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Determining the effective strategy-structure fit for multinational corporations (MNCs): Comparison of matrix and hierarchical structure from an information-processing perspective

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

14 November 2016

Abstract

This research was aimed at understanding the alignment between strategy and structure of an organisation as an enabler for performance, using the information processing view to compare the the matrix and hierarchical structures that are commonly used by multinational corporations (MNCs). The globalisation effects which have been characterised by hyper-competitive and rapidly changing operating environments, as well as rapid technological advancement, are believed to be contributing significantly to the complexity of doing business for most multinationals that have subsidiaries operating in different geographic locations, since they have to gather, coordinate and process the vast amounts of information available at their disposal. The effective and efficient processing of this information is critical since it necessitates evidence based decision making under these dynamic conditions. The structure of the MNC should therefore be configured in a manner that will facilitate the efficient flow of information within the organisation in order to create an environment that enables evidence based decision making.

There have been mixed views about the superiority of the matrix structure and therefore this research therefore seeks to compare the matrix and the hierarchical structures in order to determine which one has more effective and efficient information processing and evidence-based making capabilities. A quantitative study that was conducted, based on an online survey whose questions and constructs were either developed during the study, or adopted from literature. A total of 148 valid responses were received from MNC subsidiaries operating predominantly in South Africa.

The general empirical evidence from the study showed that there was no statistically significant difference between the matrix and hierarchical structures from an information processing perspective. Both structures presented similar results from an information flow and evidence-based decision making perspective. This presents new findings that have contributed to the body of literature on the alignment of strategy and structure as it argues that the structural design of a matrix organisation, on its own, does not guarantee the successful implementation of its strategy. Other inter-personal factors like corporate philosophy and culture need to be considered to ensure successful implementation.

Key Words

Information-processing view, matrix structure, strategy, strategic formulation, hierarchical structure, multinational corporations, evidence-based decision making

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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.

Taru Madangombe

14 November 2016

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Acknowledgements

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1 CHAPTER 1: INTRODUCTION

1.1 Introduction to Research Problem

The alignment of an organisation's strategy and structure is regarded as key to an organisation's performance and competitiveness (Overstreet, Hazen, Skipper, & Hanna, 2014; Yin & Edward, 2004). It is argued that the structure of an organisation should enable the implementation of its strategy, a concept which is sometimes referred to as the strategy-structure nexus (Galan & Sanchez-Bueno, 2009). The interest of this research stems from the background relating to strategy experts who have argued that the way in which an organisation is structured tends to affects its ability to execute its strategy (Grogaard, 2012). Given the hyper-competitive and turbulent external environment (Kavale, 2012; Valle & O'Mara, 2010; Mathews, 2016), it is further contended that the manner in which an multinational company (MNC) is structured influences the information flow between its internal and external environment (Schmitt, Probst, & Tushman, 2010). Since MNCs exist in highly complex and globalized operating environments, management is often required to make evidence-based decisions and act on them with limited information within a short space of time (Rishipal, 2014). Configuring the design of an organisational structure so that it is capable of responding to these environments and supporting their overall global strategy, becomes critical for success in the globalised world (Steers, Sanchez-Runde, & Nardon, 2010). The two common structures that are often adopted by MNCs are the matrix and the hierarchical structure (Kostova, Marano, & Tallman, 2016; Egelhoff, Wolf, & Adzic, 2013; Deville, Ferrier, & Leleu, 2014) and these are presumed to possess different information processing and decision-making characteristics. Although some research has been conducted separately on the information processing capabilities of each of these two forms of structure previously (Qiu & Donaldson, 2012;Galbraith, 2009; Romelaer & Beddi, 2015; Deville, Ferrier, & Leleu, 2014; Franklin, 2010), very little research has been conducted in recent years which has compared the two structures in terms of how they relate to the strategy-structure fit, from an information processing and evidence-based decision making perspective under complex environments. This is the gap that has been identified in literature, and has also led to further research in this field to be recommended (Egelhoff et al., 2013)

The research study is conducted with the view to shedding light on this alignment between strategy and structure, through using the information processing model to try and compare the matrix and hierarchical structures to determine which of the two structures has more influence on the flow of information and evidence-based decision making capabilities in an

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MNC. Much research on the alignment of strategy and structure has largely explored the matrix structure (Qiu & Donaldson, 2012; Galbraith, 2009; Burton, Obel, & Håkonsson, 2015), with the most recent and relevant study to this topic being predominantly conducted on a sample of companies that were limited to German MNCSs in mostly manufacturing industries (Egelhoff et al., 2013). There is therefore academic and business value in trying to extend this research into analysing different MNCs operating in other parts of the world (e.g. Africa), as well as extending it to other industries, such as service and technology, in order to bring in a different perspective that will add to the body of knowledge of understanding the strategy-structure alignment in MNCs.

Furthermore, some recent work (see Nannoolal, 2015; Schnetler, Steyn, & Van Staden, 2015) has been done and marginally looked at the comparison of the matrix and hierarchical structures from an information processing perspective. However, their studies were not focused on MNCs, which are the organisations that mostly use the matrix structures (Qiu & Donaldson, 2012). Therefore a gap exists in adding to the body of literature by comparing the strategy-structure fit of a matrix structure with that of the hierarchical structure in MNCs, from an information processing view, since the single line command configuration of the hierarchical structure has also been commended for its ability to enhance decision-making capabilities by having clear authority levels and accountability which are in line with the top-down approach (Goold & Campbell, 2002; Koplowitz, 2008; Deville et al., 2014). The underlying rationale is that organisations require timely, quality information in order to adapt to the complexities of environmental uncertainty, as well as make evidence-based decisions that will facilitate strategy implementation (Barends, Rousseau, & Briner, 2014; Premkumar, Ramamurthy, & Saunders, 2005). However, managers today are having challenges when it comes to configuring their organisations in such a way that they can seamlessly enhance the flow of information to enable strategic decision making, which is critical for responding to their ever-changing strategies efficiently and effectively (Blom & Carraro, 2014; Bandeira-de-Mello, Fleury, Aveline, & Gama, 2016).

Furthermore, the increased environmental uncertainties coupled with the rapid technological advancement have resulted in increased information processing requirements that require better strategic decision-making in organisations (Galbraith, 2014). Some authors (Premkumar et al., 2005) argue that this can be necessitated by creating an organisational structure that is able to facilitate the flow of information (Egelhoff, 2010) since information enables management to devise strategies and make strategic decisions that will give an organisation its competitive advantage.

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Unfortunately, the increase in the amount of information available to businesses' disposal over recent years does not guarantee that it will be used effectively, therefore an organisation should be structured in such a way that it will process these large amounts of information into carefully thought strategic decisions that will ensure sustainable performance for the business (Tihanyi & Thomas, 2005; Trentin, Forza, & Perin, 2012; Mathews, 2016; Lunenburg, 2012). This can be simplified by analysing the organisational design and its bureaucratic structures (Blom & Carraro, 2014) to develop an efficient configuration that will assist information flows.

In order to analyse how an organisation can achieve this effective design configuration, this can be facilitated by viewing organisations from an information processing perspective, through examining the alignment between information processing requirements (inference of strategy) and the information processing capabilities (inference of structure) (Mathews, 2016; Egelhoff, Wolf, & Adzic, 2013), which is inclined towards facilitating the generating of business decisions in rapidly changing environments (Blom & Carraro, 2014). By viewing organisations as information processing systems, one can compare how each type of MNC structure influences certain types (or amounts) of information processing between its headquarters and its subsidiary units, thereby creating a generalised framework for assuming the alignment between strategy and structure (Wolf & Egelhoff, 2002).

The key to an organisation achieving its goals and coping with the evolving strategy (resulting from unanticipated events and challenges) is by ensuring that MNCs configure their structures in such a way that they do not only survive a crisis, but also exploit this rapidly evolving environment (Schmitt et al., 2010). Therefore in order for MNCs to sustain their future growth prospects, their structures have to be aligned to the rate of change in the environment (Rishipal, 2014), through increased adaptability and flexibility (Rishipal, 2014). The matrix structure is therefore considered to be more flexible and suited to these rapidly changing environments (Burton et al., 2015). However, other researchers have argued that the structural configuration of a matrix organisation does not guarantee its successful implementation, as there are other inter-relational supplementing elements such as culture and leadership that could influence its success (Burton et al., 2015). Although the matrix structure has been widely cited as the preferred organisational structure for most MNCs due to its presumed effective information processing capabilities (Galbraith, 2009), it has been argued that their effectiveness varies according to "types" of matrix structure and can only be realised if the overlaying structural dimensions of that particular matrix structure is conducive for the strategic condition under which it is supposed to operate (Qiu & Donaldson, 2012;Egelhoff et al., 2013).

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According to Grogaard (2012), who subsequently added to the body of research initially done by Miles and Snow (1978), the three key insights that help improve an organisation's competitive edge in the industry are achieved by determining the type of functional strategies to pursue, the type of structure to adopt and the manner in which strategic decisions are made. This framework can be seen as an indication that aligning an organisation's strategy to its structure, whilst ensuring that the decision making process is clearly defined, is critical to giving an organisation its competitive advantage (Grogaard, 2012).

In order for businesses to sustain this competitive edge in today's globalised economy, they have to adopt a means of responding to the rapidly changing pace of the operating environment by configuring their organisational structures in such a way that they proactively adapt to these accelerating changes of strategy and operating environments (Nose, Sato, & Ito, 2003). They need organisational ambidexterity which enables businesses to employ a strategy to exploit existing business demands whilst at the same time exploring future opportunities in the fast-paced environment (Schmitt et al., 2010). It can be argued that the matrix structure can be contended to be comparable to an organisational ambidextrous structure, although both present challenges when it comes to managing them well (Helfat & Karim, 2014).

Although the relationship between strategy and structure has long been researched and investigated since the initial foundation of the work that was laid out by forerunners such as Chandler (1962) and followed through by other authors such Mintzberg (Lunenburg, 2012), and more recently by Galbraith (2009) and Egelhoff, Wolf and Adze (2013) there somehow still appears to be gaps that have been addressed in the earlier paragraphs that seeks to compare the strategy-structure alignment amongst MNC organisations, in particular, the matrix and hierarchical structures which are regarded as the most common forms used by MNCs.

Therefore this research seeks to contribute to the marginally available literature on the comparison of the matrix and hierarchical structures, from an information processing and evidence-based decision making perspective.

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1.2 Background to Research Problem

Globalisation tends to impact the environment in which firms are operating (Marquis & Raynard, 2014) and is to a large extent considered to be affecting multinational corporations (MNCs) in particular, as they face the challenges of undergoing both global and local pressures (Menon, 2014) due to the headquarters and subsidiary units generally operating in different environments, and thus exhibiting different responsiveness to the local requirements (Grogaard, 2012). The ever-changing environmental conditions, coupled with technological advancement are believed to be some of the attributes that have recently shaped the strategy of most multinational organisations (Blom & Carraro, 2014: Lukic, 2014).

