Dealing with a management paradox: exploitation versus exploration

Deen Gielink

11367882

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Abstract

In managing organisations for peak performance, managers have to deal with the strategic paradox of either exploiting their current resources, skills and competencies, or exploring and finding new alternatives. Managers are constantly challenged with this complex paradox and must decide how to leverage these seemingly opposite tensions for best performance. This study investigates the factors that affect exploitation and exploration, the implications of not balancing them, and finally whether they should be traded off against one another or done ambidextrously, which is a metaphor for organisations that are equally dexterous at exploiting and exploring.

To this end, a qualitative research study with an explorative design was conducted in order to delve deep into this quandary. Interviews with 14 leading executives and four strategy experts were held to uncover their unique insights into this paradox. The insights from these in-depth interviews formed the basis of the data that was analysed using content analysis to produce the research findings of this study.

The research identified the factors that could influence the degree to which an organisation explores or exploits. The research confirmed that exploitation and exploration are interdependent and should be done ambidextrously. The exploitation versus exploration management model emerged from these research findings. This model will assist managers in understanding the paradox and will put them in a position to better manage exploitation and exploration in order for the company to be sustainable.

Key Words

Management

Paradox

Exploitation

Exploration

Ambidextrous

Trade-off

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 THE RESEARCH PROBLEM

1.1 Introduction

Companies are operating in an environment that is constantly changing. These rapid changes can be due to physical, technological, social and economic circumstances that may change rapidly and unexpectedly (Boyne & Meier, 2009). In today's business world, companies are putting themselves at risk if they do not constantly rethink their direction; the big challenge for leaders around the world is how to grow and stay profitable in this disruptive and turbulent environment (Kotter, 2014).

In order to deal with this changing environment, executives are inundated with many management philosophies, theories and models which offer what seems to be contradictory advice in order for the organisation to achieve its goals (Gilbert & Sutherland, 2013). A paradox refers to contradictory but interrelated elements which exist and persist together over a period of time. The paradox can involve different products, markets, technology or resources that are inconsistent but necessary for long term organisational success (Smith & Lewis, 2011). Smith, Binns and Tushman (2010) held the view that in light of the world becoming faster paced, more global and more competitive, a company's competitive advantage may become more dependent on how managers successfully manage paradoxical strategies. It is evident that in today's turbulent environment it has become more important for managers to think about paradoxes when making decisions.

An important example of a paradox is a company's strategy of exploitation versus exploration. These paradoxical strategies of exploitation and exploration are strategies that are associated with contradictory yet integrated tensions (Smith, Binns & Tushman, 2010). This causes a problem for managers in

making decisions on what to change and what to leave stable within a company in light of the changing environment.

Exploitation is the refinement and extension of existing competencies, technologies and paradigms (March, 1991). In implementing a strategy of exploitation, organisations build on their existing knowledge base and leverage off existing skills and capabilities, and continue on their current technological trajectory (Lavie, Stettner & Tushman, 2010). Exploitation involves issues such as refinement, choices, production, efficiency, selection, implementation and execution. The returns on exploitation are positive, predictable and immediate (March, 1991). In exploitation, organisations try to become more efficient and a consequence of this is that it leads to early successes when compared to exploration. This suggests that in order to exploit, the company remains in a stable condition while exploiting and finds more efficient ways of using its existing resources.

Exploration involves taking risks, experimenting, discovering and innovating. At the core of exploring is experimenting to find new alternatives; the returns in the future are uncertain and could often be negative (March, 1991). Exploration is a shift away from the current organisation knowledge base and skills and is associated with diversification, variation and organisational diversity (Lavie, Stettner & Tushman, 2010). This would imply that in order to explore there must be lots of experimenting and change within the organisation, and the effects of the exploration cannot be seen immediately.

The concept of exploitation versus exploration is an important paradox to understand as it relates to the way we make decisions and view trade-offs. This concept extends to many decisions we make in weighing up risk versus reward in business and our personal lives. When we make decisions we have to explore the alternatives before we commit to exploiting the benefits of a specific choice. The decisions depend on a higher level choice of exploring risky but profitable alternatives, or exploiting well known but potentially less lucrative options (Cohen, McClure & Angela, 2007). The choice could depend on many factors, including the familiarity and rate of change of the environment and the

rate of cost versus reward. Once a decision is made it needs to be constantly re-evaluated due to changing circumstances.

One method of managing paradoxes is by looking at trade-offs between exploitation and exploration. Raisch (2008) researched the structures within an organisation that influenced profitable growth and concluded that mechanistic structures ensure the efficient exploitation of current capabilities, while organic structures enable the exploring of new opportunities. When deciding what organisational structures to put in place it is evident that one has to make a decision that entails a trade-off between these two outcomes. Organisations must also face trade-offs in the expected outcome of a decision when deciding how to allocate resources (Lavie, Stettner & Tushman, 2010). It is evident that organisations must deal with trade-offs when making decisions on how to manage a paradox.

Another method of managing exploitation and exploration is that they should not be viewed as a choice between two discreet options, but rather as a continuum (Lavie, Stettner and Tushman, 2010). One way of managing the paradox of exploitation versus exploration is to take on an ambidextrous approach. Ambidexterity could be defined as the ability of the firm to simultaneously exploit and explore and enables a firm to adapt over time (O'Reilly & Tushman, 2008). It could also be defined as an organisation's ability to be aligned and efficient in the management of the current business demands while simultaneously being adaptive to the changes within the environment (Raisch & Birkinshaw, 2008).

It is evident that the ability of a company to manage the paradox of exploration or exploitation is a challenge by the fact that many companies do not last for an extended period of time. Current companies that have passed the start-up phase are optimised more for efficiency than to capitalise on exploration or new opportunities (Kotter, 2014). Even though there has been research done in this field, there does not seem to be conclusive evidence to show a general rule to the exploration versus exploitation problem (Cohen, Mcclure & Yu, 2007).

1.2 Purpose of this study

The research study aims to critically examine the two seemingly opposite management strategic approaches: exploitation and exploration. Although a vast amount of literature has dealt with the separate subjects of exploitation and exploration, there does not seem to be consensus regarding the means of how to manage this paradox and achieve the right balance of exploitation and exploration. The study will attempt to:

- o Explore the key factors that drive exploitation and exploration within organisations.
- o Investigate the impact of leaning exclusively towards either exploitation or exploration.
- o Examine the possibility of balancing the tensions of the paradoxical management approaches.
- o Investigate if there are tradeoffs when making exploitation versus exploration decisions or if an ambidextrous approach is feasible.

Insights uncovered from the research will be presented to assist managers to create awareness and understanding within the elements of the paradox.

1.3 Research problem

It is clear that there is no ideal single management approach when it comes to exploitation versus exploration. Managers need to decide which approach or combination of approaches is ideal for a given situation.

The study seeks to understand the factors that drive exploitation and exploration in organisations. It also looks at the tensions between two seemingly opposing management views and attempts to find out if they are mutually exclusive or if it is possible to strike an optimal balance between the two.

The management dilemma of choosing between an exploitative approach and an explorative type of approach is represented in figure 1. This model suggests

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that the managers could use varying combinations of exploitation and exploration. It also suggests that the closer the manager would get to either ends of the continuum, then a more mutually exclusive approach will be adopted (Gilbert, 2011)

Figure 1: The management continuum: exploitation versus exploration

Management Continuum

Exploitation   **Exploration**

Combinations of exploitation and exploration could range from solely exploitation, through different degrees and combinations of exploitation and exploration, to solely exploration.

Alternatively, the management dilemma could be graphically depicted as in Figure 2 below - The Management Paradox Model. The two by two grid details four possible combinations of exploitation and exploration strategic management practices, with differing levels of both respective forces. This model is not static and reflects a continuous movement of the management paradox between the different quadrants which will be based on various factors.

Management is faced with the dilemma of deciding which strategic approach is most suitable at which time to drive a successful organisation.

Figure 2: The dynamic management paradox model

High	High exploitation / Low exploration	High exploitation / High exploration
Exploitation		
	Low exploitation / Low exploration	Low exploitation / High exploration
Low		**High**

<u>Exploration</u>

1.4   Research objectives

The objectives of the study are to highlight the factors and challenges faced by managers when dealing with the paradox of exploitation versus exploration. The study will examine if the two seemingly opposing management strategies of exploitation and exploration are traded off against one another, or if an ambidextrous approach should be used in implementing them.

2 CHAPTER 2: THEORY AND LITERATURE REVIEW

The following key themes were identified during the literature review:

- Paradox
- Exploitation
- Exploration
- Trade-offs
- Ambidexterity

2.1 Paradox, Dualities and Dilemmas

The terms 'paradox', 'dualities' and 'dilemma' are often used in combination with one another to characterise the tensions found in managing people or making decisions. Some literature tends to group these terms together in a shallow way, while other research emphasises the differences between them (Smith, Binns & Tushman 2010; Farjoun 2010; Luscher & Lewis 2008).

2.1.1 Definition of terms

The term 'paradox' is contradictory but interrelated elements that persist over time and seem logical when viewed alone but irrational when combined together (Smith & Lewis, 2011). Smith, Binns and Tushman (2010) also stated that paradoxes involve products, markets, technology or associated resources that are contradictory or inconsistent, but are necessary for long term organisational success. In addition, they referred to paradoxical strategies as multiple strategies that are contradictory and yet interrelated (Smith, Binns & Lewis, 2010). Paradox theory presumes that tensions are an integral part of complex systems and that the sustainability is dependent on attending to the contradictory interwoven demands simultaneously (Smith & Lewis, 2011).

Farjoun (2010) stated that duality is the idea of two essential elements that can be viewed as interdependent. Dualities can also be seen as two opposites that exist within a whole, where the internal boundary will create a distinction that highlights the opposites and the external boundary will encourage synergies by constructing the boundary of the unified whole. Farjoun further suggested that the main difference between a paradox and duality is that dualism is often used to discuss concepts such as thought and action, i.e. the concepts may be separate but they are not necessarily directly opposed or contrasted to one another. Duality thinking is about reinforcing the need to discard previous thoughts about opposing values and replace them with an appreciation of complementary concepts (Graetz & Smith, 2011). The duality mindset is one that recognises that synergies can be gained from the constructive tension that exists between contradictory forces.

A dilemma involves competing choices, with each having advantages and disadvantages. Solving a dilemma involves weighing up the pros and cons (Smith & Lewis, 2011). Lüscher and Lewis (2008) stated that a dilemma implies that a choice or decision must be made between polarities and each of these choices will have a high cost as well as valued benefits.

From the literature the terms 'paradox' and 'duality' are similar, and the only difference would seem that a duality is used when discussing concepts. For the purpose of this study the researcher treated them as the same and mainly used the term 'paradox' when discussing two contradictory elements that are interdependent and persist over time.

It is clear that the term 'dilemma' differs from a paradox and duality. The main difference between the terms is that a dilemma involves choosing either/or, while a paradox or duality involves choosing a combination of both options (Luscher & Lewis, 2008).

2.2   Managing Paradoxes and Dilemmas

Lüscher and Lewis (2008) developed a five step sense-making model, see Figure 3 below, to assist managers to reduce their anxiety, escape paralysis and enable action when dealing with paradoxes. The model also illustrates the subtle differences between a dilemma and a paradox.

Figure 3: A Collaborative Process of Working through Paradox
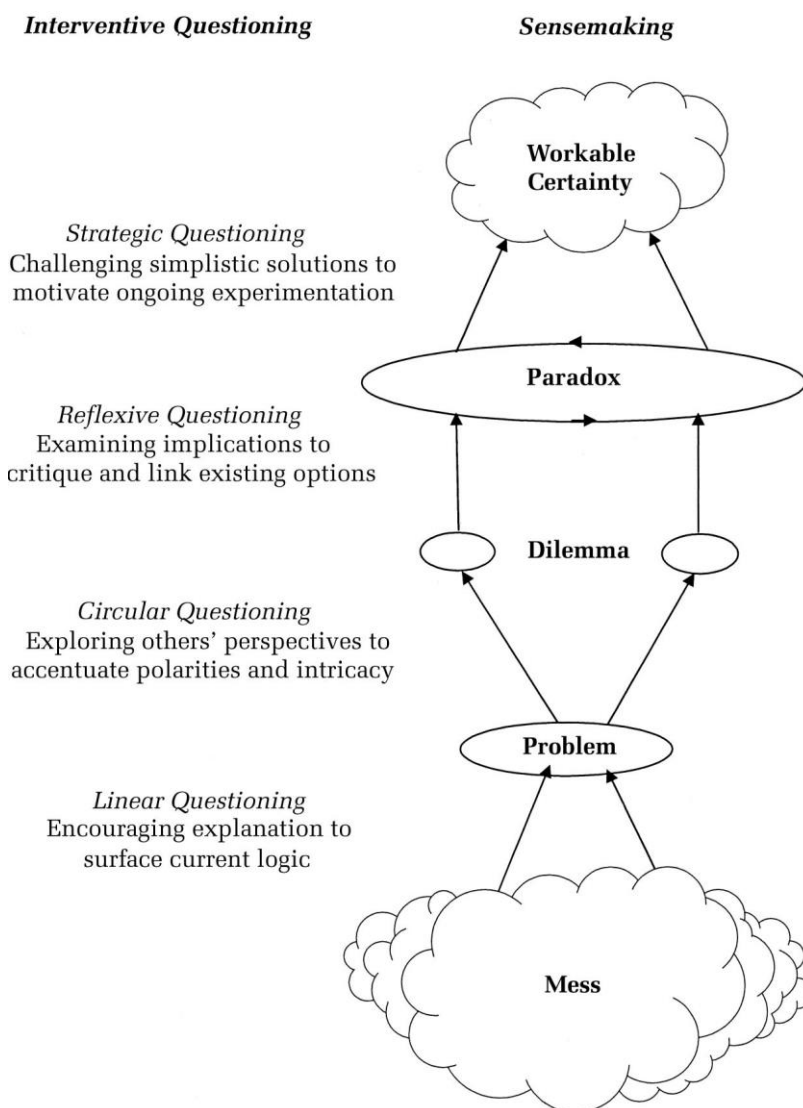
(Source: Luscher & Lewis, 2008)

Step 1: Mess. This is the first step in the model; it denotes a fluid and fuzzy issue. Here the managers decide on what is of interest and create the boundaries for exploration. At this stage the managers create the boundaries for collaborative sense-making.

