. With reference to Table 21, assimilation and utilisation efforts are a better predictor of ambidexterity, seeing that the efforts of assimilating and utilising knowledge from external sources explained by a variation of 32.3.% in the manager's ambidexterity. This relationship is significant as the p-value for both is below 0.05, with an estimated coefficient for assimilation and utilisation being 0.293 and 0.207 respectively.

The purpose of the multiple regression analysis, which used all three elements of absorptive capacity was sought to understand whether these three elements offers any advantage to the manager's ambidexterity. Ter Wal et al. (2011) implied that the three elements of absorptive capacity were an essential strategy for managers to seek benefits

for themselves and the organisation. With reference to Table 20 and Table 21, the findings suggest, assimilation and utilisation efforts of external knowledge have a more significant impact on manager ambidexterity, and that identifying knowledge from external sources has no significant impact

A possible explanation for this could be, although managers engaged in the identification stage is worthwhile, they may not always benefit from ideas created from external sources if this knowledge is not maintained or shared within the organisation (Mihalache et al., 2014; Pedrosa et al., 2013). Furthermore, external knowledge may be identified by one manager and another organisational manager may convert this knowledge so that it can be used for commercial application (Lane, Koka, & Pathak, 2006). Enkel et al. (2017) argue the manager's efforts to assimilate knowledge from external sources will reveal the usefulness and value to the organisation. Research by Salter et al. (2015) found statistical evidence to suggest that openness to external sources and the returns become negative as coordination costs increase. Mom et al. (2015) posit, fostering managerial ambidexterity includes job rotation which allows managers to interact with other individuals of the organisation so that their expertise broadened and their knowledge of the firm is increased. Similarly, managers who are familiar with the expectations and capabilities of their organisation will be balanced in their exploration and exploitation activities (Pedrosa et al., 2013).

Although this research did not hypothesise a direct causal relationship between the three dimensions of absorptive capacity and treating exploration and exploitation activities as an independent construct (individual ambidexterity), taken together, interesting findings are provided. Based on the perspectives discussed above and the finding of the multiple regression analysis, managers that have a broader understanding of their organisations expectations and capabilities (Pedrosa et al., 2013); who can reshape the external ideas to meet internal requirements and logic of their firm (Ter Wal et al., 2011); engaged in knowledge-utilising practices such as knowledge exchange, training, and team-working (Seo et al., 2015); may potentially be better at achieving ambidexterity given that they are capable of consciously dealing with the conflicting demands of exploitation and exploration.

The view is provided because external knowledge helps managers unpack the value from the knowledge that is useful to not only enhance internal efficiency but how new knowledge can develop new technological opportunities. Furthermore, external knowledge helps in managing the internal tension deriving from joint efforts in

exploitation and exploration activities (March, 1991; Vrontis et al., 2017). Recommendations for future research should investigate this specific relationship, and longitudinal research is needed to further flesh out the causal roles.

6.6. Conclusion

The research aimed to integrate the dimensions of absorptive capacity and individual ambidexterity theory in order to develop an understanding of possible factors which may influence managers ambidexterity (exploration and exploitation activities).

This chapter discussed the relevance of the results obtained, with specific reference to the literature reviewed, as well as the research objective. It was confirmed that there exists a significant, positive linear relationship between each of the dimensions of absorptive capacity and the manager's efforts to be engaged in exploration activities. The results obtained also confirmed that the efforts of managers to identify, assimilate and utilise knowledge from external sources have no significant statistical relationship on the manager's exploitation activities. Limitations of the current research and insights discussed suggest that additional research specifically relating to ambidextrous managers and knowledge sources.

7. Conclusion

The following chapter provides a summary of the research objectives, the results obtained and the management implications of each. Also, the research limitations are identified, and recommendations made for future research, which may increase the validity of the results obtained, adding to existing knowledge on the topics explored.

7.1. Introduction

The research aimed to integrate existing theories in order to provide a predictive model in determining managers ambidexterity. This was to be achieved by firstly investigating whether there is a relationship between the dimensions of absorptive capacity – identification, assimilation and utilisation of knowledge from external sources, and managers ambidexterity-exploration and exploitation activities.