It is also therefore believed that the strategy of an organisation should be responsive to the dynamic environment if organisations are to remain in the business, consequently determining the manner which the organisation is structured in order to facilitate the implementation of this strategy (Lunenburg, 2012; Thite, Budhwar, & Wilkinson, 2014). It is argued that these complex environments require complex organisational structures to manage them and therefore one of the key drivers to organisation implementing the matrix structure is to cope with the complexities (Kate and Erickson, 2008), However, some of the recent work done by Galbraith, (2013) has argued that although the matrix is viewed as a solution to dealing with complexities, the difficulty is in ensuring that all the other complementary factors such as clearly defined roles and responsibilities, incentives and business process are aligned to ensure success. He further contends that having the right people to manage key positions in the matrix is importat to reap its benefits.

The theory base for this research problem is drawn from the information processing framework (Galbraith, 1974; Patrick, Miller, & Judge, 1999; Mapping, 2006; Blom & Carraro, 2014;Mathews, 2016; Qiu & Donaldson, 2012;Egelhoff, Wolf, & Adzic, 2013;Hernaus, Aleksic, & Klindzic, 2013), which seeks to address the “strategy-structure” nexus (Galan & Sanchez-Bueno, 2009;Egelhoff, 2010; Grogaard, 2012;Kavale, 2012; Galbraith, 2014) in multinational corporations (MNCs) or organisations, by comparing the effectiveness of the matrix and hierarchical structures in terms of how they influence the flow of information and evidence-based decision making.

An effective strategy and structure fit results in successful strategic implementation (Egelhoff, Wolf, & Adzic, 2013; Rajapakshe, 2002; Volonte & Gantenbein, 2016; Lo, 2013; Agnihotri, 2014) and gives a competitive advantage (Fiegenbaum, Thomas, & Tang, 2001; Rugman & Verbeke, 2008; Narula & Verbeke, 2015) to MNC organisations. While these

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studies have been useful in providing an understanding of the alignment between strategy and structure, the nature of the environment which influences the strategy (Valle & O'Mara, 2010), has changed drastically over the last decades (Galan & Sanchez-Bueno, 2009) due to increasing complexities emanating from globalisation effects (Lukic, 2014) and rapid advancements in technology and digitalisation (Galbraith, 2014; Korhonen, 2014), consequently impacting the manner in which organisational structures are designed (Marquis & Raynard, 2014; Peters, 2001; Egelhoff, 1988). Therefore, to sustain the competitive edge of the organisation in its environment, its strategy formulation and dissemination process must be responsive to the information gathered and processed within the environment that is constantly changing over time (Langley, Montréal, Smallman & Van De Ven, 2013), in order to provide strategists or management with means and information which enables rational strategic decision making (Peters, 2001; Sminia, 2009).

Some scholars, such as Rajapakshe (2002), have continued with this strategy-structure debate which also seeks to determine if there is a relationship between strategy and structure by attempting to determine if strategy affects structure, or vice versa. Most of the literature has shown that strategy precedes structure (Egelhoff, Wolf, & Adzic, 2013), although there has been some articles which show that in some cases, the structure of an organisation can also influence the execution of its strategy (Galan & Sanchez-Bueno, 2009). Therefore, this research seeks to compare the matrix and hierarchical structures, in terms of the efficiencies in their strategy-structure alignment.

The matrix structure is argued to be suitable for dealing with the pressures of increased information processing requirements (Burton et al., 2015; Kuprenas, 2003). This could be compared to increased complexities and information requirements handled by organisations that have adopted an ambidexterity approach through pursuing two different approaches such as exploiting the existing business model in today's demand and simultaneously exploring and adapting to new business opportunities in the changing environment (Luo et al., 2009). Unfortunately, some managers have had challenges in managing both the matrix and ambidextrous organisations (Helfat & Karim, 2014).

In environments that are believed to be uncertain and dynamic, the matrix structure is widely considered as possessing better information processing capabilities than other organisational structures due to its flexibility in navigating these conditions seamlessly (Qiu & Donaldson, 2012). However, on the other hand, the decentralisation of hierarchical structures has resulted in arguments that have accorded them superior decision making capabilities (Romelaer & Beddi, 2015). This research study therefore seeks to compare the

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information processing capabilities of the matrix and hierarchical structures since there has been little literature that has extensively compared these two organisational structures, mainly when it involves looking at the strategy-structure fit of MNCs (Egelhoff et al., 2013).

Thus, whilst much earlier research has been done on the strategy-structure alignment of matrix organisations from an information processing perspective, (Egelhoff, 1982; Kates, 2011; Lunenburg, 2012; Mathews, 2016; Cackowski, Najdawi, & Chung, 2000; Burns & Wholey, 1993), it is believed that there still exists a gap in comparing the superiority of the information processing capabilities of the matrix to the hierarchical structure (Egelhoff et al., 2013). It must also be mentioned that although some matrix structures may have hierarchical configuration in their lower sub-levels (Qiu & Donaldson, 2012), this study is only interested in explaining organisational configuration (e.g. functional matrices) at the higher levels of the headquarter (HQ)-subsidiary relationship where corporate integration is essential for coordinating the various subsidiaries or multiple structural dimensions. One of extended benefits of a matrix is its increased integration resulting from the cross-functional coordination and lateral communications that stimulate integration amongst the geographically dispersed subsidiaries of an MNC (Kate & Erickson, 2008). This is believed to facilitate employee development through increased learning and knowledge sharing amongst the different subsidiaries.

Also, a number of MNCs have been found to be struggling with the implementation of the matrix structure over the years due to its complexities and their failure to understand the relevant conditions for its application (Egelhoff et al., 2013). Furthermore, it is important to understand what these failures could have been attributed to, as there might exist certain strategic conditions under which the matrix structure becomes relevant and more applicable (Qiu & Donaldson, 2012).

This research seeks to compare the matrix and hierarchical structures in order to determine if there are any significant differences in the information processing capabilities.

This body of research seeks to further develop the earlier literature on the strategy structure nexus (Galan & Sanchez-Bueno, 2009), by comparing the hierarchical and matrix structure, from an information processing perspective. The information processing perspective in viewing organisations has been widely used in the strategy-structure research (Tihanyi & Thomas, 2005; Egelhoff, 2010; Egelhoff et al., 2013) as it perceives organisations to be an interconnection of sub-systems of information processors that are interconnected to generate decisions (Blom & Carraro, 2014).

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1.3 Definition of problem and purpose

Because of the dynamics and complexities introduced to an organisation as it grows globally (Cummings & Worley, 2009), CEOs have become far removed from the day-to-day business operations and other tactical decisions (Pettigrew, 2012). However, they still need to provide a strategic direction to the business based on facts and data on how the market is performing currently and expectations in the future, in order to remain competitive (Rugman & Verbeke, 2008). This organisational competitiveness is necessitated by the ability to process information inside and outside an organisation (Egelhoff et al., 2013). Therefore the structure of an organisation needs to be enhanced in order to adapt to any changing strategic direction which the organisation seeks to follow (Grogaard, 2012), thus the focus is on creating a structure that is capable of customisation to any strategic direction that a company pursues.

Some researchers have used the information processing view (Egelhoff, Wolf, & Adzic, 2013; Qiu & Donaldson, 2012) to assess the effectiveness of organisational design structure. The matrix structure was once believed to be the best organisational design for MNCs when it comes dealing with complexities resulting from international strategies (Burton et al., 2015; Helfat & Karim, 2014; Galbraith, 2009) as it was believed to possess better information processing characteristics due to its multidimensional coordination framework. However, challenges pertaining to difficulties and challenges in managing the matrix have surfaced over the years (Chi & Nystrom, 2010; Egelhoff et al., 2013; Hanover Research, 2013; Schnetler, Steyn, & Van Staden, 2015) and has led to a number of organisations abandoning it. The hierarchical structure, on the other hand, is believed to be good at handling increased information requirements emanating from increased uncertainties by ensuring that a fair amount of decentralisation of decision-making occurs (Deville et al., 2014) at foreign subsidiary level, and thus relieving the HQ of information overloading (Koplowitz, 2008; Goold & Campbell, 2002). However, they are, in some conditions, deemed inflexible as they hinder timely transformations that are necessary for survival in fast changing environments (Rishipal, 2014).

Furthermore, it is contended that the structural or mechanistic design of the matrix structure on its own may not be enough to ensure successful implementation, as there are other inter-personal elements, such as culture and leadership (Hanover Research, 2013), as well as the inability to manage properly (Rugman & Verbeke, 2008) that can influence its successful implementation. However, these non-mechanistic elements have not been considered in this study since this study is only interested in comparing the structural configurations of the

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matrix and hierarchical structures from an information processing perspective, as well as the time limitations in the study.

Because of these mixed views about the superiority of the matrix and hierarchical structure, from an information processing perspective, this study therefore seeks to compare the information processing capabilities of a matrix structure versus those of a hierarchical structure when it comes to information flow and evidence-based decision making in an organisation, from a parent or headquarters (HQ) and foreign subsidiary level, often referred to as HQ-subsidiary relationship. This study is supplemented by comparing the strategy formulation processes and organisational configuration of these two structures to determine if there is a difference in their corresponding effectiveness.

This study is relevant for a number of reasons. Firstly, the globalisation effects (Egelhoff, 1991; Lukic, 2014) are causing a lot of international companies to expand into foreign markets and therefore require developing a structure that is capable of optimising the flow of information and coordination between headquarters (HQ) and its foreign subsidiaries (Grogaard, 2012; Egelhoff et al., 2013). Information asymmetries are created if there is a weak coordination of information between HQ and subsidiary units as both have diverging information and insights about each other's competences and knowledge bases (Blazejewski, Becker-ritterspach, The, Business, & Business, 2011). This could happen if the subsidiary unit possesses high levels of specialised information about its local environment which the parent HQ does not have, or the HQ is not providing its subsidiary with strategic information or resources to operate in its localised environment (Romelaer & Beddi, 2015). These conflicts can be minimised by improving the coordination between HQ and subsidiary units through the creation of an organisational structure that will facilitate improved interaction and information flow (Kostova et al., 2016). This can be achieved through establishing mechanisms which include regular information meetings and promoting active dialogues between HQ and subsidiary units that will facilitate evidence-based decision making (Blazejewski et al., 2011).

Neilson, Martin and Powers (2008) have argued that the most effective building blocks for a successful strategy execution are through making structural changes that will ensure clarity in decision-making authority and designing efficient information flows, vertically and laterally. This information processing approach has gained moment and relevance over recent years (Egelhoff et al., 2013) due to the large amounts of information readily available today though improved technology and the globalisation of markets.

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Secondly, because the business environment has become hyper-competitive (Kavale, 2012) and unpredictable (Mathews, 2016), it becomes necessary to develop a fluid structure that is capable of navigating any dynamic strategic direction that an organisations decides to follow.

As discussed earlier, some organisations have adopted this "flexible" ambidexterity configuration which comprises a dual structure whereby some business units concentrate on keeping the existing business, whilst the other, more dynamic units, are focused on exploring new market opportunities (Helfat & Karim, 2014). The effectiveness and efficiency of this organisational configuration would be determined through an information processing perspective (Qiu & Donaldson, 2012).