Step 2: Problem. After going through step 1, interwoven questioning and sense-making assist the managers to define a more specific problem. If the problem cannot be resolved using a conventional problem-solution approach then the manager has to explore deeper.

Step 3: Dilemma. In this step managers feel a sense of paralysis due to the fact that they must make a choice between multiple solutions; each of the solutions has benefits and limitations. A dilemma has the potential to be resolved but contains a decision of choosing either one or the other. An awareness of a dilemma is valuable in the sense-making process.

Step 4: Paradox. Oscillating between the contrasts of a dilemma the managers realise that no decision will resolve the tension, so they look for a link between the contradictory elements and realise that they are interdependent.

Step 5: Workable Certainty. The previous stages of the model required a deeper exploration to get to this final stage. At this point, strategic questions force the managers to go beyond simple solutions and motivate them to continuously experiment with alternative approaches and framings. The workable certainty decision comes about by understanding the paradox and having a core change in the framing.

Some theories seem to treat the paradox of stability and change, structure and action, and internal and external causality as independent variables, and state that one should be done at the expense of the other (Graetz & Smith, 2008).

McGrath (2012) claimed that steady growth is what companies strive for and is what investors value the most. There are few companies that manage to achieve this in the long term, however, the companies that do achieve this are more innovative and stable compared to their competitors. The two characteristics of stability and innovation or change seem contradictory, but stability appears to make innovation and steady growth possible (McGrath,

2012). According to McGrath, the companies that can manage the paradox of stability and change (or innovation) are more likely to achieve steady growth in the long run. McGrath's view goes against Graetz and Smith's (2008) observation, as he does not think that firms should look at the paradox of stability and change as independent variables.

In researching the paradox of autonomy and control, Gilbert and Sutherland (2013) found that autonomy and control is not a management dilemma of absolute autonomy versus absolute control, but rather a paradox that must co-exist to form a powerful management tool.

Graetz and Smith (2008) agreed with this view by stating that the challenge for organisations is to manage the tensions or dualities between the traditional and new ways of managing the process of arbitration of stability and change. They added that the traditional thinking of a unidirectional orientation towards the complex organisation phenomena is redundant, especially when dealing with paradoxes. It has become a reality that managing organisational change is about managing paradoxes (Graetz & Smith, 2011). Accepting ambiguity is a dynamic within the organisation that needs a dualities-sensitive approach and requires a more multi-layered mode of thinking (Graetz & Smith, 2008).

Senge (1997) had a similar belief when he stated that the complexity of modern organisations makes it impossible for individuals to perceive the intricacies of the entire structure, and companies must be viewed as fluid systems and not as isolated components. This also reaffirms the argument that managers cannot look at everything in isolation but must take into account the interdependencies of the business.

2.3   Exploitation

March (1991) explained that exploitation involves refinement, choice, production, efficiency, selection, implementation and execution. He summarised exploitation as the refinement and extension of existing competencies, technologies and paradigms. Lavie, Stettner and Tushman (2010) stated that

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exploitation generally describes organisational focus, experience and reduction in variance. They further suggested that exploitation is about building on an organisation's existing knowledge base and is associated with organisations that leverage off existing skills and capabilities, and continue within an existing technological trajectory (Lavie, Stettner & Tushman, 2010). Castillo, Jimenez and Aleman (2011) researched product exploitation and exploration and stated that exploitation is the ability to manage existing assets and capabilities. The capabilities are based on certainties about the efficiency of the organisation. Castillo, Jimenez and Aleman (2011) concluded that during high levels of market turbulence companies should have an exploitation strategy that will defend it against the external threats of competitors and will yield better short term results.

When organisations strive for exploitation the trend is towards greater speed, clarity and certainties in activities (Popadiuk, 2012). Castillo, Jimenez and Aleman (2010) also acknowledged that exploitation is increased during high levels of market turbulence, but this increase in exploitation inhibits the market performance effect of exploration. This would suggest that during exploitation there is not much emphasis on experimentation. Smith and Lewis (2011) did not think this should be the case and stated that without exploitation, companies will not have the foundational knowledge that enables and fuels experimentation. Although there is not much emphasis on experimentation during exploitation it would seem that an organisation needs exploitation to be able to explore, yet most companies choose to exploit and not explore. Exploitation often leads to early success compared to exploration, which in turn promotes more exploitation and ultimately leads to a "success trap" (Gupta, Smith & Shaley, 2006, p.695).

2.3.1 Factors that may affect exploitation

Organisational structure is a factor that affects exploitation and exploration. Lavie, Stettner and Tushman (2010) found that the mechanistic structures that support routine operations, formal duties and functional specialisation facilitates

exploitation by developing incremental improvements to processes and products. Su, Li, Yang and Li (2009) investigated the differences between exploratory and exploitative learning in different organisational structures. They found that when the organisational structure is mechanistic, exploitation and exploration are substitutes, and when the organisational structure is organic, they are complementary.

Organisational age could also affect exploitation, as aging organisations may be subject to strong inertial pressure and tend to rely on their existing knowledge and experiences to be able to respond in a consistent manner to environmental challenges (Lavie, Stettner & Tushman, 2010). These types of organisations will tend to engage in exploitation and not exploration.

Organisational culture and identity also impact an organisation's ability to exploit or explore. The identity shapes the evolution of the culture and will have an impact on the choices that get made between exploitation and exploration (Lavie, Stettner & Tushman, 2010).

Leadership further affect the tendency of a company to implement exploration or exploitation activities. Managers' risk aversion and learning abilities will influence decisions that are taken regarding exploration or exploitation. Risk aversion drives exploitation due to the benefits being more certain (Lavie, Stettner & Tushman, 2010). The extent to which managers are risk averse could influence organisations to continuously exploit at the expense of exploration. Manso (2011) also found that management's pay incentives can also drive exploitation. Due to exploitation being the repetition of known actions, then the normal contract that motivates exploitation is the standard pay for performance contracts that are used to motivate repeated effort.

2.4 Exploration

March (1991) acknowledged that exploration involves variation, searching, risk taking, experimenting, play, flexibility, discovery and innovation. In essence it is the experimentation with new alternatives. Gupta, Smith and Shaley (2006)

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referred to exploration as the pursuit and acquisition of new knowledge, or in other words, learning and innovation. Lavie, Stettner and Tushman (2010) agreed that exploration has been associated with diversification, variation and organisational diversity, and stated that it is a shift away from the current organisation's knowledge base and skills. Molina-Castillo, Jimenez-Jimenez and Munuera-Aleman (2011) added that exploration is the development of new capabilities and enhances product innovativeness within the firm. They also concluded that when firms have low levels of market turbulence or competitiveness, they should develop exploration competencies that will enable them to develop new radical products and give them a competitive advantage (Molina-Castillo, Jimenez-Jimenez & Munuera-Aleman, 2011).

Sirén, Kohtamaki and Kuckertz (2012) were of the opinion that exploration strategies do not directly affect the results of the performance of profit within an organisation. Yet Piao (2010) disagreed with this; he investigated the longevity implications of exploration within the hard disk industry and concluded that the nature of the relationship between longevity and exploration varied according to the timespan that an exploration process overlaps with an exploitation process. He further stated that exploitation to the exclusion of exploration is generally negative for a firm's long term viability. He further deduced that this general pattern is not an indicator of the success of each individual exploration attempt; it depends on how long an exploration process overlaps an exploitation process. If the temporal overlap is too extensive or too short then the firm would lose its longevity, but if the overlap remains at a moderate level then a firm can extend its longevity. The study provided empirical evidence that exploration does have an effect on the longevity of an organisation and it also showed that the timing of exploration is important in determining its efficacy (Piao, 2010).

Su, Li and Yang (2011) discovered in their survey that the interaction of exploratory and exploitative learning has a positive effect on firm performance when the organisation's structure is organic and a negative effect on firm performance when the organisation's structure is mechanistic.

Collins and Porras (2005) spent years studying exceptional or visionary companies in order to see what made them successful. One of their discoveries was that visionary companies invest heavily in the future and make their best gains by experimentation and trial and error.

2.4.1 Factors that may affect exploration

There is a link between strong organisational culture and increased company performance (Sorenson, 2009). Organisational culture could affect exploration if the organisation's mission is one of continuous improvement. Some studies have suggested a positive association between exploration and a shared organisational context (Lavie, Stettner & Tushman, 2010).

Absorptive capacity is the ability of a firm to recognise new external information, assimilate it and apply it (Cohen & Livinthal, 1990). Lavie, Stettner and Tushman (2010) stated that absorptive capacity is associated with an organisation's ability to explore.

Leadership influences an organisation's ability to explore and experiment. Kotter (2014) stated that leadership has always been associated with change in both today's world as well as throughout history. He elaborated by saying that leadership has to do with changing people and organisations in order for them to jump into a better future, no matter what the threats, barriers or changing circumstances may be (Kotter, 2014). Elberse (2013) recently investigated the success of football club Manchester United under the leadership of Sir Alex Ferguson. Sir Alex attributes his success to always exploring young talent; he always worked on building a great team. Even in times of great success his focus was on assembling what was needed to build a great team for the future, and where the team stood in the cycle of rebuilding. Succession planning was a key to long term high performance (Collins & Poras, 2005). Sir Alex constantly explored for new talent, and it is evident that his leadership style had a huge influence on the organisation and the ability of the organisation to explore.

Companies under transformational leaders are more effective at exploration in terms of developing new products, markets, manufacturing and management systems, as well as new skills and capabilities, and these firms also earn greater revenues during the process of exploration (Burpitt, 2009). Leaders that are not risk averse are more likely to implement exploration activities (Lavie, Stettner & Tushman, 2010).

A compensation policy is an important factor in an organisation's success and influences how top executives behave (Jensen & Murphy, 1990). Managers' pay incentives also influence the organisation's ability to explore. The optimal incentive that promotes exploration is one that allows early failures and promotes long term success (Manso, 2011).

Promotions from within or externally could also affect the degree of exploration within an organisation. Visionary companies promote and select managers from within the company, which helps them to ensure a long line of quality leaders as well as promote the ideals which the company believes in (Collins & Porras, 2005). The concern with this is that one may question the individual's ability to promote change when they have been promoted within the structures of the organisation. Collins and Porras (2005) addressed this issue by stating that there is no inconsistency between promoting from within and stimulating growth and change.

2.5   Managing the paradox of exploitation versus exploration

Cohen, McClure and Angela (2007) researched how our brains manage trade-offs between exploitation and exploration. Their view is that:

o Many of our decisions within our daily lives require us to explore alternatives before committing to and exploiting the benefits of a particular choice.
o After making the decisions we need to re-evaluate and further explore alternatives due to changing needs and circumstances.

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- Decisions on exploitation and exploration depend on a high level choice of whether to exploit known but possibly sub-optimal alternates, or look at risky but potentially profitable alternates.
- The choice of what to do depends on many factors, which could include: the familiarity of the environment and the extent to which it changes, and the benefit of exploiting known sources of reward versus the cost of reducing uncertainty through exploration.
- There is no general rule or policy for trading off exploitation and exploration, even when the objectives are well specified and a general solution may not be possible due to the non- static environment.

Lavie, Stettner and Tushman (2010) stated that exploitation and exploration should not be viewed as a choice between discreet options but rather as a continuum. They defended this view by suggesting that if an organisation experiments with new technology it is enacting on exploration, but as the experiments are repeated and the organisation acquires new knowledge on the experiments, then they are enacting on exploitation (Lavie, Stettner and Tushman, 2010). Based on this view there is a natural cycle between these two activities and the distinction between them is unclear.

2.5.1 Trade-offs

In his seminal work, March (1991) stated that any effort of an organisation to improve their organisational performance and strengthen their competitive advantage involves the components of learning, analysis, imitation, regeneration and technological change. Each of these involves adaptation and a delicate trade-off between exploitation and exploration. In looking at the paradox of exploitation and exploration, March argued that although both exploitation and exploration are needed in an organisation, they will compete for resources. There are many factors to take into account when deciding what trade-offs to make in allocating resources. The returns from the two options vary with respect to values, timing, variability and their distribution within and outside

the organisation (March, 1991). This would suggest that it is difficult to decide on the trade-offs when making a decision within a paradoxical situation.