Organisational ambidexterity is considered as one of the more enduring ideas in organisational science where success and sustainability is dependent on the organisations ability to exploit existing assets and capabilities, while at the same time develop new combinations of resources to meet future market needs (Hill & Birkinshaw, 2014; March, 1991; Raisch et al., 2009). Although organisational ambidexterity has been discussed in multiple ways, the emerging consensus among strategic management and organisational scholars is that organisational ambidexterity may also stem from ambidextrous behaviour of managers (Bonesso et al., 2014; Gupta et al., 2006; Mom et al., 2015, 2007, 2009; O'Reilly & Tushman, 2013; Raisch et al., 2009; Rogan & Mors, 2014; Rosing & Zacher, 2017; Torres et al., 2015; Walrave et al., 2017).

Absorptive capacity defined as "The firm's ability to recognise, assimilate and apply knowledge" (Cohen & Levinthal, 1990, p.128). They further discuss how individuals are at the forefront of allowing organizations to learn from external sources of knowledge.
The value in understanding managers' exploration and exploitation activities and possible influencing factors, develops our understanding on how firms can build a firm that pursues exploration and exploitation activities in their organisation, and maintain a proper balance between the two (Junni et al., 2013; Mom et al., 2007).

7.2. Principle Findings

7.2.1. Identification of Knowledge from External Sources and Managers Exploration and Exploitation Activities

The individual efforts by managers to Identify knowledge from external sources explained in theory as the ability of the individual to not only recognise opportunities outside of one's field of expertise but identify potential synergies and search for cooperation inside the organisation (Papachroni et al., 2016). After conducting a correlation analysis on the data, it was found that efforts at identifying knowledge from external sources have a significant positive relationship to the exploration activities of managers, but no significant relationship to the manager's exploitation activities. The results contradict expectations about the value of alertness to new opportunities. Prior studies have shown that externally acquired knowledge can provide useful contextual information, enabling managers to approach existing problems with a novel approach (Cohen & Levinthal, 1990; Raisch et al., 2009). A further explanation of the non-significant result is that external search has to be combined with the other dimensions of absorptive capacity in order to be effective.

7.2.2. Assimilation of Knowledge from External Sources and Managers Exploration and Exploitation Activities

The assimilation of knowledge from external sources requires managers to assess the potential value and usefulness of the newly acquired knowledge, integrate this with existing knowledge, and communicate this throughout the organisation (Enkel et al., 2017). Based on the results obtained, the research found a statistical relationship between managers efforts to assimilate knowledge from external sources and their exploration activities, but no statistical relationship could be found to suggest that efforts at assimilating external knowledge would not have any impact on the manager's exploitation activities increasing. The results show, when ideas from external sources are exploratory, assimilation efforts are necessary to reveal their usefulness and value. Managers assess the potential value of the external idea, find ways to recombine this with their prior knowledge and communicate their vision internally (Enkel et al., 2017; Rothaermel & Alexandre, 2009; Tortoriello, 2015). The findings of the research did not find any significant relationship between efforts at assimilation and the manager's explorations activities. However, research conducted by Ferreras-Méndez et al. (2016) provide evidence to support the relationship between assimilating external knowledge and managers exploration activities.

7.2.3. Utilisation of Knowledge from External Sources and Managers Exploration and Exploitation Activities

Once external knowledge has been assimilated and combined with existing knowledge, utilisation of external knowledge requires managers efforts to advocate its application, assess combability with existing modes of the organisation as well as overcome resistance from risk-averse managers. Thus, it is suggested the utilisation of knowledge by the manager should include awareness of where valuable complementary expertise resides within and outside the organisation (Cohen & Levinthal, 1990), as well as being mindful of who knows what, who can help with what problem, or who can exploit new information. Based on the correlation analysis, the findings suggested that individuals who exerted more effort at utilising knowledge from external sources were more likely to engage in explorative activities with a significant positive relationship. The correlation analysis on managers efforts at utilising knowledge from external sources found no significant relationship in managers exploitation activities. The findings are aligned to that of Seo et al. (2015), suggesting successful experiences in utilising external knowledge will positively influence exploration, seeing that exploration benefits from knowledge already accumulated. Statistical analysis relating to the manager's efforts in utilising knowledge from external sources and managers exploration activities provided no evidence that a statistically significant relationship exists between the two variables. These findings are consistent with the findings by Pedrosa et al. (2013).