The matrix structure is believed to be closely aligned to this ambidexterity structure as literature shows that they are capable of reconfiguring themselves in their pursuit to establish new opportunities in the market (Galbraith, 2010). However, it is also well-known that matrix organisations and ambidextrous structures present management challenges associated with dual reporting structures and lack of accountability (Romelaer & Beddi, 2015), an aspect which hierarchical structures are believed to be good at handling, especially in managing those authority channels (Hernaus et al., 2013).

Although the lateral coordination capabilities of a matrix structure between various units has been commended, some of the authors have argued it is only achieved at the top of the organisational structure, whilst presenting challenges in attaining lateral operational coordination at the lower operational levels (Vantrappen & Wirtz, 2016). They have further debated that the matrix structures tend to slow decision-making as well as clouding accountability in an organisation. Therefore, this on-going debate about the superiority of the matrix over other organisational structures, still needs to be explored further.

Consequently, this research will further compare the matrix and hierarchical in terms of their information processing needs and capabilities, seeing that they are the most frequently used structures today (Wolf & Egelhoff, 2002).

1.4 Purpose of study

MNCs operate in different geographic locations which are underlined by different stabilities and environments (Egelhoff et al., 2013), which ultimately introduces an element of complexity to their cross-functional operations. In reiterating the complexity theory as described by Brown and Eisenhardt (1997), MNCs are characterised as complex systems with large numbers of independent sub-systems interacting with each other and this complexity arises as organisations become increasingly large and operate in different environments (Grogaard, 2012).

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The aim of this research is to compare the information processing capabilities of a matrix and hierachical structure in order to understand which structure allows for “better” information flow between HQ and subsidiary unit.

In the current highly volatile (Marquis & Raynard, 2014) and hyper-competitive environment (Valle & O’Mara, 2010), in order for business to thrive and survive, internal or external information processing within a business context is key (Galbraith, 2014). Although the existence of uncertainties can never be completely discarded (Galan & Sanchez-Bueno, 2009), the ability to efficiently process as much existing or foreseeable information to provide the business with leads about existing or future sources of business is even more paramount (Mathews, 2016). Information is important for evidence-based decision making as it reduces or removes uncertainties (Langley et al., 2013). This could enable an organisation to proactively plan to a higher degree for any future uncertainties, better than an organisation that is incorrectly structured to meet the information processing requirements.

A further underlying aim of this study is to determine the most optimal organisational design structure that will effectively process strategic information so as to give it a competitive advantage over its fellow competitors (Grogaard, 2012; Rugman & Verbeke, 2008).

Improved information flow and flexibility in responding to the dynamic environment is regarded as some of the key attributes of a matrix structure (Kates & Erickson, 2008; Egelhoff et al., 2013). This research will therefore seek to further determine if there exists a significant difference between the matrix and hierarchical structures in terms of their flexibility to adapt to the external changes in the operating environment .

The matrix structure has brought about mixed opinions in terms of its venerability following its abandonment over the years (Burns & Wholey, 1993) by some large MNCs in the US and Europe (Egelhoff et al., 2013). Its information processing capabilities have also not been comprehensively compared with other organisational design structures. Therefore this research seeks to compare the different information processing abilities of the different organisational design structures (hierarchical and matrix), in terms of the information processing perspective, which relates to strategy dissemination.

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1.5 Research Scope

This research is bound by the following concepts and their corresponding definitions;

- **Matrix structure** – a form of complex organisational structure whose design comprises of at least two underlaying organisational dimensions with multiple reporting lines (Egenhoff, Wolf and Adzic, 2013).
- **Hierarchical structure** – a form of orgnsiational structure which comprises of single lines command configuration (Goold & Campbell, 2002).
- **Multinational corporation (MNC)** – an organisation whose headquarters are located in one parent country and its subsidiaries widley dispersed across different global geographical locations
- **Information processing** – From an organisiation's perspertive, information processing tyical refers to the ability to gather, transform, commucate and store of data across the organisation (Galbraith, 1974).
- **Evidence-based decision making –** this involves making informed decision that add value to a business, though integrating critical thinking with captured source information that is available at hand (Barends, Rousseau & Briner, 2014).

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2 CHAPTER 2: THEORY AND LITERATURE REVIEW

2.1 Introduction

Dealing with uncertainty of the market or environment is viewed as critical from an information processing perspective for most complex organisations (Chari, Katsikeas, Balabanis, & Robson, 2014; Premkumar et al., 2005). Uncertainty refers to the amount of information that needs to be processed between decision makers to complete a task or make a decision (Trentin et al., 2012). Therefore, the relationship between information processing and uncertainty is such that the greater the uncertainty (Mathews, 2016), the more the amount of information processing required (Tihanyi & Thomas, 2005; Mapping, 2006; Egelhoff, 1991) and this could hinder an organisation's effective decision making ability.

With the current environment becoming more uncertain, the amount of information required for making evidence-based decisions has increased (Chari et al., 2014).This subsequently results in the need for increase in the information processing capabilities of an organisation (Mathews, 2016). These information processing capabilities are related to an organisation's design structure and therefore are used to explain or assess the potential for an organisational structure to adapt its strategy and environmental factors (Tihanyi & Thomas, 2005;Egelhoff, 2010, Galbraith, 2014). Consequently, organisations have had to develop complex organisational structures in order to deal with these uncertainties and complexities (Galan & Sanchez-Bueno, 2009).

The matrix structure, which is characterised by grid-like multiple structural dimensions to address multiple structures (Sy & D'Annunzio, 2005), is extensively viewed as an appropriate structure to adopt when an organisation wishes to effectively navigate these complexities, resulting from increased information processing challenges in dynamic environments (Burton et al., 2015). Its flat structure that allows multiple lateral communication channels (Trentin et al., 2012), is regarded as one of its strength when it comes to efficiently processing increased information flow. It may be argued that these characteristics give it an advantage over the traditional hierarchical structure, whose seemingly vertical structure is believed to limit its information processing capabilities (Schmitt et al.,2010). However, the matrix structure has been abandoned in the past by some established MNCs in Europe (Egelhoff et al., 2013) due to challenges experienced in successfully managing and implementing it (Chi & Nystrom, 2010; Helfat & Karim, 2014; Chi

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& Nystrom, 2010). By separating the confines of authority and responsibility between the two reporting managers, this presents ambiguity and complications which may lead to power struggles within the organisation, thus creating challenges for both the organisation and the employees if not managed properly (Burton et al., 2015; Kates & Erickson, 2008).

On the other hand, the hierarchical structures are often praised for their formal and clear channels of authority and accountability, elements which are considered critical for evidence-based decision making (Goold & Campbell, 2002). Several researchers have presented further arguments supporting the effectiveness of the hierarchical structure have been raised in literature (Koplowitz, 2008; Deville et al., 2014; Romelaer & Beddi, 2015; Hernaus et al., 2013).

Therefore, the following section reviews the literature that sets the foundation of the research in understanding the strategy-structure fit and how it relates to the information-processing perspective, which is the underlying construct of the research. This strategy-structure alignment is then used to compare the matrix and hierarchical structures in order to determine if there exists a difference in their information flows, an aspect that is critical for strategic decision making and strategy formulation (Barends et al., 2014).

In order to bring context to the research study, this chapter commences by deliberating on the impacts of the trends such as globalisation, technological advancement and volatile markets in the business environment today (Harvey, Fisher, McPhail, & Moeller, 2009; Mahnke, Ambos, Nell, & Hobdari, 2012), and how these may have influenced the manner which organisations embark on to align their strategies with their structures in order to facilitate effective information flow, a precondition that promotes evidence-based decision making (Goyal & Gupta, 2010; Romelaer & Beddi, 2015).

Consequently, the information processing perspective is discussed in the context of describing organisations as information processing systems (Glabraith, 1974), and further examines the fit between information processing needs and capabilities and their effect on the performance of organisations.

Linked to globalisation and multinational corporations, the headquarters and subsidiary relationship is also considered in this chapter to try and describe the extent of the level at which the research compares the matrix and hierarchical organisational structures.

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The alignment between strategy-structure is also discussed briefly, with the prospect of giving light to the relevance (or lack thereof) of this fit in a rapidly evolving and complex environment (Grogaard, 2012).

Furthermore, the chapter seeks to describe the different organisational structures, mainly the matrix and hierarchical configurations, with the aim of understanding how these two different organisational designs handle information flow within and outside the organisation, as well as evidence-based decision making. Both the advantages and disadvantages of both structures is briefly described.

Lastly, a summary of the main discussion points in the literature are argued in line with the objectives of the research in order to understand how this research contributes to the body of literature on understanding the strategy-structure alignments of multinational organisations, from an information processing perspective.

2.2 Globalisation

Over the past few decades, globalisation has become a widespread megatrend which has resulted in most MNCs expanding their operations or functions to different geographical locations across the world, including those so-called “remote” regions in order to achieve global success (Franklin, 2010). It is important for MNCs operating across international markets to understand the environmental factors that have an influence on the alignment of their strategy and structure in order to gain acompetitive edge across the different regions in which it is operating (Franklin, 2010).

In this globalised hyper-competitive environment characterised by intense, rapidly changing and short-lived competitive advantages (Galan & Sanchez-Bueno, 2009), it is important for managers to make interrelated strategic decisions that will bring sustainability to their organisations. Moreover, managers of MNCs must have multiple intelligences in order to address matters that are associated with these interrelated global decisions stemming from the headquarters and foreign subsidiary offices which may be operating under different environments (Harvey et al., 2009). Valle and O’Mara (2010) have argued that organisations facing this hyper-competition must employ a strategy that facilitates an ambidextrous approach in order to sustain competitive advantage.

Globalisation, as a business trend, has led to the need for organisations to continuously change in order to adapt to the ongoing changes in the markets and business environment (Den Hengst & Sol, 2001). This has given an opportunity for organisations to expand to different geographies and thereby gain the benefits of operating in various international

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markets (Rugman & Verbeke, 2008). Therefore, it is important for organisations to make use of the relevant information in order to help make evidence–based decisions.

The globalisation effect (Lukic, 2014) has created an impact on the way international organisational structures are designed (Korhonen, 2014). This, coupled with the rapidly changing business environments and complexities (Galbraith, 2014), has resulted in propagated uncertainties regarding how organisations should respond to the market (Egelhoff et al., 2013). It is therefore important to ensure that the strategy and structure of an organisation is aligned to its environment (Kavale, 2012).

From an MNC perspective, it can also argued that globalisation influences the organisational structure (Karimi & Konsynski, 1991) and decision making processes of managers at the HQ level that are responsible for making complex interrelated decisions based on the needs from the various foreign subsidiary units (Harvey et al., 2009). In order to make these global integrated decisions, they need a reliable information flow from these localised subsidiaries (Wald, 2009).