Lavie, Stettner and Tushman (2010) discussed the following trade-offs when dealing with the paradox of exploitation versus exploration:

- Resource allocation constraints: the organisation must allocate resources based on decisions of whether to do exploration or exploitation and face trade-offs between the expected outcomes of the decisions. By allocating the resources to either exploitation or exploration, the organisation is making trade-offs between short term productivity of the organisation against long term innovation. The trade-off between the two is similar to deciding if the present should be hedged against the future.

- Organisation inertia: looks at the trade-off between stability and adaptability. Change and flexibility are associated with exploration, while inertia and stability are associated with exploitation. If the organisation focuses on exploitation it trades flexibility for stability.

- Desirable organisation outcome: exploitation and exploration are both important for an organisation's survival. Due to limited resources, however, organisations choose one at the expense of the other and this leads to divergent organisational outcomes.

Raisch (2008) researched the structures within an organisation that influence profitable growth and concluded that mechanistic structures ensure the efficient exploitation of current capabilities, while organic structures enable the exploration of new opportunities. If one considered the trade-offs within the organisational structure, organisations must make a trade-off when considering the different factors that enable exploitation versus exploration. Erikson and Samila (2010) also looked at the exploitation of current knowledge versus the exploration of new knowledge and stated that the trade-off within organisations is managed through the allocation of resources and restructuring the organisation.

2.5.2 Ambidexterity

The term 'ambidexterity' has been the focus of much research in recent years when discussing exploitation and exploration. Simsek (2009) explained ambidexterity as the ability of humans to use both hands with equal skill; he uses this explanation as a metaphor for organisations that are equally dexterous at exploiting and exploring.

Organisational ambidexterity is an organisation's ability to be aligned and efficient in the management of the current business demands, while simultaneously being adaptive to the changes within the environment (Raisch & Birkinshaw, 2008). Ambidexterity can also be defined as the ability of the firm to simultaneously exploit and explore, and enables a firm to adapt over time (O'Reilly & Tushman, 2008). Gupta, Smith and Shaley (2006) defined ambidexterity as the pursuit of both exploitation and exploration using loosely coupled and different sub-units or individuals. Each of these sub-units or individuals will specialise in either exploration or exploitation. They also contrasted ambidexterity with punctuated equilibrium, which is cycling through periods of exploitation and exploration as a more viable approach, compared to ambidexterity which is a simultaneous pursuit of both.

Ambidextrous organisations can create conflict between operating units due to the short term efficiency which is at odds with the longer term inefficiency of experimentation (O'Reilly & Tushman, 2008). The idea of ambidexterity does challenge the widely held assumption that innovation and efficiency are orthogonal and the trade-off of one must be done at the expense of the other (O'Reilly & Tushman, 2008).

After analysing various literature, Gupta, Smith and Shalley (2006) came to the consensus that since the early 1990s the terms 'exploitation' and 'exploration' have come to dominate organisations' analyses of innovation, design, adaptation, learning, competitive advantage and survival. They also viewed the terms 'continuity' and 'orthogonality' (stability) as the same as exploitation and exploration, and when looking if the two can be done exclusively or simultaneously they came up with the following conclusions:

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- The scarcer the resources available to the company to pursue exploitation and exploration, the greater the chance that the two would be mutually exclusive.

- Within an individual or subsystem and not at an organisational level, exploitation and exploration would normally be mutually exclusive.

- Across different or loosely coupled domains, exploitation and exploration will normally be orthogonal.

From the results above, it can be seen that Gupta, Smith and Shalley (2006) did not believe that there is a universal argument for either continuity or orthogonality, and the relationship between exploitation and exploration depends on whether the two compete for scarce resources and whether the analysis focuses on single or multiple domains. From the literature there does not seem to be a concrete view on how to handle the paradox of exploitation and exploration, and if it should be treated as mutually exclusive or mutually enabling.

2.5.2.1 Factors that may affect ambidexterity

Smith and Tushman (2010) stated that long term success would be dependent on adopting and managing paradoxical strategies simultaneously. They referred to the term 'strategy' as products' and services' means of competing in the market place, and referred to the term 'paradoxical' as multiple strategies that are interrelated and yet contradictory. They identified several complex business models that organisations need to adopt in managing paradoxical strategies and stated that managing these complex business models would depend on leadership that could make dynamic decisions, build commitment to visions and specific goals, be able to actively learn at different levels and engage conflict (Smith, Binns & Tushman, 2010).

Successful companies are built for innovation and are extremely stable, said McGrath (2012), with some elements of this stability being that managers focus on culture and values, hold on to their talent, and keep senior leadership stable.

Another key element of companies' success is that top executives are promoted internally. It is evident that leadership plays a critical role in managing paradoxes and a key element of successful companies is their leadership.

Culture is also linked to the ability of an organisation to be ambidextrous. Lin and McDonough (2011) hypothesised that strategic leadership is linked to a knowledge-sharing culture, which directly impacts innovation ambidexterity, and it is the organisational culture that mediates the relationship between strategic leadership and innovation.

O'Reilly and Tushman (2008) argued that under appropriate conditions, organisations can explore new places as well as exploit their current capabilities. They acknowledged that this is not easily done, but believed that senior leaders can resolve the strategic contradiction by designing and managing their own processes to achieve an ambidextrous organisation. They also believed that in order to accomplish this it is a leadership task and not an organisational structure or design issue.

2.6   Conclusion to Literature Review

The literature review indicates there are many dilemmas and paradoxes that managers have to deal with on an on-going basis. By effectively managing these dilemmas and paradoxes, organisations can distinguish themselves from their competitors.

Exploitation and exploration are terms used to describe a particular management approach when making strategic decisions. There has been a vast amount of research done on the topic and there does not seem to be consensus or an ideal approach on how to manage the paradox. Previously companies thought that they should be doing one at the expense of the other due to the trade-offs in pursuing each option, but more recently the literature has said that an ambidextrous approach is more suitable when dealing with this paradox. The literature acknowledges that there are challenges in trying to

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implement an ambidextrous approach and it is not easy to deal with this paradox in light of the changing environment.

This study will aim to investigate the seemingly contradictory nature of exploitation and exploration. It will explore the factors of each in order to give management an understanding of what drives each, and investigate if companies can do one and not the other, or do one but not at the expense of the other.

3 CHAPTER 3: RESEARCH QUESTIONS

This chapter draws on the concepts and purpose of the research study described in the introduction as well as the issues that emerged from the literature review in Chapter 2.

The research questions provide a clear link to the relevant literature and try to get fresh insight into the chosen topic (Saunders & Lewis, 2012). The purpose of this research report is to answer the questions below and translate the findings into a meaningful framework that will demystify the components of the management paradox. It will provide managers facing the paradox of exploitation and exploration with a framework that will assist them to clarify the components of the paradox.

The following research questions will be explored during this exploratory study:

Research Question 1:

What factors affect exploitation in an organisation?

Research Question 2:

What factors affect exploration in an organisation?

Research Question 3:

Are exploitation and exploration mutually exclusive or simultaneously achievable?

Research Question 4:

Are the competencies needed to manage exploitation and exploration the same or different?

Research Question 5:

What are the trade-offs between exploitation and exploration?

4   CHAPTER 4: RESEARCH METHODOLOGY

4.1   Research design

There are many research methods that can be utilised. Saunders and Lewis (2012) defined the following methods:

- Exploratory: Research that looks at getting new insights, asking new questions and looking at topics in a new light.
- Descriptive: Research designed to get an accurate picture of people, events or situations.
- Explanatory: Research that looks at studying a problem to explain the relationship between variables.

Exploratory research is used when the researcher does not clearly understand a topic and wants to discover general information about the topic (Saunders & Lewis, 2012). Exploratory research is done to clarify ambiguity in situations and is not intended to provide conclusive evidence in order to make decisions (Zikmund, Babin, Carr & Griffin, 2010). This research project used an exploratory research design so as to be able to gain insight into the ambiguity or the paradox of dealing with the complexities of exploitation and exploration within an organisation. This type of research design was appropriate for this project due to the researcher wanting to discover more about the information relating to the paradox of exploitation and exploration.

Quantitative business research addresses business research objectives through assessments that involve numerical analysis and measurements, and requires less interpretation compared to qualitative analysis (Zikmund, Babin, Carr & Griffin, 2010). Quantitative research emphasises numbers and most researchers use statistical tools to analyse the data (Myers, 2013).

Qualitative methods are used to help understand people and their decisions. Another benefit of qualitative data is that it helps the researcher to understand the context in which decisions take place (Myers, 2013). Most exploratory

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research produces qualitative data and does not normally produce quantitative data (Zikmund, Babin, Carr & Griffin, 2010).

This research project used qualitative methods as the main approach. The qualitative method was chosen because the objective of the research was to seek refinement and get a better understanding of the principles pertaining to the paradox of exploitation and exploration. It assisted the researcher to understand the reasons for decisions being taken when companies choose whether to exploit or explore, and gave the researcher additional insight into the topic.

The most common way of conducting exploratory research is to analyse the academic literature and interview experts on the subject (Saunders & Lewis, 2012). Semi-structured interviews give the researcher some structure and allows for improvisation, and also allows the interviewees the opportunity to give important insights as they arise during the course of the interviews (Myers, 2013). Semi-structured interviews were used during the research study as this type of interview is used the most in business and management research (Myers, 2013), and it also gave the researcher the flexibility to ask questions about exploitation and exploration that came up during the course of the interviews that was not thought of beforehand.

4.2   Population

The population is a complete set of group members that shares some common characteristics (Zikmund, Babin, Carr & Griffin, 2010). The respondents in this research are defined as company executives and strategy experts. The executives that were selected had a sound reputation and a deep understanding of the complexity of managing the paradox of exploitation and exploration within a company. Their level of experience was taken into account, as was their knowledge of exploitation and exploration. The strategy experts were selected based on their extensive strategy consultant experience, as well as their practical and theoretical knowledge in the area of dealing with exploitation and exploration within an organisation. The executives and strategy

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specialists were selected from a range of different industries to gain insights from a broad-based population and to reduce any biases from a specific industry. The actual size of the population was unknown as there were no known sources of reliable data for this population. The interviews conducted were representative of the following industries:

- Aviation
- Consulting
- Government
- Food and beverage
- Health care
- Logistics
- Manufacturing
- Media
- Telecommunications

4.3   Sample

The sample is a subgroup of the whole population (Saunders & Lewis, 2012). If one does not have a complete list of the population and cannot select a sample from the population at random, then non-probability sampling should be used (Saunders & Lewis, 2012). In non-probability sampling, the chance of any member of the population being chosen is unknown, compared to probability sampling in which all members of the population have a known, non-zero chance of selection (Zikmund, Babin, Carr & Griffin, 2010). This study used purposive sampling, which is a type of non-probability sampling in which the researcher uses his judgment to select sample members based on specific reasons (Saunders & Lewis, 2012). The sample selection consisted of executives and strategy experts that work at a strategic level within an organisation and have experience with the paradox of exploitation and exploration.

A sample size of 18 was targeted which consisted of four strategy experts and four executives from diverse industries. The sample size is dependent on when saturation is reached. Data saturation occurs when additional collection will provide few, if any, insights into the research objective (Saunders & Lewis, 2012). This will occur once the thoughts and insights from the different interviewees begin to merge and become repetitive. After 18 interviews data saturation was achieved, as the thoughts and insights of the interviewees began to converge and became repetitive. The sample was chosen from a range of companies and sectors to get a diverse view. In addition, a few executives were also chosen from one company but within various executive positions to look at their different perspectives of the situation. This approach ensured a diverse sample and a good opportunity of getting fresh insights into the topic. A detailed description of the sample is given below:

Table 1: The sample description

No.	Participants' Names	Designation/Alignment to Research Project	Company	Industry
1	Erik Venter	Chief Executive Officer (CEO)	Comair	Aviation
2	Chris Zweigenthal	CEO	AASA	Aviation
3	Gidon Novick	CEO	Discovery Vitality	Health
4	Hubert Brody	Former CEO	Imperial Holdings	Logistics
5	Meyer Kahn	Former Chairman	SAB	Beverage
6	Jabu Mashwama	Minister	Swaziland Government	Government
7	Martin Louw	Director: Operations; Board member	Comair	Aviation
8	Stuart Cochrane	Executive: Business Process	Comair	Aviation
9	Eve Liebetrau	Executive: HR	Comair	Aviation

10	Ian Meaker	Executive: Commercial	Comair	Aviation
11	Mike Raath	Chief Technical Officer	DSTV: Digital	Media
12	Geert Slootweg	Managing Director	DuncanMec	Engineering
13	Len Marais	Strategy Consultant	Resolve; Accenture	Consulting
14	David Wilson	Strategy Consultant	Delta Partners; Accenture	Consulting
15	Dr. Raj Raina	Professor of Strategy	GIBS	Consulting; Academic
16	Brian Isaacson	Strategy Consultant	BiAlign	Consulting
17	Avi Bhatt	Former Executive: Engineering	Comair	Aviation
18	Sakile Reiling	Former CEO	Air Botswana; Civil Aviation Authority	Aviation

4.4 Unit of analysis

The unit of analysis for the study was the opinions and perceptions of the executives and the strategy experts on the paradox of exploitation and exploration within an organisation.