7.3. Implications for Management

The research results on the relationship between identification, assimilation, and utilisation of knowledge from external sources and managers exploration and exploitation activities could be valuable for developing new methods and perspectives on how to build ambidexterity at the firm or unit level.

Research shows that ambidexterity within the organisation is required for short and long-term survival. Creating ambidexterity within organisations is a challenging task. However, understanding what drives ambidexterity, whether this is at the firm level or individual level, requires managers to behaviour in a particular way so that they can adapt the organisation based on environmental and technological changes. Therefore, based on the findings of this research, the discussion below presents practical guidelines that could improve the ability and capacity of managers to engage in exploration, exploitation and ambidextrous activities.

The findings of this research suggest that managers who are engaged in identifying ideas from external sources will not be inclined to exert activities that are exploitative. However, managers who are the gatekeepers of the organisation still have an important role to play, especially when their role entails finding external ideas to enable the business to create new products and services. While efforts to identify knowledge from external sources is notable, investing in resources that enhance the ability of managers to assimilate and utilise external knowledge will undoubtedly create superior value. Training for managers, specifically in how to deal with internal barriers, as well as assimilate external ideas into the internal process. Spending resources along these lines may potentially be more beneficial if the objective of firms is to encourage ambidexterity. The assimilation phase of absorptive capacity remains a crucial component. Manager ambidexterity can be enhanced when investing managerial resources in this component (Vrontis et al., 2017). Subsequently, these efforts shall ensure that managers are adequately trained to turn external ideas that could improve their existing capabilities and competencies, but also develop new products, services or process. External knowledge indisputably will help find useful ways to enhance internal efficiency and pursue new opportunities. Therefore, attention should be given to the mechanisms which promote the use of external knowledge for both sides of the ambidexterity continuum as this is a more effective way of finding a balance.

Research has found that managers perceptions shape and influence their behaviour (Bonesso et al., 2014). If the manager perceive their role requires exploratory behaviour, they shall act in this ways. Similarly, if the manager perceives their role requires them to behave more exploitative, they more than likely to resist external ideas. These perceptions have the potential to create tensions, both for the manager and organisation. According to Vrontis et al. (2017), tensions which arise internally from efforts to explore and exploit can be managed through the assistance from external knowledge. Therefore, organisations should clarify and communicate on a continuous basis the requirements of ambidextrous roles so that perceptions derived from role ambiguity, role conflict is overcome.

Managers find it easier to assimilate and utilise knowledge when they understand the capabilities and language of their organisation. Gatekeepers of information take on the role to engage external sources. This process demands managers taking on multiple roles. Furthermore, external ideas will not necessarily improve explorative or exploitative behaviours unless managers understand the relevance based on prior knowledge. Thus, in this context and based on the findings of this research, promoting an organisational

context that promotes frequent interactions amongst managers spanning across the organisation will not only improve explorative, exploitative, and ambidextrous behaviour, but will also develop their unique ability to assimilate and utilise knowledge for exploratory and exploitative activities (Tempelaar & Rosenkranz, 2017).

Based on the perspectives discussed above and the finding of the multiple regression analysis, managers that have a broader understanding of their organisations expectations and capabilities (Pedrosa et al., 2013); who can reshape the external ideas to meet internal requirements and logic of their firm (Ter Wal et al., 2011); engaged in knowledge-utilising practices such as knowledge exchange, training, and team-working (Seo et al., 2015); may potentially be better at achieving ambidexterity given that they are capable of consciously dealing with the conflicting demands of exploitation and exploration. This view is provided because external knowledge helps managers unpack the value from the knowledge that is useful, not only to enhance internal efficiency but how new knowledge can develop new opportunities for the firm.