Research has shown that globalisation influences the design of organisational structures and information processing systems of MNCs, which necessitate strategic making between the HQ and subsidiary levels (Luo, 2005). Furthermore, elements such as diversity of the institutional and regulatory requirements in which the various foreign subsidiaries are operating, coupled with growing pressures to facilitate these across different geographic segments in order to maintain competitiveness, has introduced further complexities that have increased the information processing demands of MNCs. In a nutshell, Luo (2005) in his research, contends that globalisation proliferates the information processing demands between HQ and subsidiary levels as a result of the increased management complexities and environmental uncertainty, therefore organisational structures should be designed and configured in such a way that they have information processing capabilities to deal with such complications.

Coordination of information flow among increasingly complex networks of environmental factors playing out in different geographical locations has become the primary basis of competitive advantage for MNCs (Karimi & Konsynski, 1991). It is argued that this coordination is achieved through the establishment of personal relationships between HQ management and subsidiary management, as opposed to written rules or procedures.

Therefore, in summary, globalisation has strengthened the competitive environment which has consequently led to requirements for new organisational strategies and structures that

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can adapt to the different and rapidly evolving competitive pressures, through flexible and coordinated systems and process that enable evidence-based strategic decision making amidst high information intensity (Karimi & Konsynski, 1991).

2.3 Information processing perspective

Since information is required to enable organisations making evidence-based decisions, the overwhelming amount of information available today from increasing technological advancement (Lukic, 2014; Mahnke, Ambos, Nell, & Hobdari, 2012) and uncertainty of the environment (Thite et al., 2014) can lead to information overload and increased inaction if the information processing in not managed properly (Rochat, 2002). Information overloading occurs when the information available exceeds the information processing capacity of an organisation. The alignment between strategy and structure forms the basis that enables effective information processing and strategic decision making, key attributes that determine the performance of an MNC (Romelaer & Beddi, 2015). It has been argued that the delegation of formal and clearly defined authority levels at subsidiary levels of geographic dimensions reduces overloading at the HQ level (Egelhoff et al., 2013).

Luo (2005) has contended that globalisation tends to increase the information processing demands of an organisation due to increased management complexity and the consequential environmental ambiguity. These complexities are as a result of an increased network of customer, competitors, suppliers, partners and regulators in different environments which may have diverging information processing requirements or capabilities (Luo, 2005). Therefore, the structure of an organisation and its ability as an organisation to process this wide spectrum of information flows is critical in ensuring that strategic decisions are made that will enhance the organisation's competitive edge (Grogaard, 2012). The matrix structure is believed to thrive under such conditions (Galbraith, 2009), although there has been seemingly inconclusive literature with empirical evidence that has been found which has significantly elaborated its dominance over the hierarchical structure.

The information processing perspective seeks to understand the influence that organisational design structures have on the development and transfer of knowledge within the organsiation (Egelhoff et al., 2013). For this research on MNCs, this would be applicable in trying to understand the coordination of information flow and evidence-based decisions between HQ and the foreign subsidiary units.

Egelhoff et al.(2013) supports the earlier definition prescribed by Galbraith (1974) which describes information processing as constituting data gathering, conversion of data into

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information, communication and storage of information within an organisation. In addition, dealing with the uncertainty of the market or environment can also be viewed as critical in information processing for most complex organisations (Chari et al., 2014; Tihanyi & Thomas, 2005), since uncertainties are described in terms of the discrepancies in information required to execute a deliverable in comparison to information that is already available in the organisation (Egelhoff, 2013). The larger the gap between these two, the higher the levels of uncertainty and this results in increased information processing requirements which may require escalation of decision-making responsibilities to the relevant senior authorities in an organisational structure (Egelhoff, 2013). This follows Wald (2009), who argues that uncertainty will always succeed if the organisation fails to provide or process the volume and quality of information required to complete tasks or deliverables.

Thus, the only way an organisation can reduce information overloading is through creating efficient structures and configurations that would increase its information processing capabilities. This is made possible through facilitating the decentralisation of decision making by empowering the subsidiary units (Egelhoff, 2013). Matrix structures can be argued to be a resolution to these challenges of information overload at the HQ level since functional decisions can be made at lower levels due to the ability to process more information through its multiple structural dimensions (Qiu & Donaldson, 2012).

To find the appropriate strategy and structure alignment, the organisation's information processing requirements should match its structure's information-processing capabilities and these requirements will vary, based on the context of the structures (centralised or decentralised) and environment in which they are operating (Den Hengst & Sol, 2001; Egelhoff, 2010). Furthermore, organisations should aim to be ambidextrous in order to survive and even thrive in the turbulent landscape (Schmitt et al., 2010). In order to cope with this, the concept of ambidexterity has become popular over the years as organisations are trying to exploit their current strategy whilst simultaneous exploring other alternative approaches (Helfat & Karim, 2014). Some of the reasons why organisations would adopt this approach would include attempts to improve on flexibility and efficiency, adaptability, responsiveness, alignment, exploration and exploitation (Julian Birkinshaw & Gupta, 2013). This ambidextrous approach requires an organisation to be able to handle the increased processing requirements associated with its simultaneous pressures of balancing exploring and exploiting strategies (Bandeira-de-Mello et al., 2016). Thus, the ambidextrous structure can be viewed as a modern day, sophisticated version of a matrix structure due its cross-functional roles of exploring and exploiting (Helfat & Karim, 2014).

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2.4 Evidence-based decision making

Evidence-based decision making infers that the fundamentals of good, informed decisions result from merging critical thinking with the readily available or closer information to the source (Barends et al., 2014). This is critical when it comes to formulating management decisions as it eliminates human judgemental errors (Pfeffer & Sutton, 2006).

When it comes to the association between the operating environment (an input to strategy) and structure of the organisation, the gathering, distribution and evaluation of information closer to the source that is related to environmental elements affecting strategy, such as markets, suppliers, competitors and technologies, is critical for evidence-based decision making (Andersson & Holm, 2010). It is argued that evidence-based decision making is critical for enhancing the performance of an organisation (Pfeffer & Sutton, 2006). This is enabled through creating an organisational configuration that is conducive for information flow. The matrix structure is presumed to be capable of ensuring that multiple perspectives across its different functions or geographic dispersed subsidiaries are considered wholly in the evidence-based decision making (Kate and Erikson, 2008).

Because globalisation makes it extremely difficult to predict the future, the fundamentals of having strategic decision-making are based on refining management skills in order to make decisions that are strategically appropriate for the organisation and could be facilitated by accurately monitoring and evaluating even the slightest fluctuations occurring in the business environment (Goyal & Gupta, 2010). This becomes easier if the organisation has well developed or effective configurations for information flow between the internal and external environment.

Furthermore, in these rapidly evolving operating environments, companies need to be making decisions constantly and the manner “how” those decisions are made is critical for the success of those business decisions (Neilson et al., 2008; Thite et al., 2014). Either an organisation follows a **top-down** decision-making approach (Neilson & Pasternack, 2005) where the leader or top management takes full control of the decision-making process by merely identifying the desired results (without looking at the processes involved to get there), or **bottom-up** decision making process where they allow input from other employees in the organisation before identifying the outcome first (Mahnke et al., 2012).

Although it is often argued that a “flat” structure (similar to matrix) is preferred to the hierarchical structure (top-down) when it comes to decision making in an organisation, results from the work done by Koplowitz (2008) showed that the “top-down” approach associated with well-structured and managed hierarchical organisations is effective for decision making. These mixed views therefore have fuelled the research study to try and

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further determine if the structure of an organisation does have an influence on its evidence-based decision making.

The effectiveness of strategic decision making is determined by the quality and accuracy of the information input (Frishammar, 2002; Jansen, van den Bosch, & Volberda, 2006; Patrick et al., 1999; Wald, 2009; Wei, Yi, & Changhong, 2011). It is argued that the ability to process this information is critical when it comes to accountability, since this requires the development of a system for collecting, interpreting, and synthesizing information in the context of organisational decision making (Luo, 2005). Without quality and timely information available, an organisation will struggle to make evidence-based decisions that will give them a better stand when it comes to leads and strategic competitive advantage (Premkumar et al., 2005). It has also been argued that the structure of an organisation can have an influence on its ability to facilitate increased information flows that will enable evidence-based decisions (Neilson et al., 2008).

Although the matrix has always been favoured over the hierarchical structure (Galbraith, 2009) when it comes to information flow, which is an input to evidence-based decision making (G.L. Neilson et al., 2008), its dual reporting system does often present conflicts in the management reporting lines, which could result in conflicting decisions being taken and thereby regressing the decision making process (Schnetler et al., 2015). It is further argued that a lot of time expended on debates ot conflicts between the two reporting lines, and the multi-layering dimensions of the matrix could further slow down the decision making process (Galbraith, 2013). This research therefore seeks to further compare the matrix and the hierarchical structure to determine if there really exists a significant difference in their evidence-based decision making capabilities.

Wald (2009) further contends that the effectiveness of an organisational structure is as a result of the alignment of its information processing abilities to the information requirements of its operating environment. This is critical for evidence-based decision making purposes since decision makers require the precise volumes and quality of information in order to mitigate the uncertainty and complexity of their operating environments (Wald, 2009). Therefore, based on this, it is further argued that different organisational structures are expected to adapt differently to their operational environments and strategies, based on the processes employed to make strategic decisions (Patrick et al., 1999).

For instance, the matrix structure allows for decision making to be distributed across the functions (Egelhoff et al., 2013) , thereby empowering even the lower levels at the subsidiary levels to make independent, yet appropriate decisions. This decentralisation of decision making increases the efficiency of the organisation due to a higher turn-over of resolutions

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and subsequent actions that need to be accomplished (Hernaus et al., 2013). This is in contrast to the hierarchical structure which only allows decisions to be made at the top levels, which, in this case, can be inferred as being concentrated in a few people at HQ level (Rishipal, 2014). Furthermore, this top-down decision making configuration could hinder subsidiaries from responding quickly to potential competitive threats in their environments.

Therefore it is argued that the turn-around time for actioning these decisions tends to be slower in hierarchical structures than in a matrix, and thus hierarchical organisations may struggle to adapt to the constantly changing environment where decision-making needs to happen timeously in order to stay ahead of the curve and maintain competitiveness (Hernaus et al., 2013). In the article written by Harvey, Fisher, Mcphail and Moeller (2009), strategic decisions are described as those decisions that are critical in terms of the type of action that is taken, the quality of resources that need to be committed or the standards and conditions that are being set by taking up that decision. This decision-making process must be aligned to the strategies that MNCs are undertaking in order to ensure a competitive edge, and thus may be influenced by the information processing between headquarters and subsidiary units (Egelhoff, 1991; Tihanyi & Thomas, 2005; Qiu & Donaldson, 2012). However, the challenge still lies in making consistent global decisions, whilst allowing some element of flexibility at the various local subsidiaries to enable them to function effectively (Harvey et al., 2009).