4.5 Pre-test

Pre-testing was conducted with two randomly selected candidates prior to the interviews to enable the researcher to judge how the interviews would flow. It also gave the researcher insight into the understanding of the questions by candidates. The researcher had to make minor adjustments to the way the questions were asked, as well as to his interview style prior to the interviews. These adjustments were discussed with the supervisor and after valuable

feedback the interviews flowed more naturally. This process greatly assisted the researcher to get the most benefit out of the interviews.

4.6   Data collection and interview guide

The data collection consisted of 17 face-to-face and one telephonic semi-structured interview with the executives and strategy experts. One interview was conducted telephonically as the respondent was located in Cape Town and could not accommodate a face-to-face interview. The average interview lasted approximately 40 minutes and varied depending on the detail of the discussion and flow of the conversation. All interviews were recorded in order to assist with the analysis process.

At the start of the interview the interviewees were requested to sign the interview consent form (Appendix 1). The interviewees were led through the interview guide (Appendix 2), which contained five questions that were used to get insights relating to the themes that were central to the research project. The interview guide was designed to allow the interviewees to think critically about their answers and also allowed the interviewer to discuss different perspectives on the subject. The use of an interview guide was also used to try and ensure that the interviews were consistent, ensured the interviewer was neutral and improved the overall quality of the research process (Denzin & Lincoln, 2005).

The respondents represented various companies and positions, which allowed for a diverse mix of responses and experiences. The interviewees were encouraged to talk openly during the sessions, and were relaxed and committed to engaging on the topic during the length of the interview. The interviewees seemed excited at some stages in discussing the complicated subject matter. During the interviews it became evident that there were no clear answers to the paradox, and the respondents often used real examples to relate their position on a specific question. Probing techniques were also used to extract additional information and knowledge from the respondents (Blumberg, Cooper & Schindler, 2008). The sequence in which the questions were asked was sometimes adjusted due to certain questions having been answered before they

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were asked, and in order to gain insight into what was currently under discussion. The adjusting of the order of the questions also allowed the interview to flow naturally. Additional questions were asked to explore if different questions and themes were unique to a specific industry, as well as to get further insight into the responses. After the interview the respondents commented on the interesting topic and were grateful to spend time grappling with and discussing the paradox.

4.7   Data analysis

4.7.1   Qualitative data analysis

Data analysis refers to the breaking down of interview transcripts into logical themes in order to discover new understanding and insights into the area of focus (Saunders, Lewis & Thornhill, 2011). Qualitative data is often analysed in text form and there needs to be consistency in the way the conventions are recorded (Saunders & Lewis, 2012). As a researcher's interpretation of the data can influence the findings (Zikmund et al., 2012), content analysis was used to ensure objective interpretation and analysis and diminish this potential risk.

4.7.2   Content analysis

Content analysis is a technique that is used extensively in qualitative research (Hsieh & Shannon, 2005). The success of content analysis is dependent on the coding process, which involves organising large amounts of text into fewer content categories (Hsieh & Shannon, 2005). Myers (2013) also suggested that one of the easiest ways of analysing qualitative data is the coding of the data. Coding is a process that uses categories to make sense of data (Tharenou, Donohue, & Cooper (2007). Coding can also be seen as the process of allocating a numerical score or symbol to edited data (Zikmund, Babin, Carr & Griffin, 2010).

All interviews conducted were recorded and a coding frame was designed in Excel to map the data from the interviews as well as the interview guide, as shown in Appendix 4.

Frequency analysis and a coding frame were used to allow for the aggregation of the data in terms of the applicable research question. This method allowed the researcher to better understand and interpret the nature of the interviewees' responses.

4.8   Potential Research Limitations

The following potential limitations to this study were identified as:

- The researcher may have been biased based on his own perceptions, assumptions and interpretations
- The outcome of the research is based on the quality of the interviews performed, but the researcher had no formal training in conducting expert interviews.
- The outcome of non-probability sampling cannot be generalised to the whole population.
- The paradox of exploitation and exploration is complex and does not have straightforward answers. In addition, there is a possibility that there was a limited amount of information about the topic covered and due to the vastness of the topic some the findings will be general and not specific to an industry or specific situation.

4.9   Conclusion

The research design and methodology were intended to meet the requirements and objectives that were established at the start of this research project. The research gained insights from many academic studies and extended and enhanced these insights by delivering fresh views on the topic.

5   CHAPTER 5: RESULTS

The results presented within this chapter are in alignment with the research questions indicated in Chapter 3. The key observations are discussed under the applicable research questions. The research methodology was qualitative and exploratory in nature, as discussed in Chapter 4. Semi-structured interviews were used as the research technique and provided a level of flexibility to uncover insights.

All 17 face-to-face interviews and one telephonic interview were scheduled and conducted over six weeks. Many of the interviews were conducted with executives from different departments within the aviation industry. These departments included operations, human resources, business development and commercial. In addition, interviews were held with executives from other industries including consulting, media, health care, food and beverage and logistics, to check if their views differed due to their respective industries.

Due to time restrictions and the nature of semi-structured interviews, not all the respondents answered all of the five questions precisely. During the interviews recordings and notes were taken with the interviewees' consent. The recordings were then analysed using content analysis. The different factors for each question were clustered together using Excel.

5.1   Research Question 1

What factors affect exploitation in an organisation?

Exploitation is the refinement and extension of existing competencies and technologies (March, 1991). It is about building on the existing knowledge within an organisation and leveraging off existing skills and capabilities (Lavie, Stettner & Tushman, 2010). When an organisation focuses on exploitation there is not much emphasis on experimentation, but rather on increasing speed and efficiency as well as improving on the ways things are currently done.

The respondents had many different views on the factors that would drive exploitation within an organisation, due to there being many factors that one should take into account when deciding on the degree to which the organisation should exploit. Inductive content analysis was used and a few consistent factors emerged from the interviews that were likely to influence the degree of exploitation within an organisation. The factors were ranked according to the number of respondents that identified each factor and a ranking table was used to prioritise the factors. A high ranking value was deemed to indicate that it was a strong driving factor that could affect exploitation within an organisation. Appendix 5 represents all the factors that were mentioned by the respondents, while Table 2 represents the highest ranked factors that may affect exploitation within an organisation.

Table 2: What factors affect exploitation in an organisation?

Rank	What factors affect exploitation in an organisation?	Number of respondents
1	Leadership	15
2	Company Culture	13
3	Company Profitability	11
4	Age of Organisation	10
5	Highly Competitive Environment	9
6	Life Cycle of a Business	9

These results are discussed below.

5.1.1 Leadership or Management style

Fifteen of the 18 respondents felt that the leadership of the organisation was a primary factor in the degree of exploitation within the organisation. The respondents felt that the CEO played a huge factor in the organisation's strategic direction, was a driver of behaviour and affected the ability to exploit or explore. Some respondents' believed that a conservative CEO, who would only

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look at what was currently happening in the organisation and was not forward looking, would promote exploitation within an organisation. The respondents also thought that a CEO who had a philosophy of growing the business through increasing efficiencies compared to experimenting with new business would influence the organisation to be more exploitative. Some of the respondents' views are expressed below:

> *"If the CEO's style is to gain more efficiency to grow the business it would affect the exploitation within the company."*
> *"The CEO sets the tone of the company. If he has more a philosophy of fine tuning then the organisation will focus on that."*
> *"The age or personality and drive of a leader (CEO) affects the ability of the company to exploit or explore. If a leader is less engaged he will choose to exploit and not explore as much. The age of the leadership team will affect the exploitation versus exploration especially in smaller companies."*
> *"(The) leader has a huge influence on the company direction. Tone from the CEO identifies what phase the business is in and affects the exploitation or exploration."*

5.1.2 Company culture

Another significant factor that was identified as affecting exploitation was company culture. Eleven respondents thought that organisational culture is a huge factor that affects exploitation in an organisation.

If the organisation's culture is to exploit the current environment and not look for new opportunities, then the company would be more prone to exploitation. Companies that have had a history of successful exploitation could be more prone to continue exploiting, while a company with a low risk culture could also exploit more. Many respondents also commented that there is a link between organisational culture and leadership. They elaborated on this by stressing that the culture is driven by the leaders.

Some of the respondents' views were as follows:

➢ *"Culture is absolutely fundamental and is core to both exploitation and exploration in an organisation."*

➢ *"Culture starts at the top of the organisation with how the leaders behave and filters all the way down."*

➢ *"Exploitation is the known and exploration is an uncomfortable space to be in. Most people like to stick to what is the known and this promotes exploitation more than exploration."*

➢ *"If you have a legacy of exploiting and doing well, you will continue to exploit."*

5.1.3 Profitability of an organisation

Eleven respondents thought that the current profitability of a company is a factor in exploitation. Companies that are losing profitability or are not profitable could look for quick ways to increase their profitability by exploiting. Exploitation is quicker and less expensive than exploration and companies would exploit more if there was still room to exploit in order to get more value and quick returns in profitability. Some of the respondents expressed their views as follows:

➢ *"Companies must always exploit if there are ways to reduce cost and increase margins."*

➢ *"When companies need to be more profitable, the first thing they do is look how to save costs before looking at new opportunities, they exploit their current environment."*

➢ *"In times of low profits, the company looks at how to use existing systems to save costs and generate more profits. When profits take a dip we concentrate more on cost saving even though we should always be looking at it. There needs to be a cost saving philosophy in the company."*

➢ *"If you do not have the budget to try different things, then you need to explore in order to do more with less within the current environment."*

5.1.4 Age of organisation

Most of the respondents acknowledged that the age of the organisation is a factor, however there was no general consensus if the age of the organisation affects the company's ability to exploit or explore positively or negatively. Some respondents viewed an older organisation as being better able to exploit or explore, while others thought that the age of the organisation could restrict the company's agility to exploit or explore. Ten respondents felt that the age of the organisation is a factor. The views of the respondents are expressed below:

➢ *"Age of organisation and risk profile to stakeholders influences exploitation."*

➢ *"Older companies are more exploitative."*

➢ *"It's the same challenges in a listed and private company. It's a factor but does not drive exploit/explore. More opportunities in a listed organisation due to shareholders and more people involved in decision making. Non listed entity could be harder or easier to convince one or two individuals."*

➢ *"As long as you are constantly responding to your environment then the age of the organisation is a huge advantage in exploring or exploiting."*

5.1.5 Highly competitive environment

Nine respondents felt that a company will exploit more if they are in a highly competitive environment. The respondents felt that in a highly competitive environment the company would have to constantly exploit in order to compete and survive within the applicable industry. An example of this is the airline industry, where a company cannot compete without keeping their costs low due to low margins. Some of the respondents' views were noted as follows:

➢ *"Exploitation needs to be a core competency in any business; you must be continuously looking at better ways of doing things."*

➢ *"A company must be in tune with the market and environment all the time. Exploitation is when you have identified an opportunity that others have not seen and you can exploit it to the benefit of the company.*

Exploration is when you perceive a shift in the trading environment or anything that affects your business. Exploration is to ensure you are the company of choice and you explore for further opportunities."

5.1.6 Life cycle of a business

Nine respondents thought the life cycle of the business was a factor, as the companies would be more explorative in a growing stage but become more exploitative in a market that was mature or difficult to grow in. Some respondents articulated their views as follows:

➢ *"Saturation of market will affect both exploitation and exploration."*
➢ *"In a mature stage the company will exploit the advantages it has."*
➢ *"Exploitation becomes critical when you are operating in a market that is difficult to grow."*

5.2 Research Question 2

What factors affect exploration in an organisation?

Exploration involves searching and experimenting with new ways of doing things, taking risks and being innovative (March, 1991). It is a shift away from the current knowledge and skills base to developing new capabilities and innovativeness in the organisation (Molina-Castillo, Jimenez-Jimenez & Munuera-Aleman, 2011). Exploration is about looking and investing in the future.

Many factors surfaced during the interviews that could affect exploration in an organisation. Inductive content analysis was used to identify the factors and they were then ranked in a table. Appendix 6 reflects all the factors that were observed. The factors were ranked according to the number of respondents that identified the factor. A high ranking value was deemed an indication that the factor is a strong driver in affecting exploration within an organisation. Table 3 reflects the highest ranked factors.

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Table 3: What Factors affect exploration in an organisation?

Rank	What factors affect exploration in an organisation?	Number of respondents
1	Culture of innovation	12
2	Leadership	11
3	Incentive schemes	11
4	Company profitability	10
5	Organisational structure	8
6	Opportunities and desire to grow	8

5.2.1 Culture of innovation

Twelve respondents thought that an innovative culture promotes exploration. They felt that the culture must be one of constantly looking at the present and at the future to be a long lasting successful organisation. The company culture must be innovative, encourage out of the box thinking, take risks, be supportive of failure when experimenting, and have an appetite to constantly grow. A culture of wanting to be market leaders and being innovative enough to achieve it is a culture that supports exploration.