The nature of the quantitative study could not draw strong conclusions regarding the effects of identifying, assimilating and utilising external knowledge and the managers exploitation activities. However, we do know that assimilating knowledge, that is the integration of external knowledge is important. Technological advancements make acquiring knowledge fairly easy, but it is evaluating what knowledge is worth incorporating that may pose the biggest challenges for management. In addition, exposing managers to learn external knowledge is beneficial, organisations should place emphasis on promoting internal communication, and experiment exploiting knowledge coupled with internal knowledge. Developing these practices is necessary to take full advantage of knowledge from external sources.

7.4. Research Limitations and Future Research

All research has inherent limitations. It is important to understand the limitations, as they provide a guide to the potential weaknesses or problems that could influence the results. Thus, recommendations for future research is this study is performed with a different research design, to address the limitation inherent in this research.

It is recommended that the sample population be expanded beyond the borders of a single country, to generalise the findings. Secondly, it is recommended that future research be done to investigate how the relationship between the dimensions of absorptive capacity and explorative, exploitative and ambidextrous behaviour

ambidexterity changes over time, in a longitudinal study, which would provide insight into possible trends. Lastly, this study has relied on responses of individual managers to a survey about their external search efforts and therefore is subject to limitations. The measures themselves rely on the statements of individuals about their own behaviour, which could have self-reporting bias in the response patterns. It is clear that more objective measures of would have been beneficial. That being said, the measures do have strong predictive validity and are consistent with the extant literature on the sources of Individual ambidexterity and absorptive capacity.

Studies conducted by Tempelaar & Rosenkranz, (2017) addressed the notion of 'The Effect of Role Transition on Individual Ambidexterity.' Their study investigated the perceptions of role boundaries as important elements that driver individual ambidexterity. The research conducted for this study found combined efforts of the assimilation and utilisation of external knowledge were a better predictor of managers ambidexterity. Thus, recommendations for future research should potentially look at these relationships through qualitative studies to advance our understanding of ambidexterity for managers. Thus, the more we understand individual ambidexterity, deeper insights into approaches for organisational ambidexterity are possibly revealed.

7.5. Conclusion

The purpose of this research was to determine the possible linkages between the dimensions of absorptive capacity and their induvial impact on the exploration and exploitation activities of managers, with the focus in South Africa.

The study met this objective by determining the strength and direction of the associations between identification, assimilation, and utilisation of knowledge from external sources and the dependent variables, managers exploration, and exploitation activities. Further to the above, recommendations have been put forward which will aid employers in their efforts to build ambidexterity into their organisation.

Given the growing importance of understanding ambidexterity, particularly the antecedents for individual ambidexterity. The research conducted examined the relationship between the dimensions of absorptive capacity and managers exploration and exploitation activities. As such, the aim was to contribute to existing theory in understanding factors influencing individual ambidexterity.

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Appendices

Appendix 1: Questionnaire

1. Please Indicate which age group you form part of?

20-25	
26-35	
36-45	
46-55	
56-65	

2. Please indicate your gender?

Male	
Female	

3. Please indicate your highest level of education:

No Education	
Diploma	
Matric	
Undergraduate	
Post-Graduate	
Master	

4. Please indicate how long you have been at your organisation?

Less than 1 year	
Between 1 and 5 years	
Between 5 and 10 years	
More Than 10 years	

5. Please indicate what your job role is ?

Junior Manager	
Middle Manager	
Senior Manager	
Director	

6. Which of the following best describes the principal industry of your organisation?

Agriculture	
Construction	
Engineering	
Finance	
Fishing and Forestry	

Healthcare	
Hospitality	
Information Technology	
Manufacturing	
Minning	
Oil, Gas & Chemical	
Telecommunications	
Transportation	
Utilities(Electricity or Water)	
Other	

7. Please Indicate the function you are responsible for in your current organisation?

Marketing & Sales	
Controlling	
Research & Development	
Human Resource Management	
Production	
Technical Support	
Other	