Some business researchers have also argued that there is too much centralisation of decisions at headquarters level, with little input being solicited from foreign subsidiaries, and this has often resulted in most MNC headquarter functions being overwhelmed by multiple pending tasks or assignments that require review and approval, thereby ‘slowing down’ the operations at subsidiary level as they have to wait for approval of decisions (Thite et al., 2014). This could potentially compromise the effectiveness performance of the subsidiary units as it may signal the lack of engagement and inclusivity between the HQ-subsidiary units.

Therefore in this globalisation trend, although it is argued that global decision makers are expected to keep a certain level of flexibility in their decision making processes, there are still some MNCs that lack the understanding of the quality of global decisions that are formulated by individuals and those made from a group’s perspective, and the evaluation thereof (Harvey et al., 2009). There is still no universal or elaborate way of formulating strategic decisions in an organisation. Patrick & William (1999); Mintzberg (1980) argue that information obtained through planning and analysis of the operating environment is used in effective strategic decision making process. These information requirements could relate to

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environmental scanning, analysing competitors, as well as, retrieval of internal information within the organisation itself (Patrick & William,1999).

This research therefore seeks to extend this body of work by providing some insights into the decision making process in MNCs, by comparing the matrix and hierarchical structures in order to determine which configuration has more effective evidence-based decision making processes.

2.5 Information Processing and Uncertainty

Galbraith, in Den Hengst and Sol (2001) describes uncertainty as the difference between the information that an organisation has at its disposal, and the amount of information that it needs for decision making. This is largely attributed to the unpredictability of the environment due to ever-changing and volatile technological and economic trends. Premkumar, Ramamurthy and Saunders (2005) argue that this uncertainty is as a result of the complexity of the environment, coupled with the increased rate of change of other environmental variables, such as technology and other factors that require increased information requirements. He further contends that only a few studies have been conducted that have looked at the alignment between information processing requirements and information processing capabilities and their influence on the structure of the organisation (Premkumar et al., 2005).

Figure 1: The FIT between information processing and capabiities

Source (Premkumar et al., 2005)

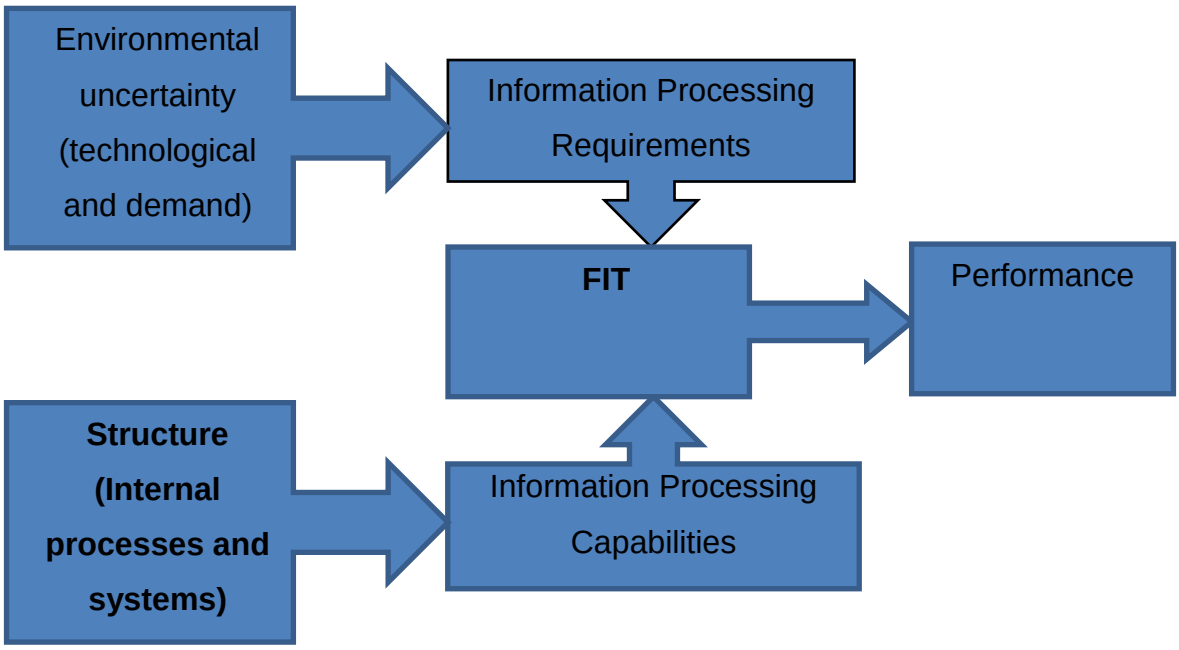

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Figure 1 illustrates the relationship between information processing requirements and information processing capabilities and how their alignment influences the performance of an organisation. Information processing needs can be described as the type of data or information requirements that are needed by business to minimize uncertainty and risks in decision making, which is essential for long-term sustainability of the organisation (Trentin et al., 2012). This information is typically about environmental events such as environmental scanning, competitiveness, market and political intelligence, as well as, market research and is critical for evidence-based decision making (Frishammar, 2002). On the other hand, information processing capabilities are described as the extent of communication technologies (including those non-computer based communication approaches such as face-to-face, telephone or reports) or databases available to an organisation that assist with processing or storage of the information in order to facilitate inter or intra-organisational interactions (Premkumar et al., 2005).

With that in mind, it has been found that different organisational structures respond differently under various environmental conditions and thus the choice of organisational structure employed should fit the information processing requirements and capabilities of that particular environment (Wald, 2009). Owing to their dual or multiple-reporting systems, the design of matrix organisations is believed to inherently adapt to increased environmental complexities and uncertainties much better than other organisational structures, since they process more information than hierarchical or single-reporting systems (Wald, 2009).

It is believed that one of the most effective means of dealing with this uncertainty is through improving the information processing requirements and capabilities of an organisation. This can be effected by the use of improved information processing mechanisms, such as improved ICT systems which can help analysis and decision making, the use of slack resources which could help in reducing overloading of the hierarchical channel (Hernaus et al., 2013), thereby giving the organisation some flexibility in navigating these ongoing trends (Den Hengst & Sol, 2001) and creating lateral relationships in an organisation which help move the decision making powers to where the information actually exists (Galbraith, 1974).

When it comes to information processing, some researchers argue that communication frequency appears to be strongly related to knowledge of products or processes within or outside an organisation (Rindfleisch, Malter, Ganesan, & Moorman, 2008). Furthermore, being predominantly designed for vertically communication, it is argued that hierarchical configurations at times hinder lateral communication which thrives when there is coordinating mechanisms which emphasise direct contacts within multiple roles or functions, which increase the amount and frequency of communication across pre-existing departmental boundaries (Trentin et al., 2012).

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Communication via lateral roles or horizontal boundaries increases an organisation's ability to exploit the local information when it comes to decision making and also improves its ability to concurrently deal with the various elements of the decision environment which include customers' demands, suppliers' performances, availability of skills and technological requirements (Trentin et al., 2012). These lateral communication channels enable the matrix organisation to handle increased information flows more effectively than other organisational structures (Kates & Erickson, 2008). It is further argued that these increased lateral communication channels increase communication and information flow amongst the different subsidiaries and thereby improving decision making and flexibility to adapt to dynamic environment (Sy & D'Annunzio, 2005). However, if the matrix is not designed well, it could hinder this increased integration and cooperation of activities (Galbraith, 2013). Even Bartlett and Ghoshal (1990) further contend that a matrix is not a structure but rather a mindset as it requires strategic thinking and processes that are flexible that are developed through a coordinated corporate culture.

For MNCs, it has been argued that local knowledge is critical when developing a successful global corporate strategy that will link and exploit all the benefits of having different geographical locations (Mahnke et al., 2012). Although most MNCs implemented the top-down approach when it came to formulation of corporate strategy, this has changed over the years as a number of MNCs seek to incorporate some influence from the local subsidiaries when making decisions (Mahnke et al., 2012).

2.6 Strategy formulation

The information processing view is concerned with recognising the concepts of information processing requirements, information processing capabilities and the alignment between the two elements in ensuring that an organisation performs effectively (Premkumar et al., 2005). For organisations to keep up with the highly volatile environment and to improve on their strategic decision making, it is crucial for them to obtain quality information, both from within and outside the environment (Premkumar et al., 2005). Therefore the strategy formulation aspect (Goold & Campbell, 2002) could become critical in terms of determining which organisational structure could have a more effective strategy formulation process in creating strategic direction for the organisation, whether top-down or bottom-up (Kavale, 2012; Mahnke et al., 2012; Mahnke et al., 2012).

Information is vital in the strategy formulation process (Egelhoff, 2010; Kavale, 2012; Qiu & Donaldson, 2012). In order for an organisation to effectively formulate a strategy, understanding the context and processes involved is critical (Pettigrew, 2012; Grogaard,

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2012). Context involves understanding information regarding the social, political, economic and competitive environment in which the organisation is operating (Pettigrew, 2012).

For instance, it is argued that the centralisation of decision-making can result in inefficiencies since the headquarters often may not provide the most accurate and timely information related to its foreign subsidiary's operating environment (Gary L Neilson & Pasternack, 2005). With centralised decision-making, important decisions are only made at the top, a process often employed in hierarchical structures (Egelhoff, 2010), although it is argued that centralisation of decision making seems to make operations thrive under stable operating environments (Schminke, Ambrose, & Cropanzano, 2000). In addition, although centralisation is also argued to be a key mechanism for MNCs that are focusing on global integration (Birkinshaw & Hood, 1998), other researchers have contended that it is not favoured when foreign subsidiaries with complex local environments are involved (Grogaard, 2012).

Egelhoff (2010) argued that centralisation allows for diverse information from the various subsidiaries to be aggregated to enable comprehensive decisions to be made at HQ level, a characteristic employed by hierarchical structures.

On the other hand, the decentralisation of decision making typically empowers employees at lower levels to make important decisions which result in quick turn-around (Lunenburg, 2012). Furthermore, the increased multidimensional coordination introduced by the matrix structure can be argued to increase the efficiency of decision-making in an organisation through increase information processing (Burns & Wholey, 1993; Chi & Nystrom, 2010). Because of their lateral configuration which increases coordination, one would expect that matrix structures should process more information which enhances evidence-based decision making (Wald, 2009).

In supporting Mintzberg's work, Lunenburg (2012) argues that one way of differentiating the structure of an organisation is through identifying the type of decentralisation existing in the organisation, which is determined by the level of inclusion of the subordinate employees in the decision-making process of an organisation.

2.7 Strategy - structure fit

Strategy is believed to give the organisation its direction and focus to enable it to suceed in the competitive operating environment (Kavale, 2012). In order for an organisation to formulate a compeling strategy, it must be able to effectively monitor and sense the operating environment (Kavale, 2012) in order to identify new opportunities and their associated risks (Andrew, 1987). It is also argued that market uncetainities also play a

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critical role in the strategy formulation process and therefore the information processing perspective contends that uncertainty requires complex information processing requirements which will allow for information compilation and intepretation, thereby enabling the strategic decision-making of an organisation (Chari et al., 2014).