As mentioned in the section on exploitation, there is a link between the leadership and culture of an organisation and the ability to effectively explore new business opportunities.

Some respondents' comments are detailed as follows:

> ➢ *"Culture of organisation evolves but it remains consistent with the founding principles. Culture has a huge factor on an organisation's ability to explore. A culture of an appetite for growth, taking risks, looking for new opportunities, innovativeness and becoming a market leader drives the exploration."*

> ➢ *"Exploration needs people to think out of the box and differently to the job they perform day to day in an organisation. If people's general thinking does not support exploration it is a problem."*

> ➢ *"Must be part of your company DNA to be innovative and explore. (It) Takes a special organisation to re-invent itself continuously."*

> ➢ *"Culture is core to both exploitation and exploration. Culture must have enthusiasm and must be spirited."*

5.2.2 Leadership

Eleven respondents felt that the leadership or management style of the CEO and executives is a factor in exploration. The respondents also expressed that there is a strong link between leadership and culture. A forward looking, innovative leader will look at exploration in order to ensure the company's success in the future, and look at exploitation to ensure success in the present. Some of respondents' views are expressed as follows:

> ➢ *"The organisation aligns to the leader's mindset, the outlook of the leader plays a major role in the direction of the organisation and (its) ability to exploit or explore."*

> ➢ *"The CEO drives a specific strategy and it does play a role in the company's ability to explore. If he was looking at growth and has an entrepreneurial style then the company will explore new opportunities"*

> ➢ *"Nontraditional leadership that can think outside the company's comfort zone and out of the box enables exploration."*

> ➢ *"A leader needs to be able to do both exploitation and exploration and it should be part of their capabilities. The leader must know that if they do not do both (exploitation and exploration) then their business could be disrupted by someone else."*

> ➢ *"The innovative CEO will go and explore new opportunities and will take the team and organisation with him. The leader is core to any organisation. (They) Must look at today and tomorrow."*

5.2.3 Management incentives

Twelve respondents thought that the way executives are remunerated plays a big role in the company's exploration ability. A common theme stressed throughout the interviews was that behaviour is driven by how someone is remunerated. Another observation was that bonuses and shares play a huge role in the performance of an executive team in meeting their objectives. Respondents elaborated on their views as follows:

> *"Exploration is a lot more risky than exploitation and incentives will drive behaviour."*
> *"Any Board putting in incentives would want to put in a balance of exploitation and exploration to incentivise individuals and ensure a constant growth for the business. Incentives drive behaviour and you want to drive behaviour."*
> *"Pay grade and bonuses must be linked to growth."*
> *"Once you give people shares, people treat the company as if it was their own. They definitely work a lot harder. The companies that give incentives, the staff stay a lot longer and it pushes the exploration."*

5.2.4 Profitability of the organisation

Ten respondents felt that the profitability of the organisation and ease of access to funding is a factor that drives exploration. Exploration is more expensive than exploitation and the ability of the company to access cash, either within or outside of the business, will have an impact on exploration. The respondents supported their views as follows:

> *"A big cash pile supports exploration."*
> *"If you are inefficient and not making a profit you will have very little time to do the exploration."*
> *"When you have cash you need to use the cash in order to develop future opportunities."*

> *"When a company is doing poorly, it will not spend lots of money and take chances with new opportunities. They normally need to focus on their core business to return to profitability. They normally focus on the core and look at small new opportunities. If you want to focus on big new opportunities when you don't have cash, you could close the business down. If you do have cash you should explore."*

5.2.5 Organisational structure

Eight respondents thought organisational structure was a factor in exploration. There did not seem to be a general consensus around what the optimal structure is for exploration, however, as some respondents thought that cross functional structures support exploration, while others thought that a new team should be set up or have a separate structure to explore new opportunities.

Other respondents did not agree or think that organisational structure should affect exploitation and exploration. Their view was that any organisational structure should support the organisation's strategy, as they thought it had more to do with culture and how people interact within the structures. Some of the following comments were observed from the respondents:

> *"Cross functional structure with people working together and sharing leads more to successful exploration."*
> *"Some companies set up a team within the organisation to check the possibilities of exploration. It is a good plan but most times the team ends up doing projects or other things to address the organisations current issues."*
> *"Some structures will promote a more explorative company but it depends on the specific business units and what they are responsible for. Some units have a more explorative function e.g. new product development and some have a more exploitative role e.g. operations."*
> *"If you are going to decide to explore a lot then you need a new department set up for that purpose. It's difficult for everyone to explore*

over and above their normal jobs and the company may need a structure change."

➤ *"The only organisational structure that's good for your company is the one that works. The world goes through trends, the current focus can be centralisation and in the future 20 years from now it will be decentralisation. The only structure that works is the one that makes you and your people comfortable, secure and confident."*

5.2.6 Opportunities and desire to grow

Eight respondents felt that companies that constantly look for opportunities to grow will be more successful at exploration. Companies that want to be market leaders will always be looking at their environment will identify any changes and be in a position to respond to growth opportunities. Respondents felt that if a company did not grow or want to grow it would have huge implications on their sustainability into the future. Some respondents elaborated as follows:

➤ *"Exploration is driven by the needs and necessity for a company to grow within their environment."*

➤ *"Companies that take into account the changing context will look at doing things differently in order to grow. These companies are more sophisticated around strategy design and know that nothing lasts forever, they constantly look at ways of growing."*

➤ *"Companies must find ways to combat the disruptive forces. They must always look at new opportunities."*

➤ *"Innovation is core in any environment. Companies must remain paranoid about competition coming in and disrupting the environment. They must constantly look at new ways of improving."*

5.3 Research Question 3

Are exploitation and exploration mutually exclusive or simultaneously achievable?

As reflected in table 4 below, 18 of the respondents felt that exploitation and exploration are simultaneously achievable. Three of the respondents felt that although they are simultaneously achievable, they can also be mutually exclusive but only in very specific circumstances.

The respondents acknowledged that it was difficult to manage this paradox. Some respondents thought that a company should always be exploiting and exploring, however they spend the majority of their time on exploitation and less time on exploration. Other respondents thought that one cannot say how much time should be spent on each and the situation will always determine what the company should focus on. Although all the respondents agreed that an ambidextrous approach should be used, their views differed on the extent to which each should be done. All respondents acknowledged that because there are so many things to consider it is very difficult to manage the paradox of exploitation and exploration and it is difficult to say what the appropriate mix should be.

Table 4: Are exploitation and exploration mutually exclusive or simultaneously achievable?

Rank	Are exploitation and exploration mutually exclusive or simultaneously achievable?	Number of respondents
1	Exploitation and exploration are simultaneously achievable	18
2	Exploitation and exploration are mutually exclusive	3

5.3.1 Exploitation and exploration are simultaneously achievable

Many common elements were repeated in response to this question indicating a consistent, strong opinion. All 18 respondents felt that exploitation and exploration are simultaneously achievable and an ambidextrous approach should be used. Although the respondents agreed that an ambidextrous approach should be used there was not much consensus on the degree to which a company should do one or the other. The respondents felt that companies cannot afford to treat them exclusively and if they do they will ultimately perish. Respondents felt that companies need to have the ability to focus on what is important at different times but constantly look at both. Respondents also agreed that the companies that can effectively exploit and explore will be more successful and will last longer. Respondents expressed their views in the following ways:

> *"Companies have to grow and must do both, if you choose to do one it is a funeral strategy."*

> *"The company is doomed to fail if it only does one! You cannot only do one; the business is changing so you need to keep up with the change."*

> *"Need to do both but the balance between the two changes, never 100% of one or the other but constantly need to do both."*

> *"Companies have to grow and must do both. Companies don't usually do both effectively due to there being not many companies that are very old."*

> *"Need to do both simultaneously because you need to find whatever method you can to improve, but you normally do more exploiting than exploring."*

> *"The two complement or follow each other. Once you explore it will become exploitation- they are linked"*

> *"Will get to a point when you have exhausted all exploitation and you will not grow anymore. Run a risk of going down a road with a dead end. It takes time to find new opportunities and you will be behind and it will affect your ability to grow."*

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5.3.2 Exploitation and exploration are mutually exclusive

Although all 18 respondents mentioned that exploitation and exploration must be done simultaneously, three respondents also felt that exploitation and exploration could be mutually exclusive, however the respondents stressed that this would only be in a specific environment and for a limited time. Some of the respondents' views are outlined below:

- *"If you are in a static environment you can do exploitation only but there are no static industries. Can only exploit so much and it is finite."*
- *"If a company is very efficient and has critical mass they may be able to survive by only exploiting, however it will eventually become mediocre and will eventually disappear."*
- *"Doing only exploration or exploitation would be organisation specific and will depend what you are trying to achieve."*

5.4 Research Question 4

Are the competencies needed to manage the paradox of exploitation and exploration the same or different?

Fourteen respondents agreed that the competencies to manage exploitation and exploration are different.

Three respondents mentioned that is was not about competencies when you manage the paradox of exploitation and exploration, but rather about having the right team that make up the competencies needed to manage the paradox effectively. The results are detailed in table 5 below.

Table 5: Are the competencies needed to manage the paradox of exploitation and exploration the same or different?

Rank	Are the competencies needed to manage the paradox of exploitation and exploration the same or different?	Number of respondents
1	Competencies needed are different	14
2	Not about competencies	3

5.4.1 The competencies needed to manage exploitation and exploration are different

Fourteen respondents felt that the competencies needed to manage exploitation and exploration are different. A manager that manages exploitation must:

- be focused
- be analytical
- have a procedural way of thinking
- have existing knowledge to drive efficiencies

A manager that manages exploration must:

- have an entrepreneurial way of thinking
- be a risk taker
- be innovative
- be forward looking
- be dynamic

Some of the respondents expressed their views in the following ways:

➢ *"Exploitation needs someone that is disciplined, has analytical skills. Exploration needs an open minded individual with intellectual and mental agility that can find new creative ways of solving problems."*

> *"Very different competencies (are) needed. Exploitation is someone that is very skilled, very robust, very dynamic, and able to adapt to change. Exploration is someone that is driven, wanting to know how to do things differently. Both individuals are very good influencers."*

> *"Competencies are completely different and (the) organisation sometimes has to transfer the competencies between departments. (It is) very difficult to find people that can do a combination of both exploitation and exploration and have the competencies."*

5.4.2 It is not about competencies but rather about having the right team that make up the competencies

Three respondents were of the opinion that a manager does not need to have the competencies to be able to exploit or explore more effectively. They believed that the ability to effectively manage exploitation and exploration is dependent on the manager having the right mix of the competencies within his team. On the other hand, some respondents felt that each person has a combination of these competencies. They felt that agility of the organisation was important and it is not only about competencies. Some respondents' views were expressed as follows:

> *"In a management team you must surround yourselves with all the competencies that make a whole. Make sure there is no gap with the people that surround you."*

> *"Need competencies but could also be more about the leadership than the competencies."*

> *"Very few organisations survive two hundred years. Excellence is important in an organisation. The organisations that last this time are anomalies. The competence which they have is very unique, it is not something that others can copy easily, the competency to strategise and incorporate exploitation and exploration is very unique. The competency has to prevail in the whole organisation competency."*

> ➤ *"Competencies for strategising incorporate lenses for exploitation and good practices for exploration. The lenses sitting at the CEO and executive level must incorporate exploitation and exploration and permeate them down to the company in terms of incentive structure and cultures for an organisation to balance the two."*

5.5 Research Question 5

What are the trade-offs between exploitation and exploration?

There were mixed views from the respondents in response to this question. The mixed views are an indication that how the trade-offs are viewed is complex and it is difficult to manage this paradox of exploitation and exploration.

While some of the respondents mentioned that there are specific things that get traded off, others felt strongly that exploitation and exploration cannot be viewed as trade-offs. They felt that you always need to be doing both so exploitation and exploration should be viewed as something the company needs to do instead of something that gets traded off against something else.

Nine respondents felt that balancing the tensions and the risk between exploitation and exploration is important, and that management cannot view them as tradeoffs - they are intertwined and you have to be doing them both all the time for your business to be sustainable.

Nine respondents also believed that there is a financial trade-off between exploitation and exploration as it is more expensive to explore. In addition, the same nine respondents also thought that capacity was also a trade-off and one needs additional capacity to be able to explore.

Table 6: What are the trade-offs between exploitation and exploration?