Identification of external knowledge (Enkel et al., 2017) Identification of external knowledge is basically a search process by which individuals monitor the external environments to recognise valuable opportunities for their firm						
8. I am constantly analysing the advantages and weaknesses of existing products and services on the market.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6-Agree	7-Strongly Disagree
9. I regularly attend lectures, seminars, and exhibitions outside our industry to acquire new knowledge on the latest developments						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6-Agree	7-Strongly Disagree
10. When interacting with others, I always try to obtain information on the latest market needs or new technologies.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6-Agree	7-Strongly Disagree
11. I regularly make exchanges with colleagues from foreign business areas within the company to gain knowledge on alternative technologies and market needs.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6-Agree	7-Strongly Disagree

Assimilation of external knowledge (Enkel et al., 2017) The firm is seen as an assembly of individuals, each of whom contributes specialised knowledge. Individuals' expert competencies are merged with a firm's knowledge base.						
12. I process external knowledge quickly to get a feeling for how it can be used in our company.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6- Agree	7-Strongly Disagree
13. I critically assess the potential value of external knowledge with respect to our business requirements.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6- Agree	7-Strongly Disagree
14. I take time to translate external knowledge to guarantee that it is understood by my colleagues.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6- Agree	7-Strongly Disagree
15. I have a central function in the preparation of external knowledge for other business units in the company.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6- Agree	7-Strongly Disagree
16. frequently meet with colleagues to explain and discuss the new knowledge that I gained externally.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6- Agree	7-Strongly Disagree

Utilization of external knowledge (Enkel et al., 2017) The Individuals efforts to promote the market introduction or internal implementation of external knowledge ideas into the organisation						
17. When dealing with external ideas that I believe can face resistance in the company, I try hard to ensure the idea is realised by others						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6-Agree	7-Strongly Disagree
18. I take risks to convince decision makers to adopt and utilise the external knowledge.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6-Agree	7-Strongly Disagree
19. I would do almost anything for my external ideas to be taken up by the company.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6-Agree	7-Strongly Disagree
20. I am willing to take action to guarantee that the potential of external ideas that I believe in is realized.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6-Agree	7-Strongly Disagree
21. I follow a fixed process to integrate partners with complementary capabilities in the utilisation process.						
1-Strongly Disagree	2-Disagree	3-Somewhat Disagree	4-Neither Agree or Disagree	5-Somewhat Agree	6-Agree	7-Strongly Disagree

Exploration Activities (Mom et al., 2007) Comprises of the activities that open up new knowledge and alternative competencies or capabilities						
To what extent did you, last year, engage in work related activities that can be characterized as follows 22. Activities requiring you to learn new skills or knowledge						
1-Very Infrequently	2-Very Rarely	3-Rarely	4-Sometimes	5-Occassionaly	6-Fairly Often	7-Very Often
23. Searching new possibilities with respect to products/services, processes or markets						
1-Very Infrequently	2-Very Rarely	3-Rarely	4-Sometimes	5-Occassionaly	6-Fairly Often	7-Very Often
24. Evaluate different option with respect to products/services, processes or markets						
1-Very Infrequently	2-Very Rarely	3-Rarely	4-Sometimes	5-Occassionaly	6-Fairly Often	7-Very Often
25. Focus on renewing or refining products / services or process						
1-Very Infrequently	2-Very Rarely	3-Rarely	4-Sometimes	5-Occassionaly	6-Fairly Often	7-Very Often
26. Activities in which you reach the limits of your knowledge and requires adaptability from you						
1-Very Infrequently	2-Very Rarely	3-Rarely	4-Sometimes	5-Occassionaly	6-Fairly Often	7-Very Often