Therefore to strategic formulation, acess to information about the operating environment is critical for strategy formulation and therefore an organisation should be structured in such a way that it can faciliate this information processing (Willem & Buelens, 2009; Galbraith, 2009). Conversely, the structure of an MNC organsiation must be able to adapt to the constantly changing environment so that it can effectively implement the organisation's strategic goals through the faciliation of an effective information processing between the HQ and its subsidiary units (Egelhoff et al., 2013).

Kavale (2012) contends that strategy and structure alignment is typically concerned with shaping the long-term direction and scope of an organisation and ensuring that it can withstand the changing environment through configuation of its structure in such a manner that it can achieve competitive advantage. More so, since the strategy of an organisation must align itself to the dymanic environment, it needs to adapt and evolve with this turbulence, and organisations need to subsequently identify a structure that can match with this strategy (Grogaard, 2012; Rajapakshe, 2002). This is sometimes described as the strategy strategy structure"nexus" (Galan & Sanchez-Bueno, 2009).

It is a common deduction that businesses or organisations do not exists in isolation. Most businesses exist in a framework characterised by various environmental factors that include economic, political, legal and technological changes (PESLTE) that may have an influence on the strategy the organisation plans to execute (Egelhoff, 2010). Due to the environment of business rapidly changing in recent years, and expected to do so in future, it is believed that businesses must adapt to these new challenges (Cummings & Worley, 2009) by adjusting their structures and strategic planning frameworks in order to thrive or survive. Therefore, in order for organisations to comprehend these complexities, it is believed that the more flexible an organisational structure is, the easier it can then implement a strategy that may be dynamic because of the environment (Grogaard, 2012).

This strategy-structure alignment is of particular importance in this complex, turbulent, intermittent and hyper-competitive modern day business environment (Galan & Sanchez-Bueno, 2009) which dictates businesses to be structured in such a way that they adapt quickly to this rapidly changing environments. This is a relevant study in the current

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globalised world as a result of the uncertainties experienced by MNCs that are operating in different geographic markets that are forever changing (Galbraith, 2009).

Egelhoff et al. (2013) has followed through on the previous work by Chandler (1962) in analysing the strategy-structure fit and supporting the notion that strategy should precede the structure of an organisation. Other authors (Andrews, 1971, 1971; Stopford & Wells, 1972; Egelhoff, 1982, 1988, 2013) have also advocated that a good strategy should be able to influence and control the design of the structure of the organisation. Strategists, such as Galan and Sanchez-Bueno (2009), have also followed through on this body of research, further supporting the argument that strategy should set a basis for structure to execute. However, it must be acknowledged that the strategy-structure relationship should follow a reciprocal approach at some stage, since structure also has the potential to influence future strategy choices (Galan & Sanchez-Bueno, 2009), thereby underpinning the strategy-structure nexus (Egelhoff et al., 2013).

The Stopford and Wells (1972) strategy-structure alignment model has been widely explored and re-examined (Egelhoff, 1988, 2013;Qiu & Donaldson, 2012) in an attempt to distinguish the conditions under which dual or multiple strategic dimensions are incorporated into a matrix structure for MNCs (Galbraith, 2009).

The information processing perspective has been used as a basis for understanding the fit between strategy and structure for organisations, and helps to determine which organisation design structures would have more effective information processing capabilities (Egelhoff et al., 2013) Egelhoff et al. (2013) argue that a strategy-structure alignment of MNCs is successfully attained when the information processing capabilities of their structure is aligned to the information processing requirements of their strategies, the fundamental principle in addressing an information processing framework.

2.8 Organisational design structures

Rishipal (2014) describes the organisational structure as the framework for establishing relations of authority, responsibility and accountability in an organisation, thereby creating a conducive environment for communication and information flow. It is argued that the organisational structure has an influence on the manner in which information and knowledge is circulated within an organisation, as well as influencing the communication processes and social inteactions amongst the employees (Martinez-Leon & Martinez-Garcia, 2011). This means that the structure can either enhance or hinder the organisation's information processing capabilities.

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Organisational structure describes how the different subunits of an organisation are interlinked and coordinated with each other in order to execute strategic objectives (Cummings & Worley, 2009). According to Goold and Campbell (2002), formulating strategy has more to do about which markets to compete in, and how to gain a competitive advantage and win there. Therefore the organisational structure created must be able to adapt accordingly in driving this strategy (Goold & Campbell, 2002; Lunenburg, 2012). In the assessment of well-designed organisations, Goold and Campbell (2002) argue that well-designed organisations should be flexible enough to adapt to both present and future strategies (Lunenburg, 2012). Several management theorists have also confirmed the notion that the structural design of an organisation in relation to its operating environment has an influence on the performance of the business (Van de Ven & Ferry, 1980).

It has been argued that the matrix structure can help increase communication and cooperation between HQ and subsidiary units due to its lateral communication channels, thereby improving the frequency of information and formal communication in the organisation (Galbraith, 1971; Schnetler, Steyn, & Van Staden, 2015). In addition, the matrix is believed to be appropriately applicable in conditions were there are pressures emanating from high information processing requirements (Kuprenas, 2003). Likewise, it can also be argued that planning and coordination of goals and targets can also help reduce the amount of information processing in hierarchical structures since lower levels are also empowered to make decisions (Galbraith, 1974).

Other implicit benefits of a matrix include the presumed provision of quick responses to technical and customer related issues. However, some of the more notable challenges presented by matrix organisations include the potential conflicts which emanate from the dual reporting lines as a result of power struggles (Egelhoff et al., 2013). Subsequently, there is a lack of accountability associated with this dual reporting system as there is no single “boss” who has absolute answerability.

Conversely, there have been several arguments in research that have also supported the use of the hierarchical structure in organisation design (Deville et al., 2014; Egelhoff, 2010; Yin & Edward, 2004) due to their structured authority levels, although they are associated with slower turn-around of decisions.

2.8.1 Hierarchical structure

When it comes to strategy formulation, hierarchical structures typically follow a top-down approach which confines decision-making powers at the top and then filters this information

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to the subordinate to execute these decisions (Egelhoff, 2010). In other words, the hierarchical configuration emphasises the relationship between vertical specialiation and information flow which leads to centralization of decision making (Egelhoff, 2010) in an organisation and one of the advantages of having a centralised decision team level is that it allows for the aggregation of a wide range of sources of information (across the different subunits) (Egelhoff, 2010).

However, some authors have argued that the strategic information flow must take a top-down approach as well as a reciprocating bottom-up approach in order to have an holistic view of what is happening in an organisation (Marquis & Raynard, 2014). Egelhoff (2010) also argues that the centralisation of **strategic process information** could limit the overall organisations' processing capacity since it exclusively involves a few decision-makers in the parent company and does not incorporate maximum input from the sub-units. This may introduce a barrier for new information regarding the environment to be incorporated in the strategic decision making process.

However, when looking at the pros and cons of centralised structures regarding the coordination of knowledge or information, some research studies have discovered that the specific context in which the organisation is operating could have an influence on the coordination of information or knowledge sharing (Willem & Buelens, 2009).

In MNCs, the information processing approach of hierarchical structures is measured according to the ease of coordination along formal hierarchical line within each subunit, using information flow approach and characterised by authoritative and reliable decision making (Egelhoff, 2010).

For hierarchical structures, Galbraith (1974); Lunenburg (2012) describes the following mechanisms which enable information processing capabilities during high levels of uncertainty:

- Coordination by rules and programmes for routine and predictable tasks between interdependent subtasks (Daft & Lengel, 1994)
- Hierarchical approach for situations where there are no prior rules (Daft & Lengel, 1994)
- Coordination by target or goals through promoting behaviours that support preplanning and goal attainment (Daft & Lengel, 1994).

Therefore, when it comes to decision making, Egelhoff (2010) argues that hierarchical structures tend to standardise decisions in an attempt to reduce the information processing

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requirements at the HQ by simplifying things, thereby setting out more clarity on the authority levels thus making decision making more predictable (Goold & Campbell, 2003).

Further, other advantages that have been addressed in literature in support of hierarchical structures is that their centralisation of decision making allows for an holistic integration and coordination of different units in an organisation (Willem & Buelens, 2009), an aspect which could be central to strategic decision making (Hernaus et al., 2013).

2.8.2 Matrix Structure

Egelhoff, Wolf and Adzic (2013) describe a matrix structure as a complex organisational design which is made up of at least two superimposing layers or dimensions of organisational units, with multiple reporting lines as shown in **Error! Reference source not found.**:

Figure 2: Illustration of matrix structure

Source (Bitesize, 2014)

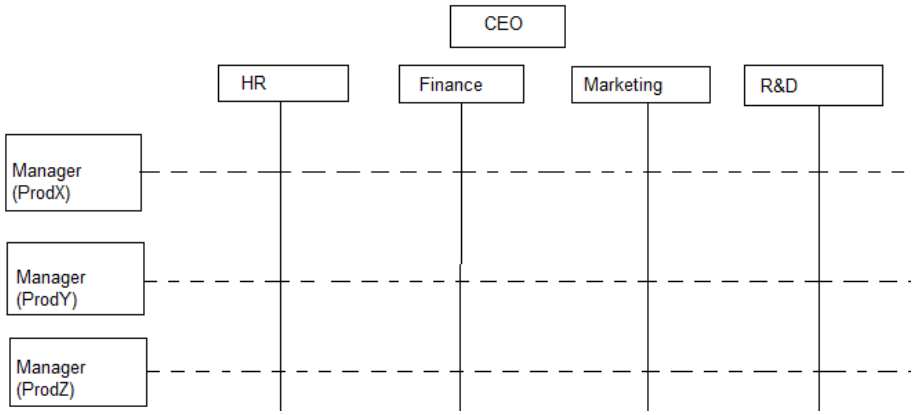

Figure 2 illustrates the dual reporting coordination mechanism in a matrix configuration. Although this structure is aimed at achieving an equal power balance between the dual reporting lines and the increased information flows as a result of the lateral communication channels, this is seldom the case in practice due to conflicting goals or overlaps in boundaries of authority or communication and thus results in challenges in effectively implementing the matrix (Sy & D'Annunzio, 2005; Galbraith, 2009). This could imply that information processing is critical is ensuring that communication is effected.

Pre-planning is also important when it comes to reducing uncertainties (Galbraith; 2009, 1974). Furthermore, the frequency at which these plans or strategies are revised (Galbraith, 1974; Trentin et al., 2012) is also critical in ensuring the most relevant information and

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recent information is used to make strategic decisions, especially in this rapidly changing environment (Kavale, 2012). Therefore, effective organisational structures should be configured in such a way that they can facilitate information flow that will enable evidence based decision making during these dynamic environments (Burns & Wholey, 1993).