Rank	What are the trade-offs between exploitation and exploration?	Number of respondents
1	Cannot view them as trade-offs	9
2	Financial trade-off	9
3	Capacity trade-off	9

5.5.1 The tension and risk of exploitation and exploration must be balanced and not traded off against one another

Nine respondents felt that exploitation and exploration must not be seen as trade-offs against one another, but rather be seen as something the company has to constantly do in order to be successful. Management must constantly balance the tension and risk of the two when making decisions. The respondents articulated their views in the following ways:

> ➢ *"(You) need to balance the tensions between exploitation and exploration but they should not be traded off."*
> ➢ *"(You) cannot focus too much on one and not the other, you will miss opportunities. Have to balance both."*
> ➢ *"They are both different and they are both the same and they are both interlinked. You can't have one without the other. They are the same but do different things; they are like your body parts and are interlinked. You won't survive without being efficient."*
> ➢ *"You cannot say there is a trade-off. You cannot forsake one at the expense of the other."*
> ➢ *"Companies should not see it as a trade-off, in sophisticated companies it is seen as investing in the future and not as trade-offs"*

5.5.2 Financial trade-offs

Nine respondents felt that exploration is more expensive than exploitation and one would need to have extra cash to be able to explore. They viewed cash resources as a trade-off when a company decides between one or the other. Their comments are outlined below:

> *"Capital can be a trade-off."*
> *"When you have extra cash in the business, you need to find ways of growing the cash for the future and need to look at ways of exploring in order to get future returns."*
> *"Exploration needs cash but within the company you must be profitable within the current year. Need to have the mindset that if you believe something is going to be profitable you must get the money and not worry how much you will spend on it."*

5.5.3 Capacity is a trade-off

Nine respondents felt that capacity within the business was a trade-off. Some examples of the capacity included management time, staff resources, intellectual capacity and financial capacity. The comments of the respondents were as follows:

> *"Need capacity to explore, things get cut when you do not have resources and it can restrict exploration."*
> *"(You) cannot take on too much to explore when you do not have the capacity."*
> *"Intellectual capacity is a trade-off and (you) also need spare capacity to be able to explore and focus on what is important and not urgent."*
> *"(You) need to always look at both. Need to build capacity in order to explore. Need to be able to respond to opportunities as well as cut down when you need to. Need to have a plan of how to change from one to the other."*

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5.6 Conclusion on findings

The results of the five research questions demonstrated support for the existing literature regarding the paradox of exploitation and exploration. In addition, the findings provided profound insights on how managers can better understand this paradox.

6   CHAPTER 6: DISCUSSION OF RESULTS

In this chapter the research findings from chapter 5 are discussed in more detail. In addition, the research findings from chapter 5 are linked to the literature review in chapter 2. The research questions and in-depth interview questions utilised in this study were defined by the body of existing literature relating to exploitation and exploration. The level of data achieved in seeking to find answers to the five main research questions was gathered from a process of 18 in-depth, semi-structured interviews with executives and strategy experts from different industries. The data coding and analysis provided insights into the respective components and differentiating features underpinning the paradox of exploitation and exploration, while the content analysis and frequency ranking procedure allowed for the identification and ranking of constructs according to the frequency of comments by the respondents.

The paradox of exploitation and exploration is not an entirely elusive concept; the research results discussed in this chapter contribute to an enhanced understanding against the existing literature published to date on this subject. The relevance of the results and literature in the context of this study will be explored in this section.

6.1   Research Question 1

What factors affect exploitation in an organisation?

Research question 1 sought to understand the factors that drive exploitation within an organisation. The research findings from the in-depth interviews, data coding and analysis phase of the research showed the following results that are discussed below.

6.1.1 Leadership

The interviews highlighted a strong view that leadership is a big factor in a company's ability to exploit or explore. Across the 18 respondents (refer to table 2), 15 felt that leadership was a factor in exploitation and exploration. The respondents felt that a risk averse, conservative CEO would likely steer the business more to exploitation than exploration. The respondents also thought that a CEO who would look at driving growth through increasing efficiencies in the business would do more exploitation than exploration. Some respondents supported their perspectives by stating *"If the CEO's style is to gain more efficiency to grow the business it would affect the exploitation within the company"* and *"The CEO sets the tone of the company. If he has more a philosophy of fine tuning, then the organisation will focus on that."*

In support of these results, it would be useful to reflect back to the work of Lavie, Stettner and Tushman (2010), who stated that managers' risk aversion and learning abilities will influence the decisions that are taken regarding exploitation and exploration, and the extent to which managers are risk averse could influence an organisation to continuously exploit at the expense of exploration.

Another view from the respondents was that the leadership of an organisation could be persuaded by the incentive schemes of the CEOs. This did not come up as one of the major factors in the ranking order, but was a factor that was mentioned. Some respondents supported their perspectives by stating *"Incentives of CEO could make them more risk averse to implement opportunities because they are worried about the share price and bonuses. Why go out and do something amazing when I can get paid for what I currently do."* This view was supported by Manso (2011), who found that exploitation is the repetition of known actions and some incentive contracts are used to motivate repeated effort, therefore the way management's pay incentives are structured can drive exploitation within an organisation.

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6.1.2 Company culture

Company culture was another key factor acknowledged by 13 of the 18 respondents (see table 2) as affecting exploitation. Some of the respondents' argued that if an organisation has had lots of success with exploitation and it is built into their culture, then they may be more prone to exploiting. In addition, if exploitation is what the organisation knows and is good at, then they may not be comfortable with exploring new opportunities. Some of the respondents motivated their opinions by stating *"Culture is absolutely fundamental and is core to both exploitation and exploration"* and *"Exploitation is the known and exploration is an uncomfortable space to be in. Most people like to stick to what is known and this promotes exploitation"*.

This view of the respondents, that organisational culture is a factor in exploitation, is in-line with Lavie, Stettner and Tushman (2010), who stated that an organisation's culture and identity impacts its ability to exploit or explore, and the culture has an impact on the choices that are made regarding exploitation and exploration.

6.1.3 Company profitability

Eleven of the respondents thought that company profitability was a factor in exploitation. Their view was that if companies were not profitable or were losing profit, they would be more inclined to exploit as much as possible instead of exploring new business. With exploitation the results are faster and the costs are less when compared to exploration. One of the respondents supported his view with the following comment: *"When companies need to be more profitable, the first thing they do is look how to save costs before looking at new opportunities, they exploit their current environment."*

Market turbulence negatively affects the profitability of a company. Catillo, Jimenez and Aleman (2010) concluded that during high levels of market turbulence, companies should have an exploitation strategy that will yield better results in the short term and defend it against external threats. Gupta, Smith

and Shaley (2006) also stated that exploitation leads to early successes compared to exploration.

Although the literature review does not specifically speak about declining profitability as a factor of exploitation, there is a link between the literature and the respondents' view that declining profitability could make companies exploit more due to the potential for quick wins gained by exploitation.

6.1.4 Age of an organisation

There was not general consensus amongst the respondents regarding if the age of the organisation affected exploitation or exploration positively or negatively. Some respondents thought that age was an advantage, with one supporting this by stating that "*as long as you are constantly responding to your environment then the age of the organisation is a huge advantage in exploring or exploiting".* However other respondents thought that age could hinder agility in an organisation as well as its ability to exploit or explore. One expressed his view by stating that *"Older companies are more exploitative".* Some respondents thought that age could be a factor to consider, but did not think it drove exploitation and exploration. One of these respondents stated that "*it's the same challenges in a listed and private company. It's a factor but does not drive exploit/explore."*

Lavie, Stettner and Tushman (2010) mentioned that older organisations may exploit more due to strong inertial pressure and could rely on existing knowledge and experiences to respond to environmental changes. Thus the research results did not exclusively support the literature; while both the research results and the literature agree that the age of an organisation could be a factor in exploitation, the research results were not conclusive that the older the organisation then the more exploitive the company would be. Some of the research results even suggested that if the culture was one of constantly responding to the environment, then the age of the organisation was a huge advantage in balancing exploitation and exploration.

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6.1.5 Highly competitive environment

Some respondents felt that if a company operated within a highly competitive environment then they would need the ability to exploit as a competency in order to survive within the industry. Nine of the respondents felt that a competitive environment was a factor in exploitation.

The literature does mention in section 2.3 that during high levels of market turbulence companies should have an exploitation strategy that will defend it against external threats of competitors (Castillo, Jimenez & Aleman, 2010). The research findings support this literature and also expand on it by stating that the ability to exploit should be a competence within the business.

6.1.6 Life cycle of business

A mature market will affect a company's ability to exploit and explore; companies will exploit all their advantages in a mature market due to it being difficult to grow within that market. Nine respondents felt that the business life cycle would be a factor in exploitation.

6.2 Research Question 2

What factors affect exploration in an organisation?

Research question 2 sought to understand the factors that drive exploration within an organisation. The research findings from the in-depth interviews, data coding and analysis phase of the research led to the results that are discussed below.

6.2.1 Culture of innovation

Culture was identified as the biggest driver of exploration within an organisation. There was also a link observed from the research results that linked culture to a

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variety of other factors that affect exploration, namely leadership, organisational structure and desire to grow. Twelve respondents felt that an innovative culture that looks at the present and the future, that promotes risk taking, that supports failures in experimentation, and which has an appetite to constantly grow and a need to be a market leader will promote exploration within an organisation. One of the respondent's comments was as follows: "*Culture of organisation evolves but it remains consistent with the founding principles. Culture has a huge factor on an organisations ability to explore. A culture of an appetite for growth, taking risks, looking for new opportunities, innovativeness and becoming a market leader drives the exploration*".

March (1991) acknowledged that exploration involves risk taking, experimenting, flexibility, discovery and innovation. Successful companies also invest heavily into their future and achieve their best results from experimentation efforts (Collins & Porras, 2005). Sorenson (2009) made a strong link between organisational culture and increased performance. If the organisational culture is one of continuous improvement then some studies have suggested a positive association between exploration and a shared organisational context (Lavie, Stettner & Tushman, 2010).

The research results and the literature both view organisational culture as one of the biggest factors in an organisation's ability to explore. The research results confirmed everything mentioned in this regard in the literature.

6.2.2 Leadership

Leadership is a profoundly important factor that was identified in the research interviews. The respondents felt that the leadership of the CEO and the executive team played a huge role in the ability of the company to explore and influence the future success of the organisation. A forward-looking, visionary, innovative leader who is not risk averse will promote exploration within an organisation. One respondent supported their views by stating that "*The CEO drives a specific strategy and it does play a role in the company's ability to explore if he was looking at growth and has an entrepreneurial style then the*

company will explore new opportunities". There was also a strong link identified during the interviews between culture and leadership; respondents felt that the culture of the organisation gets driven from the top by its leadership.

Elberse (2013) investigated the success of Manchester United under the leadership of Sir Alex Ferguson and stated that one of the success factors of a remarkable leader is that even in times of great success, the leader always looks at what is needed to build a great team for the future. Collins and Porras (2005) supported this view from a company point of view, and concluded that visionary companies invest heavily in their future. Kotter (2014) linked leadership to the organisation by stating that leadership has to do with changing people and the organisation in order for them to overcome barriers, threats and changing circumstances so they can jumpstart into a better future. Lavie, Stettner and Tushman (2010) also stated that leaders who are not risk averse would more likely implement exploration activities.

The research and the literature are aligned in their views that the leadership of the organisation is a factor in exploration.

6.2.3 Management incentives

The respondents felt that behaviour is driven more by how you incentivise someone compared to what you incentivise them with. Twelve respondents felt that the way executives are incentivised drives their behaviour regarding the extent to which they would explore new opportunities. The respondents had strong views on this and some elaborated by saying "*Exploration is a lot more risky than exploitation and incentives will drive behavior*" and "*Once you give people shares, people treat the company as if it was their own. They definitely work a lot harder. The companies that give incentives, the staff stay a lot longer and it pushes the exploration*".

Jensen and Murphy (1990) believed that a compensation policy is an important factor in the organisation's success and influences how executives behave. The best compensation policy is one that promotes long term success (Manso,

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2011). A compensation policy is a factor that was identified in both the literature and the research interviews; the common theme from both is that if the compensation of the executives takes into account the future success of the organisation, then the executives will do more exploration.

6.2.4 Profitability of the organisation

Exploration is more expensive than exploitation, therefore the ability of the organisation to access funding either within or outside the organisation will affect the degree to which exploration is done. Some respondents stated that "*When the company is doing poorly, it will not spend lots of money and take chances with new opportunities....If you want to focus on big new opportunities when you don't have cash, you could close the business down. If you do have cash you should explore*" and "*When you have cash you need to use the cash in order to develop future opportunities*".

The literature does not specifically mention profitability as a factor that supports exploration. However, March (1991) mentioned that exploration involves taking risks and experimenting and the returns in the future could be uncertain or negative. One can deduce that a company will need to have extra cash in order to experiment or to take a risk of losing the cash.

6.2.5 Organisational structure

The research interviews did not provide consensus around the degree to which organisational structure affects exploration. Eight respondents felt that organisational structure was a factor in exploration, with one of the respondents stating that a "*cross functional structure with people working together and sharing leads more to successful exploration".* Another respondent felt that "*if you are going to decide to explore a lot then you need a new department set up for that purpose. It's difficult for everyone to explore over and above their normal jobs and the company may need a structure change*".

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Raisch (2008) found that mechanistic structures ensure the efficient exploitation of current capabilities while organic structures enable the exploration of new opportunities. Kotter (2014) also stated that the current hierarchical structures in organisations are not built for a constantly changing environment. He proposed a dual structure, with the second, more agile network operating in sync with the current structure. This dual operating structure would be more responsive to the challenges of the changing environment.

There are some similarities between the academic literature and the respondents who agreed that organisational structure is a factor in exploration, however some respondents disagreed with this and claimed that there is no set structure that would promote either exploitation or exploration; the right organisational structure is the one that works for the company and for what you are trying to achieve, i.e. the structure must support the strategy. These respondents also stated that sometimes an executive inherits a specific structure where it is more about the culture and how people interact and share knowledge within the structures that matter.