Exploitation Activities (Mom et al., 2007) Captures the activities that draw on given knowledge and competencies.						
To what extent did you, last year, engage in work related activities that can be characterized as follows: 27. Activities which you can conduct properly by using your existing knowledge						
1-Very Infrequently	2-Very Rarely	3-Rarely	4-Sometimes	5-Occassionaly	6-Fairly Often	7-Very Often
28. Activities which serve existing (internal) customers with existing services/products						
1-Very Infrequently	2-Very Rarely	3-Rarely	4-Sometimes	5-Occassionaly	6-Fairly Often	7-Very Often
29. Activities which it is clear to you on how to conduct them						
1-Very Infrequently	2-Very Rarely	3-Rarely	4-Sometimes	5-Occassionaly	6-Fairly Often	7-Very Often
30. Activities primarily focused on achieving short-term goals of the organisation						
1-Very Infrequently	2-Very Rarely	3-Rarely	4-Sometimes	5-Occassionaly	6-Fairly Often	7-Very Often
31. Activities which clearly fit into the existing company policy						
1-Very Infrequently	2-Very Rarely	3-Rarely	4-Sometimes	5-Occassionaly	6-Fairly Often	7-Very Often

Appendix 2- Ethical Clearance

Gordon Institute of Business Science
University of Pretoria

12 July 2018

De Almeida Carlos

Dear Carlos

Please be advised that your application for Ethical Clearance has been approved.

You are therefore allowed to continue collecting your data.

Please note that approval is granted based on the methodology and research instruments provided in the application. If there is any deviation change or addition to the research method or tools, a supplementary application for approval must be obtained

We wish you everything of the best for the rest of the project.

Kind Regards

GIBS MBA Research Ethical Clearance Committee

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Appendix 3- Statistical Analysis Results

Validity Statistics

Bivariate Correlations between Assimilation Scale Questions and the Item-Total Score

Assimilation		Q. 12	Q. 13	Q. 14	Q. 15	Q. 16	TOTAL
Q. 12	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	108					
Q. 13	Pearson Correlation	.710**	1				
	Sig. (2-tailed)	.000					
	N	108	108				
Q. 14	Pearson Correlation	.528**	.499**	1			
	Sig. (2-tailed)	.000	.000				
	N	108	108	108			
Q. 15	Pearson Correlation	.368**	.504**	.380**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	108	108	108	108		
Q. 16	Pearson Correlation	.441**	.519**	.535**	.577**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
	N	108	108	108	108	108	
TOTAL	Pearson Correlation	.719**	.768**	.757**	.722**	.760**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	108	108	108	108	108	108

** Correlation is significant at the 0.01 level (2-tailed).

Bivariate Correlations between Utilisation Scale Questions and the Item-Total Score

Utilisation		Q. 17	Q. 18	Q. 19	Q. 20	Q. 21	TOTAL
Q. 17	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	108					
Q. 18	Pearson Correlation	.638**	1				
	Sig. (2-tailed)	.000					
	N	108	108				
Q. 19	Pearson Correlation	.519**	.677**	1			
	Sig. (2-tailed)	.000	.000				
	N	108	108	108			
Q. 20	Pearson Correlation	.503**	.611**	.642**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	108	108	108	108		
Q. 21	Pearson Correlation	.461**	.529**	.486**	.458**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
	N	108	108	108	108	108	
TOTAL	Pearson Correlation	.759**	.848**	.807**	.784**	.694**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	108	108	108	108	108	108

** Correlation is significant at the 0.01 level (2-tailed).

Bivariate Correlations between Exploration Scale Questions and the Item-Total Score

Exploration Activities		Q. 22	Q. 23	Q. 24	Q. 25	Q. 26	TOTAL
Q. 22	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	108					
Q. 23	Pearson Correlation	.709**	1				
	Sig. (2-tailed)	.000					
	N	108	108				
Q. 24	Pearson Correlation	.659**	.815**	1			
	Sig. (2-tailed)	.000	.000				
	N	108	108	108			
Q. 25	Pearson Correlation	.570**	.710**	.667**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	108	108	108	108		
Q. 26	Pearson Correlation	.470**	.415**	.451**	.487**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
	N	108	108	108	108	108	
TOTAL	Pearson Correlation	.808**	.886**	.864**	.811**	.611**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	108	108	108	108	108	108