In an environment characterised by periods of complexities, rapid change and competitive pressures, organisations are expected to develop structures that are able to adapt to these uncertainties (Egelhoff et al., 2013), and the matrix structure is believed to be capable of navigating these conditions (Egelhoff et al., 2013). The matrix is viewed as the appropriate structure to implement in order to promote effective cross-interactions between managers horizontally (with their peers in different functional or geographic or product segments) and vertically (with their line managers and subordinates) (Peters, 2001). This organisational design structure seems to be applicable to MNCs that consist of a parent office with a global strategy, that is linked to multi-dimensional units or subsidiaries consisting of their own localised strategies (Egelhoff et al., 2013). Burns and Wholey (1993) argue that most organisations assume the matrix structure in order to resolve their internal coordination and information processing challenges (Galbraith, 2009) by reducing the overloading of decision making at the top levels. However, other counter arguments of the matrix structure is that its overlapping responsibilities of managers responsible for different dimensions can introduce inefficiencies (Chi & Nystrom, 2010). Furthermore, another key benefit of a matrix organisation is its increased flexibility to re-configure itself in response to the changing business needs, while maintaining its underlying stable background (Kate and Erickson, 2008).

It is also contended that simply adopting a matrix structure in order to reap its anticipated successful benefits without putting in place other supporting non-mechanistic factors that enable effective implementation, could lead to confusion and frustrationwithin the organisation without realizing the intended benefits, and could lead to subsequently abandoning it (Kates & Erickson, 2008). They further extend that some of the disadvantages of using a matrix structure include the throttling of decisions as results of the power struggles from the dual boss system which apparently slows down decision making procedures (Schnetler et al., 2015).

There are various types of matrix structures (Egelhoff et al., 2013) that have been developed over the years and these have become so complex and multidimensional to an extent that other established MNCs globally are struggling to fully utilise and optimise the capabilities of their matrix structures. This is due to some of the challenges they present that are as a result

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of the complexities surrounding its “two boss” system which separates vertical and horizontal responsibilities (Egelhoff et al., 2013). More so, this structure has the potential to cause conflicts amongst the different reporting lines, as well as management challenges due to the separation of accountability and responsibilities between the dual reporting lines (Goold & Campbell, 2003; Cummings & Worley, 2009). Besides the structural design of the matrix, there are other inter-personal elements such as the culture of the organisation (Hanover Research, 2013) that are critical to its successful implementation.

Bartlett and Ghoshal (1998) also highlighted the vital role played by the HR management functions such as training, recruitment practices and corporate philosophy when it comes to achieving global integration. These ‘softer’ elements have the potential to hinder the effectiveness of the information processing capabilities of matrix structures, thereby nullifying their superiority over other organisational structures. However, the influence of these softer issues has not been covered in this research since this research is mainly concerned with the structural design configurations, as well as due to time limitations.

Qiu and Donaldson (2012) have also argued that the success of a matrix structure is determined by the strategic condition under which it is implemented, e.g. an overlay of corporate integration and area diversification. This was further supported by other researchers who inferred that the reason why matrix structures failed and were later abandoned by some large MNCs was because the actual overlaying structural dimensions on which they were built were not suitable for those organisation strategic conditions (Egelhoff et al., 2013). Therefore, these differing arguments are being used as a basis to investigate the effectiveness of the matrix structure in embracing the strategic direction envisaged by the organisation, from an information processing perspective.

The following variables were used by Egelhoff et al. (2013) to come up with a four dimensional concept which aligns the MNC structure to its strategy:

- Subject or content information processing (Egelhoff et al., 2013)
    - o Product matters - This involves addressing issues such as product and process technology as well as market related information.
    - o Company or country matters - This deals with addressing the internal and external environmental matters (PESTLE)
- Purpose and perspective of information processing (Egelhoff et al., 2013)
    - o Strategic - This deals with addressing the internal and external environmental matters (PESTLE)

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- Tactical - This involves dealing with larger volumes of information in handling day-to-day issues of operations and administration which require a narrow decision-making perspective by relatively lower level management (Egelhoff et al., 2013).

All these variables are used to distinguish the ***type*** of information that needs to processed between the HQ and its interconnected subsidiaries as well as identifying the bottlenecks that may be experienced (Egelhoff et al., 2013).

Therefore this means that the three typical matrix MNC structures discussed earlier (functional, geographic and product divisions) will have different priorities regarding the critical ***type*** of information processing that they need to facilitate decision making (Egelhoff et al., 2013). This is shown in Figure 3:

Figure 3: Type and amount of information processing capacity

Source:(Egelhoff et al., 2013)

	Level of Information Processing Capacity			
	For Company and Country Matters		**For Product Matters**	
	Tactical	**Strategic**	**Tactical**	**Strategic**
Functional divisions (FD)	*High*	*Low*	*High*	*Low*
Geographical regions (GR)	*High*	*High*	*High*	*High*
Product divisions (PD)	*Low*	*Low*	*High*	*High*

Another argument is that matrix structures have been found to be effective amongst MNCs that intend to pursue unpredictable and complex international strategies (Egelhoff et al., 2013). Although the dual reporting lines are presumed to bring complex elements of confusion in managing matrix organisations, Galbraith (2009b) believes that the matrix structure is the best suited when an MNC strategy aims to be successful in combining its global integration within the organisation and local responsiveness within the foreign subsidiary, together with its functional skills. Galbraith further argues that if an MNC plans to adopt a multi-priority strategy and economically share its specialis ed resources, the matrix structure is the best in executing this.

From an information processing perspective, Egelhoff (1991, 2013) argues that the matrix structure, typically employed by most MNCs, requires large volumes of non-routine-mutual information-processing capacity in order to facilitate synchronisation of communication between the dual reporting hierarchies that encompass the matrix, sometimes referred to as “two boss” structure (Egelhoff et al., 2013).. This could introduce complications when subordinates need to prioritise between their immediate local hierarchical reporting and the

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headquarters functional reporting, especially when non-routine information based decisions need to be made, a characteristic somehow oblivious to some MNCs who have adopted the matrix (Goold & Campbell, 2003).

This leads to non-resolution of issues at lower levels, but instead, the escalation of some of these “conflicts” to the relevant authorities in higher levels of structures (Burns & Wholey, 1993). This essentially may overload the information processing requirements of the senior management structures, thereby obscuring them from focusing on more important strategic issues that are requisite to them (Egelhoff et al., 2013).

The research examines the information processing capabilities of a matrix versus that of a hierarchical structure in MNCs, and how these configurations respond to the constantly changing strategies that are prompted by hyper-competition and complexity in the globalised markets.

2.8.3 MNCs: Globalisation and localisation strategies (glocalisation)

Multinational corporations (MNCs) are structured in such a manner that the headquarters (HQ) or parent office coordinates its activities with its subsidiary offices (subunits) in the foreign geographical environments in which it is operating (Egelhoff, 2010; Egelhoff et al., 2013). The coordination of activities and information between the HQ and its subsidiaries could potentially present challenges if the organisational structure is not designed to facilitate the efficient and effective flow of information that enables evidence-based decision making to take place (Qiu & Donaldson, 2012). Two of the most common organisational structures used by MNCs are hierarchical (Ocasio & Thornton, 2006) and the matrix structure (Egelhoff et al., 2013). Although the matrix structure is viewed as more effective in dealing with complex environments (Egelhoff et al., 2013), there are some conflicting studies (Qiu & Donaldson, 2012) which have questioned its dominance over other structures.

Egelhoff, Wolf and Adzic (2013) have described the three typical structural dimensions that are associated with most MNCs matrix structures, which include geographic, functional and product divisions. For most MNC matrix organisations, the head of the subunit in a foreign subsidiary reports to the immediate country manager or CEO of a foreign subsidiary, as well as the functional/dimensional manager in the parent office, termed the “two boss” structure (Egelhoff et al., 2013).

MNCs use different multi-dimensional matrix structures under different conditions (Qiu & Donaldson, 2012). The analysis above reveals that the geographic regional structure is most applicable in relatively large and unique operational regions (Egelhoff et al., 2013), thereby

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facilitating a localised strategy adoption. On the other hand, the product division structure is more relevant when the strategy implementation depends on product-related information between HQ and subunits (Egelhoff et al., 2013), and this is enhanced by adopting a combination of both global and localised strategy. Finally, the functional division structure is more applicable when the "strategic apex" (Lunenburg, 2012) of the parent has the required information to draw up the global strategy (Egelhoff et al., 2013).

This means that an organisation's overall global strategy should communicate and match the multiple local strategies in each of the different environmental complexities experienced in its subsidiaries, i.e. moving away from standardisation to localisation (Menon, 2014; Ocasio & Thornton, 2006). This could empower MNCs' global strategies to fit and succeed in emerging markets.

This would involve developing locally adaptable products that suit the local market, thereby combining global standardisation with local customisation in order to increase market share (Menon, 2014) , a term called *glocalisation* (Immelt, Govindarajan, & Trimble, 2012).

Egelhoff (2010) also described strategic and environmental factors or variables as including goals, technology, size, environmental complexities and decentralisation of subsidiaries.

Further, the research looks further at which structure would be better suited for facilitating the implementation of global integration and local responsiveness (Immelt et al., 2012), from an information processing view, seeing that this would be the future trend of approaching strategy (Menon, 2014). To get the balance right will most likely require a lot of information processing of the organisation and the external environment in order to understand the localised customer needs (Menon, 2014) to get the balance right.

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2.9 Conclusion

Research on the alignment between strategy and structure has become relevant in recent years, largely owing to the highly volatile and hyper-competitive environments in which most MNCs are operating (Galan & Sanchez-Bueno, 2009). Globalisation and technological advancement has resulted in increased volumes or intensities of information available to the market (Karimi & Konsynski, 1991; Mannermaa, n.d.; Wolf & Egelhoff, 2002), some of which may not be relevant. Therefore, in order to gain competitive advantage, it is important for organisations to ensure that they efficiently sieve though and convert these large volumes of information (related markets, suppliers, competitors etc.) and incorporate this information into their strategic decision making processes (Rishipal, 2014).

Since it is also often argued that strategy informs structure, the configuration of the organisational structure should be in such a manner that it facilitates its information processing capabilities, in order to allow for strategy dissemination (Galbraith, 2012), This concept of the strategy and structure fit has been researched extensively (Galan & Sanchez-Bueno, 2009; Wolf & Egelhoff, 2002; Rugman & Verbeke, 2008) in trying to compare the different organisational structures and their effectiveness in implementing strategies (from an information processing perspective).

Increased complexity and uncertainty are regarded as a drawback to strategic decision making due to their limitations in pre-planning; organisations should strive to design their structures to ensure that their information processing capabilities are maximised. Galbraith also argued that the matrix, through its dual authority relationships, is seen as a better structure of improving decision making in an organisation due to its perceived direct contact with where the information actually exists, as well as superior lateral coordination mechanisms amongst different specialties (Egelhoff, 2010). Furthermore, the matrix is argued to facilitate a higher amount of information flow between organisational units of different dimensions, e.g. between the product division in one subsidiary and the functional division of another subsidiary (Wald, 2009). This is important since having a lateral and multiple dimensional structure allows for collaboration of diverse thinking through different perspectives which enables effective information sharing that is useful for making strategic decisions in an organisation (Kates & Erickson, 2008).