6.2.6 Opportunities and desire to grow

Eight respondents felt that if an organisation was constantly looking for new opportunities and had a desire to grow, then they would be successful at exploration. Some respondents felt that successful companies should always be looking at growth and their need to want to be market leaders would make them very successful at exploration. Some interviewees also viewed this desire to grow and find new opportunities to be the same as an innovative culture within a company.

The literature highlights that if an organisation's culture is one of continuous improvement, then studies have suggested a positive association between exploration and this shared organisational context (Lavie, Stettner & Tushman, 2010).

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The research findings support the literature regarding the desire to grow as being one of the factors that supports exploration.

6.3   Research Question 3

Are exploitation and exploration mutually exclusive or simultaneously achievable?

Research question 3 sought to understand if exploitation and exploration can be done mutually exclusively or if an ambidextrous approach is necessary. This question, in combination with research questions 1 and 2, also sought to emphasise the complexities that managers face when dealing with the paradox of exploitation and exploration.

The results of the in-depth interviews, data coding and analysis phase of the research showed the following results:

6.3.1   Exploitation and exploration are simultaneously achievable

There was a consistent response from all 18 respondents that exploitation and exploration are simultaneously achievable. The respondents felt strongly that one cannot be done at the expense of the other.   Some of the respondents stated that "*Companies have to grow and must do both, if you choose to do one it is a funeral strategy*" and "*The company is doomed to fail if it only does one!.. the business is changing, so you need to keep up with the change*".

Even though all the respondents agreed that an ambidextrous approach has to be used when managing the paradox of exploitation and exploration, there was no consensus as to what the ideal mix of exploitation and exploration is. This was an indication that the paradox is very difficult to manage. Some respondents thought that an 80/20 mix of more exploitation and less exploration is what managers should strive for, while other respondents thought that a 60/40 mix was optimal. Some respondents were adamant that there is no

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appropriate mix, and due to the complexities and different factors involved in managing this paradox the situation would determine the right mix.

Cohen, Mcclure and Yu (2007) researched how our brains manage trade-offs, and their view is that due to the non-static environment, there is no general rule or policy for trading off exploitation and exploration, even when the objectives are well specified. This view is in-line with some of the respondents' views that there is no appropriate mix for exploitation and exploration and that the situation would determine the decision of how much to exploit and explore.

Gupta, Smith and Shalley (2006) concluded that the scarcer the resources a company has, the greater the chance that exploitation and exploration will be mutually exclusive. The research results do not agree with this and all the respondents agreed that a company must be doing both exploitation and exploration simultaneously.

6.3.2 Exploitation and exploration are mutually exclusive

All 18 respondents agreed that exploitation and exploration have to be done simultaneously. Three respondents commented that they could be done mutually exclusively, but that it could only be done for a limited time period and in a specific environment.

As mentioned previously, Gupta, Smith and Shalley (2006) concluded that the scarcer the resources, the more exploitation and exploration would be mutually exclusive. The very low response rate of the respondents indicates that they do not think that exploitation and exploration should be done mutually exclusively. Even the three respondents that mentioned that it can be done mutually exclusively in a specific environment and for a specific time span were skeptical, and indicated that the company would not be sustainable in the long term if they chose to treat exploitation and exploration mutually exclusively.

6.4   Research Question 4

Are the competencies needed to manage the paradox of exploitation and exploration the same or different?

Research question 4 sought to understand if the competencies needed for exploitation and exploration were similar or different. This question would add to the understanding as to why managers grapple with the paradox of exploitation and exploration. The results are discussed below:

6.4.1   The competencies needed to manage exploitation and exploration are Different

Fourteen respondents acknowledged that the competencies needed for exploitation and exploration are different. The respondents acknowledged that we all have the competencies but the degree to which we use them differs from person to person. Ideally the competencies needed for exploitation must be focused, analytical, efficient, have a procedural and logical way of thinking and must have existing knowledge of the work environment in order to drive exploitation. The competencies needed for exploration are innovation, being forward looking, dynamic, risk taking and having an entrepreneurial way of thinking. One of the respondent's views was expressed as "*there are very different competencies needed to manage exploitation and exploration. Exploitation is someone that is very skilled, very robust, very dynamic, and able to adapt to change. Exploration is someone that is driven, wanting to know how to do things differently. Both individuals are very good influencers*".

March (1991) stated that exploitation involves efficiency, refinement, production, implementation and execution. Lavie, Stettner and Tushman (2010) also stated that exploitation describes organisational focus and experience. The academic literature views of the competencies required for exploitation are similar to the research respondents' view. March (1991) also acknowledged that exploration involves risk taking, experimenting and innovation. The research respondents

and the literature seem to agree that different competencies are required for exploitation and exploration.

6.4.2 It is not about competencies but rather about having the right team that make up the competencies

Three respondents were of the opinion that in order to effectively manage the paradox of exploitation and exploration a manager does not have to have all the competencies, but needs to have a team that has the right combination of competencies. These views were an important point raised by the respondents, and gave insight into managing the paradox of exploitation and exploration more effectively. One respondent expressed his view by stating "*In a management team you must surround yourselves with all the competencies that make a whole. Make sure there is no gap with the people that surround you*".

One respondent also felt that an organisation's ability to effectively strategise and incorporate exploitation and exploration determines their success. The respondent felt that this should be a core competency within the organisation, saying that "*Very few organisations survive two hundred years. Excellence is important in an organisation. The organisations that last this time are anomalies. The competence which they have is very unique, it is not something that others can copy easily, the competency to strategise and incorporate exploitation and exploration is very unique. The competency has to prevail in the whole organisation's competency*".

The literature review did not cover the ability of the manager to effectively manage the paradox by having the right competencies around him, nor did it say that the competency to effectively strategise must be a core competency in the organisation. This was a profound observation that came out of the research interviews.

6.5 Research Question 5

What are the trade-offs between exploitation and exploration?

Research question 5 set out to find out what are the trade-offs between exploitation and exploration. Due to the nature of semi-structured interviews, nine of the respondents saw this question from the viewpoint of trading off the tensions and the two against one another, while the other half answered the question from the point of view of what resources are traded off between exploitation and exploration.

The research results are discussed below:

6.5.1 The tension and risk of exploitation and exploration must be balanced and not traded off against one another

Half of the respondents felt that exploitation and exploration must not be seen as trade-offs against one another, but have to be looked at as something the organisation must constantly do and balance in order to be successful. Some of the respondents' views were ""*Companies should not see it as a trade-off, in sophisticated companies it is seen as investing in the future and not as tradeoffs*" and "*they are both different and they are both the same and they are both interlinked. You can't have one without the other. They are the same but do different things; they are like your body parts and are interlinked*".

Luscher and Lewis (2008) developed a five step sense making model to assist managers when dealing with a paradox. Their view was that once managers oscillate between the contrasts of a dilemma, they realise that no decision will resolve the tension and will begin to look for a link between the contradictory elements and realise that they are interdependent.

The respondents who viewed this question as trade-offs in balancing the tensions or exploitation against exploration gave insights into how to manage the paradox that were in-line with how Luscher and Lewis (2008) described the definition of a paradox. The literature and the respondents confirmed that when

dealing with the paradox of exploitation and exploration, the manager must look for a link between the contradictory elements and realise that they are interlinked.

6.5.2 Financial and capacity trade-offs

The respondents who viewed the trade-offs from a resources viewpoint agreed that exploration is more expensive than exploitation. They viewed cash and capacity as a trade-off in deciding the extent to which the organisation should exploit or explore. Some of the respondents' views were "*Capital can be a trade-off*" and "*capacity is a trade-off and also need spare capacity to be able to explore and focus on what is important and not urgent*".

The literature agrees that there are resource trade-offs when deciding to exploit or explore. March (1991) argued that even though both exploitation and exploration are needed in an organisation, they will compete for resources. Lavie, Stettner and Tushman (2010) also stated that organisations must allocate resources based on the decision to exploit or explore, and by allocating these resources to exploration or exploitation the organisation is making trade-offs between the short term productivity against the long term innovation of the organisation. Even though the literature does not go into the specific detail of what the resources are that are being traded off, it is clear that the views from the respondents are in-line with those of the literature, i.e. there are definitely resources that are traded off when dealing with this paradox.

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7   CHAPTER 7: CONCLUSION

7.1   Introduction

Within this chapter the first discussion centres on the synthesis of research findings. It takes into account the existing literature as well as the findings in chapter 5 and 6, makes four contributions to the broader theory, and expands on the complexity of managing the paradox of exploitation and exploration.

The second discussion introduces the exploitation versus exploration management model, which was developed from the insights and findings gained from the respondents as discussed in Chapter 5 and 6.The model is a graphical representation of the paradox of exploitation and exploration and will assist managers to understand and manage the complexities within this paradox.

The third discussion focuses on recommendations for managers, highlighting the importance of effectively managing the paradox of exploitation and exploration and what the implications are for the business. It also points out the main management considerations revealed during the research.

The fourth discussion includes recommendations for future research. This section examines the need for further research to confirm and elaborate on some of the findings of this study.

Finally, the conclusion section briefly summarises the research project.

7.2   Synthesis of Research Findings

This research combines the foundational literature that has preceded it and integrates these findings with the new knowledge and understanding gained through the interview process; the respondents revealed insights that linked directly back to the five questions presented in Chapter 3.

While the research findings presented in Chapter 6 are consistent with the existing literature, this study contributes to the broader theory and expands the subject of the complexity of the seemingly conflicting management approaches.

The first contribution of this study relates to the breadth and span of factors that affect the management paradox under review. Respondents highlighted 11 factors for exploitation and 11 factors for exploration, ranked according to the frequency of responses, that influence the levels of both. There are a variety of factors and other useful insights for managers to take into account when striking the right balance regarding levels of exploitation and exploration, as well as overlaps in certain factors that drive exploitation and exploration. In particular, leadership and culture were observed to be the two main factors that would have an effect on the degree to which managers decide to exploit or explore. It is therefore crucial for managers to know how these two factors can affect the management of the paradox of exploitation and exploration, and the degree to which each one is done within the organisation.

The second contribution relates to the interdependence of exploitation and exploration. All respondents felt that exploitation and exploration are simultaneously achievable; they have to co-exist and must be done together. Managers who choose to do one at the expense of the other will not have a sustainable business. The study confirmed that the management paradox is not about exploitation versus exploration, but rather about defining and managing the appropriate combinations and the links between the two. This study found that exploitation and exploration is not an either / or decision, but a paradox in which the tensions between the two must be managed.

This study showed empirical support for the literature presented by Lüscher and Lewis (2008), that when dealing with a paradox no decision will resolve the tension between the two, so managers will have to look for a link between the contradictory elements and realise that they are interdependent.

The third contribution of this study relates to the trade-offs when dealing with the paradox. Exploitation and exploration cannot be viewed as one being traded off at the expense of the other; the company has to constantly be doing both in order to achieve long term sustainability. There are both capacity and financial

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trade-offs to make when allocating resources and making decisions of whether to exploit or explore; this study suggests that exploration is normally more expensive than exploitation.

This assists managers in directing their thoughts, decision making and thinking about the paradox, and enables them to be aware of the short and long term sustainability of the company when making the decision to explore or exploit.

The fourth contribution of this study relates to the competencies needed to manage the paradox. Although exploitation and exploration require different competencies, a manager does not have to possess all the competencies but rather must have the resources within his team that possess them. The study also suggests that the manager's ability to manage the paradox and effectively strategise is a valuable core competency to have within an organisation. Ultimately, the results from the study reflect that although an organisation needs different competencies to implement exploitation and exploration, the ability of the manager to manage the competencies and balance the paradox effectively is much more important than only considering the competencies needed when making decisions.

7.3 The exploitation versus exploration management model

Based on the research findings in Chapter 6, a graphical representation of the paradox under review was developed. The model is represented below in Figure 3 and highlights the insights gathered from the 18 interview respondents.