** Correlation is significant at the 0.01 level (2 tailed).

Bivariate Correlations between Exploitation Scale Questions and the Item-Total Score

Exploitation Activities		Q. 27	Q. 28	Q.29	Q. 30	Q.31	TOTAL
Q. 27	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	108					
Q. 28	Pearson Correlation	.461**	1				
	Sig. (2-tailed)	.000					
	N	108	108				
Q. 29	Pearson Correlation	.541**	.581**	1			
	Sig. (2-tailed)	.000	.000				
	N	108	108	108			
Q. 30	Pearson Correlation	.423**	.448**	.549**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	108	108	108	108		
Q. 31	Pearson Correlation	.413**	.375**	.585**	.517**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
	N	108	108	108	108	108	
TOTAL	Pearson Correlation	.684**	.729**	.826**	.740**	.740**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	108	108	108	108	108	108

** Correlation is significant at the 0.01 level (2-tailed).

Factor Analysis

Assimilation Correlation Matrix

Assimilation Correlation Matrix					
	Q. 12	Q. 13	Q. 14	Q. 15	Q. 16
Q. 12	1,000				
Q. 13	0,710	1,000			
Q. 14	0,528	0,499	1,000		
Q. 15	0,368	0,504	0,380	1,000	
Q. 16	0,441	0,519	0,535	0,577	1,000

Assimilation – KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.780
Bartlett's Test of Sphericity	Approx. Chi-Square	212.468
	df	10
	Sig.	.000

Assimilation- Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.032	60.632	60.632	3.032	60.632	60.632
2	.750	14.996	75.628			
3	.578	11.561	87.190			
4	.374	7.489	94.678			
5	.266	5.322	100.000			

Extraction Method: Principal Component Analysis.

Utilisation Correlation Matrix

Utilisation Correlation Matrix					
	Q. 17	**Q. 18**	**Q. 19**	**Q. 20**	**Q. 21**
Q. 17	1,000				
Q. 18	0,638	1,000			
Q. 19	0,519	0,677	1,000		
Q. 20	0,503	0,611	0,642	1,000	
Q. 21	0,461	0,529	0,486	0,458	1,000

Utilisation – KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.854
Bartlett's Test of Sphericity	Approx. Chi-Square	232.480
	df	10
	Sig.	.000

Utilisation- Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.221	64.426	64.426	3.221	64.426	64.426
2	.586	11.713	76.139			
3	.530	10.606	86.745			
4	.373	7.466	94.211			
5	.289	5.789	100.000			

Extraction Method: Principal Component Analysis.

Exploration Correlation Matrix

Exploration Correlation Matrix					
	Q. 22	Q. 23	Q. 24	Q. 25	Q. 26
Q. 22	1,000				
Q. 23	0,709	1,000			
Q. 24	0,659	0,815	1,000		
Q. 25	0,570	0,710	0,667	1,000	
Q. 26	0,470	0,415	0,451	0,487	1,000

Exploration – KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.837
Bartlett's Test of Sphericity	Approx. Chi-Square	308.220
	df	10
	Sig.	.000

Exploration- Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.413	68.255	68.255	3.413	68.255	68.255
2	.677	13.548	81.803			
3	.430	8.605	90.409			
4	.309	6.189	96.597			
5	.170	3.403	100.000			

Extraction Method: Principal Component Analysis.

Exploitation Correlation Matrix

Exploitation Correlation Matrix					
	Q. 27	Q. 28	Q.29	Q. 30	Q. 31
Q. 27	1,000				
Q. 28	0,461	1,000			
Q. 29	0,541	0,581	1,000		
Q. 30	0,423	0,448	0,549	1,000	
Q. 31	0,413	0,375	0,585	0,517	1,000

Exploitation – KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	181.483
	df	10
	Sig.	.000

Exploitation- Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.966	59.315	59.315	2.966	59.315	59.315
2	.665	13.302	72.617			
3	.552	11.038	83.655			
4	.481	9.616	93.271			
5	.336	6.729	100.000			

Extraction Method: Principal Component Analysis.