Figure 3: Exploitation versus Exploration Management Model
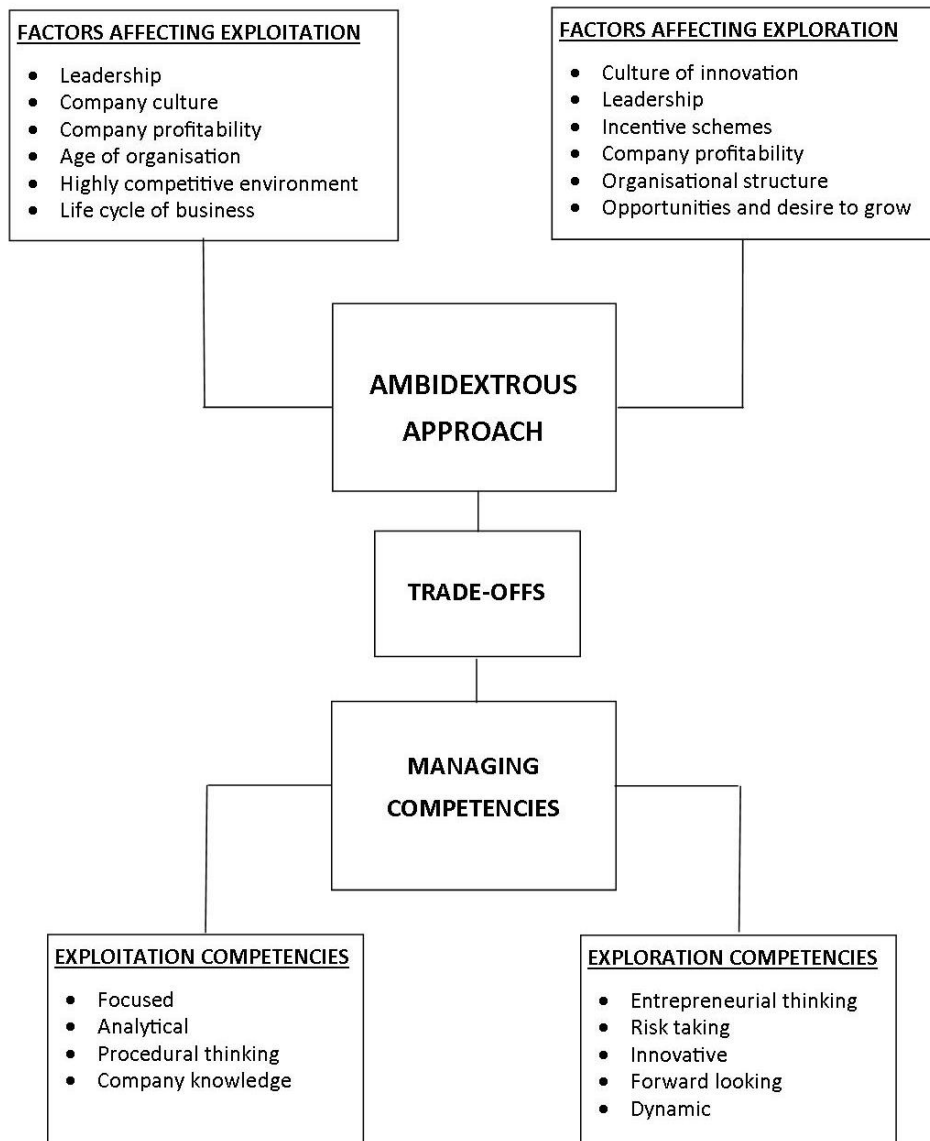
The paradoxical strategies of exploitation and exploration are strategies that are associated with contradictory yet integrated tensions, and a company's competitive advantage could become more dependent on how managers successfully manage the paradoxical strategies (Smith, Binns & Tushman, 2010). Due to the complexities of managing the paradox of exploitation and exploration, the first part of the model illustrates the factors that could affect them. These factors are important for the manager to be aware of, as they will give the manager insight into why the company may have developed a strategy of more exploitation versus exploration, why they are doing an equal amount of

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exploitation and exploration, or why they are doing less exploitation and more exploration. The model illustrates that there are many factors, such as leadership, company culture and company profitability, that are common factors to both exploitation and exploration. It also prioritises the factors that could affect exploitation and exploration, and shows managers that leadership and company culture are the main factors that will influence the degree to which the company would implement exploitation or exploration. Although the factors are prioritised the model is not static, and the factors as well as the degree to which an organisation exploits and explores will be dependent on what strategic mix of exploitation and exploration would best suit the organisation at a particular time and would change under different circumstances.

The next step in the model highlights that an ambidextrous approach must be used in managing the paradox of exploitation and exploration. Ambidexterity is defined as the ability of a firm to simultaneously exploit and explore, and enables a firm to adapt over time (O'Reilly & Tushman, 2008). Once the managers are aware of the factors that drive either exploitation or exploration, they must be aware that in order to manage the tensions within this paradox, one cannot be done without the other. Exploitation and exploration are not traded off against one another, as the company needs to be ambidextrous in order to ensure its current survival by exploiting and its future survival by exploring.

The next step in the model focuses on the trade-offs in the resources used to exploit and explore. Once the manager acknowledges that both exploitation and exploration must be done, they then need to decide what resources to allocate to achieve the strategic goal. Exploitation and exploration can compete for resources and the manager should be aware that he will have to make a decision on what resources should be traded off while implementing the combination of exploitation and exploration, in order to effectively manage the paradox.

Once the manager has knowledge of the factors that affect exploitation and exploration, understands that they have to be done simultaneously or

ambidextrously, and has taken into account the trade-offs in resources between the two, the next step in the model focuses on implementation. When implementing exploitation or exploration, different competencies are needed to do either one. Exploitation requires a forward looking, dynamic, entrepreneurial thinker, while exploitation requires a focused, analytical, procedural thinker that usually has prior company knowledge. In order to successfully implement exploitation and exploration, a manager does not have to have all the competencies himself, however he must be aware of the possible competencies that are required and must have and manage the competencies within his team.

7.4   Recommendations for managers

The manager must be aware that leadership and culture are the biggest drivers within the organisation that affect the degree to which the organisation will exploit or explore. Managers should assess not only the six main factors that could affect exploitation and exploration in the model, but also all the factors listed in appendices 5 and 6 that could affect this paradox. Once the manager identifies the factors within his organisation, he will be in a better position to understand the reason for the degree to which the company is exploiting or exploring.

Based on the study, managers have to treat exploitation and exploration as being interdependent and should not exclusively trade one off against the other. The manager needs to know that he may have to make a decision regarding what resources could be traded off.

Once the strategy to exploit or explore has been finalised, the manager has to make sure he has all the competencies within his team or business unit; he has to manage the individuals and their competencies in order to successfully implement the strategy.

By having a better understanding of this paradox, the manager will be able to effectively deal with it and be in a stronger position to ensure the current and future success of the organisation.

7.5 Recommendations for future research

While there are many paradoxes in academic research, the management paradox of exploitation and exploration is relatively new in academic terms. For this reason the research design has been explorative in nature, and was aimed at uncovering insights on the management of exploitation and exploration. Future research may be valuable to confirm the findings of this research.

The areas for further research are:

1. The research was based on interviews with 18 experts (14 executives and four strategy experts) who are involved with the paradox of exploitation versus exploration. Further research may be needed to elicit responses from a broader sample of executives and strategy experts who may have a different perspective about the paradox under review.
2. The research sought to unravel the key factors that may influence the paradox under review. Some of the main factors identified are very broad such as culture and leadership, thus further research may be useful to go into more detail about what aspects in culture and what type of leadership will effectively make a manager balance the paradox more effectively.
3. The research identified several key factors that could affect exploitation and exploration. Further research may be valuable to quantitatively test whether these are the key factors and to test their relative ratings.

7.6 Conclusion

Managers grapple with the complexities of managing paradoxes, yet as business becomes more competitive and global, their competitive advantage may become more dependent on how they manage them. This research project has attempted to critically examine the paradox of exploitation and exploration, which are two seemingly opposite management strategic approaches, and to understand the inherent tension between them.

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The research identified:

- the factors that may affect exploitation and exploration within the organisation;
- the need to have an ambidextrous approach when managing exploitation and exploration;
- the implications of only doing one at the expense of the other;
- that resources need to be traded off when implementing exploitation and exploration; and
- that different competencies are needed for exploitation and exploration, and it is up to the manager to have and manage the competencies during implementation.

The results from the research have contributed to providing management with a better understanding of the paradox of exploitation and exploration. The research findings are presented graphically in the exploitation versus exploration management model in figure 3. This model should assist managers to deal with the paradox of exploitation versus exploration.

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9   APPENDICES

9.1   Appendix 1: Informed Consent Letter

A Management Paradox: Exploitation versus Exploration

I am conducting research on the strategic paradox of exploitation and exploration.

Exploitation involves improving efficiencies and learning within the organisation. Some people also refer to this as keeping the organisation stable and the focus is to build on the existing competencies and knowledge. It could also be viewed as keeping the organisation focused and efficient on current activities.

Exploration involves experimenting and looking at new ways of doing business. It involves risk taking, discovering new innovative ways of doing things. Some people also refer to it as diversification, change or building new skills in order to be sustainable in the future.

I am determining what factors influences exploitation versus exploration or a combination of both. Your personal views and experience on the tensions and trade-offs between exploitation and exploration will form the basis of the interview. The interview will last approximately forty five minutes and all data collected will be kept confidential. All data will be presented in aggregated form. No comments will be linked back to any interviewee.

Your participation is voluntary and you may withdraw at any time from the interview without penalty.

Researcher: Deen Gielink

Email:dngielink@gmail.com   Cell:0837845588

Supervisor: Prof. Margie Sutherland

Email: sutherlandm@gibs.co.za   Tel: 011 771 4362

Signature of Participant: _____   Date: _____

Signature of Researcher: _____   Date: _____

9.2   Appendix 2: Interview Guide

Name	
Industry	
Company	
Expert or leader	
How many years working at strategic level	

1.	What factors drive exploitation in your company?
2.	What factors drive exploration in your company?
3.	Are exploitation and exploration mutually exclusive or simultaneously achievable?
4.	In general terms what would be the appropriate mix of exploitation and exploration? <table><tr><td>80/20</td><td>60/40</td><td>50/50</td><td>40/60</td><td>20/80</td></tr></table>
5.	Are the competencies needed to manage exploitation and exploration the same or different? Please explain.
6.	What trade-offs are made between exploitation and exploration?

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9.3 Appendix 3: Consistency Matrix

Questions	Literature Review	Data Collection Tool	Analysis
1. What factors drive exploitation?	Lavie, Stettner & Tushman (2010) Su, Li, Yang & Li (2010)	Question 1 Question 2	Content Analysis
2. What factors drive exploration?	Manso (2011) Lavie, Stettner & Tushman (2010) Burpitt (2009)	Question 1 Question 2	Content Analysis
3. Are exploitation and exploration mutually exclusive or simultaneously achievable?	O'Reilly & Tushman (2008) Gupta, Smith & Shaley (2006)	Question 3 Question 4	Content Analysis
4. What are the competencies needed to manage the paradox of exploitation and exploration?	O'Reilly & Tushman (2008)	Question 1 Question 2 Question 5	Content Analysis
5. What are the trade-offs between exploitation and exploration?	March (1991) Raisch (2008), Lavie, Stettner & Tushman (2010)	Question 6	Content Analysis

9.4 Appendix 4: Extract of Data Analysis

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
3		**Internl Factors**																			
4	1	Leadership: a more forward looking leader will lean more to exploration			1			1			1	1	1	1	1	1	1	1		1	11
5	2	Culture of innovativeness in the company		1		1			1	1	1	1	1	1		1		1	1	1	12
6	3	Age of organisation: a listed company could have more resources to explore and experience							1			1			1	0	1		1		5
7	4	Organizational structure: matrix structure could promote exploration						1	1	1		1	1	1		0	1	0	1		8
8	5	Incentives ,directives and bonuses of executives could promote exploration	1	1	1	1	1			1		1		1	1		1	1		1	12
9	6	Promotions from within or external	1			0	0		0	0		1	1	1		1	1	0		0	6
10	7	Control(Structure of company)		1			1														2
11	8	Time Pressure to deliver short vs long term		1																	1
12	9	Cannot exploit any longer		1																	1
13	10	Capacity /Capability for growth		1			1					1									3
14	11	Cash/Profit: what profits can you allocate to explore/access to funding		1	1	1	1		1		1	1	1					1	1		10
15	12	Politics: expectations of stakeholders	1					1													2
16	13	Desire to grow- be more ambitios an advance the organisation in order to be competetive					1	1												1	3
17	14	Learning and collaboration within and across departments					1					1				1				1	4
18																					
19		**External Factors**																			
20	1	Life cycle of business-stable and have reached optimal point on growth curve	1		1						1				1	1	1				6
21	2	Beauracracy explorationan decrese					1														1
22	3	Opportunities to grow in the environment					1		1			1	1	1	1			1		1	8
23	4	Competition / High competetive environment- ability to survive and be competetive						1				1	1		1					1	5
24	5	Survival requirements													1					1	2
25	6	Change in the current environment: shift in focus, disruptors in the market.													1	1			1	1	4
26																					
27		COMMENTS																			

9.5 Appendix 5: Factors That Affect Exploitation

Rank	What factors affect exploitation in an organisation?	Number of respondents
1	Leadership	15
2	Company Culture	13
3	Company Profitability	11
4	Age of Organisation	10
5	Highly Competitive Environment	9
6	Life Cycle Of Business	9
7	Sector/Industry: some slow moving industries more susceptible to exploitation	8
8	Organisation Structure	6
9	Promotions from Within the group versus external appointments to CEO	4
10	Stakeholders (investors, customers, employees, societies, partners) influence on the organisation	2
11	Politics within the organisation	2

9.6 Appendix 6: Factors that affect exploration

Rank	What factors affect exploration in an organisation?	Number of respondents
1	Culture of innovation	12
2	Leadership	11
3	Incentive schemes	11
4	Company profitability	10
5	Organisational structure	8
6	Opportunities and Desire to Grow	8
7	Promotions from within or external	6
8	Age of organisation: a listed company could have more resources to explore and experience	5
9	Learning and collaboration within and across departments	4
10	Change in the current environment: shift in focus, disruptors in the market.	4
11	Cannot exploit any longer	1