However, little literature has covered the comparison of the matrix and hierarchical structures from an information processing perspective in MNCs (Egelhoff et al., 2013). Research has shown that although the matrix structure has been presumed to possess superior information processing capabilities between HQ and subsidiary due its increased

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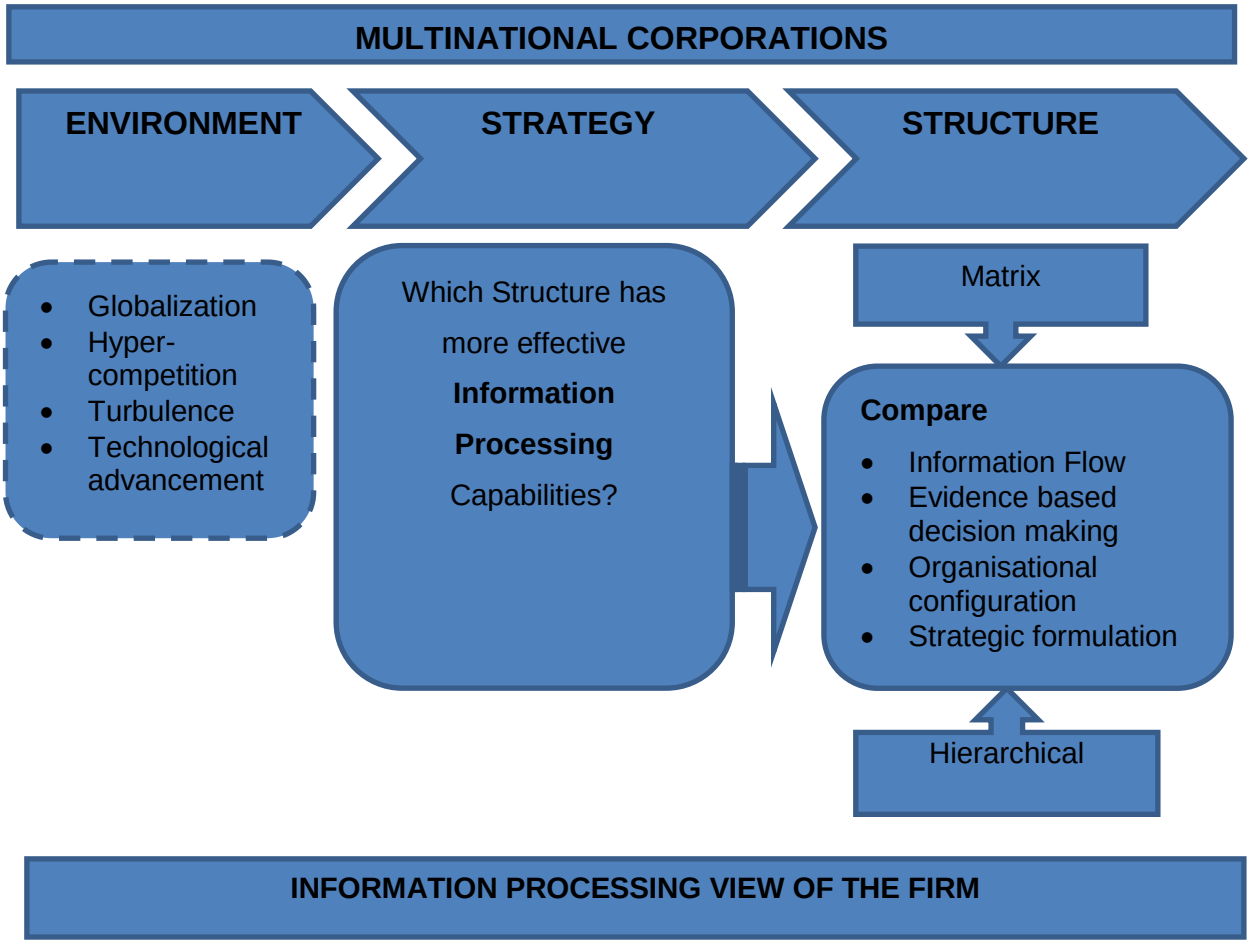
communication channels across functions, the conflicts and complexities arising from its dual reporting system have led to some organisations abandoning it (Egelhoff et al., 2013; Burns & Wholey, 1993). In other research work, the hierarchical structure has been favoured in organisations due to its formally structured and pre-determined authority levels, although its turn-around time for decisions has been noted (Deville et al., 2014; Egelhoff et al., 2013).

This study seeks to add further literature into the "strategy-structure" nexus by analysing the matrix and hierarchical structures, to determine which of the two has more effective information processing capabilities which translates to more effective evidence-based decision making capabilities.

The following illustration gives a summary of the research study in a more precise way.

Figure 4: Summary of Research study

Source (Author, 2016)



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3 CHAPTER 3: RESEARCH QUESTIONS

The basis of the research argument that is being put forward is that strategy has to be reactive to the environment. Because of the hyper-changing business and market environment (Valle & O'Mara, 2010), most companies are being compelled into changing their strategic focus. This further requires organisations to be able to process information much more effectively and efficiently than they would previously have had to since there is an abundance of data and information due to technological advances (Mathews, 2016). Subsequent to having a highly dynamic strategy, an organisation should devise a structure that is able to adapt to this rapidly changing strategy in order to cope with this environmental turbulence (Brown & Eisenhardt, 1997). The idea is avoid making a complete overhaul of the organisational structure every time the company deviates from its incumbent strategic focus. Constantly changing the organisational structure can be costly and time consuming and may impact its competitive advantage.

It is argued, in some research literature, that the organisational structure has an influence on the information processing capabilities of an organisation (Schmitt et al., 2010), with the matrix structure having superior information processing capabilities to any other organisational structure (Galbraith, 2009). However, other counter-arguments have been brought forward that have dispelled this dominance of the matrix structure, citing that its ambiguity brought about by its dual reporting structure as a hindrance to the information processing flow of the organisation (Romelaer & Beddi, 2015). On the other hand, some researchers have viewed the clear authority and accountability lines of the hierarchical structure as advantageous to its ability to effectively process information and decision-making (Goold & Campbell, 2002).

There is therefore a need to determine the adaptability and flexibility of the organisational structure to implement its strategy based on its influence on the information processing capabilities which have a subsequent influence on its decision making capabilities (Grogaard, 2012).

The measure of the strength of an organisation's strategic alignment is based on its information processing requirements (Galan & Sanchez-Bueno, 2009).

Therefore the main objective of this research is to determine which structure is more effective for strategic information processing for large businesses. Egelhoff (1991) argues that the information processing view undertakes that the quality of the information

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processing alignment influences an organisation's performance and survival, especially for large, complex organisations (small organisations to a lesser extent) that are operating in a challenging environment characterised by hyper-competition and rapidly changing factors.

3.1 Overarching research question

Determine which structure of an MNC has more efficient and effective (matrix vs. hierarchical) information processing capabilities?

Since MNC organisations exist as subsystems (Egelhoff et al., 2013) that process information between the subsidiaries, it is important to determine which structure gathers and propagates strategic information effectively. We therefore need to determine the strength of the organisational structure based on its information processing capabilities (Grogaard, 2012). Furthermore, the strength of an organisation's strategic fit is also determined by its information processing requirements (Galan & Sanchez-Bueno, 2009).

This main research question was to be answered using the following secondary questions:

3.1.1 Supporting Research Question 1

Which structure allows for more information flow between the environment and the organisation?

It has been argued that the structure of an organisation has an influence on the flow of information in the organisation (Galbraith, 1974). The matrix structure has long been argued as being more superior to other organisational structures when it comes to information flow (Egelhoff et al., 2013). The hierarchical structure has also been contended to have better information flow characteristics due its formalised and structured reporting lines which emphasise accountability (Goold & Campbell, 2002). With these contradicting opinions, this research therefore seeks to determine which structure facilitates more effective and efficient information flows in organisations.

3.1.2 Supporting Research Question 2

Which structure facilitates a more efficient evidence-based decision making process?

This supporting research question looks to understand the basis of how decisions are made or formulated in an organisation. This could involve the processes or the level of involvement in the decision making process. This question seeks to compare the matrix and hierarchical

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structures in order to determine which one has better evidence-based decision making capabilities.

3.1.3 Supporting Research Question 3

Which structure has a more effective configuration when it comes to adaptability and flexibility?

This research questions seeks to determine which structure (matrix vs. hierarchical) is more effective when it comes to organisational configuration (e.g. flexibility). This is based on the notion that in order for an organisation to remain relevant or thrive in the present dynamic environment, it needs to be configured in such a manner that it is able self-reconfigure and adapt seamlessly to the changing operating conditions.

3.1.4 Supporting Research Question 4

Which structure has a more effective strategy formulation processes or capacity?

The following hypothesis was derived*:*

This research question aimed at understanding which organisational structure has a more effective strategy formulation. This is decided by the “level of employee involvement” as well as the “strategy formulation process”. These constructs have been developed from the top-down or bottom-up approach (Thite et al., 2014).

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4 CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

This research study was primarily aimed at understanding the alignment between the strategy and structure of an organisation, from an information processing perspective by comparing the matrix and hierarchical structures in multinational corporations (MNCs). Therefore this section of the document describes the methodology that was followed in carrying out the research and its objectives. The research design was conducted in a descriptive manner which involved a quantitative study based on a self-administered online questionnaire or survey (provided in Appendix A), that was designed to gather primary data from a population of MNCs, and using statistical analysis to make a connection between the research constructs or variables, and what was observed through the research (Soiferman, 2010).

4.2 Research methodology and design

4.2.1 Research philosophy

The research paradigm followed in this research was that of “positivism”, which looked at taking an exploratory approach in order to achieve objectivity, since there was no subjectivity between the researcher and the research object (Tumele, 2015). Positivists are of the view that only “realistic” knowledge is achieved through measurement or data collection and the interpretation of these findings through an objective and quantifiable approach (Dudovskiy, n.d.). Therefore this research only used the information gathered through the structured constructs of the surveys, to analyse the two different organisational design structures (matrix and hierarchical), and to further determine if they had an influence on the information processing capabilities of an MNC.

In addition, to further support the “positivism” research philosophy that was used, it is believed that quantitative research methods have largely been used by positivists (Niglas, 2006; Yin, 2014; Saunders & Lewis, 2012; Sminia, 2009; Pettigrew, 2012), as they typically follow a deductive methodology to enable realistic findings (Crowther & Lancaster, 2008).

4.2.2 Research approach

The overarching principle of this research was to compare the information processing capabilities of the matrix and hierarchical organisational structures. This information

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processing perspective was aimed at determining the most effective design structure of an organisation that is capable of implementing its strategy efficiently and effectively (Egelhoff et al., 2013). This was analysed using the information processing coordination between HQ and its subsidiary units (Galbraith, 2009).

Following the approach used by Harwell (2011), a quantitative approach was used in this study since quantitative data was collected to ensure objectivity when making deductions about which structure is more effective in processing information.

On determining the research approach to follow in this study (deductive vs. inductive), a deductive reasoning was deemed more suitable for this research since as we are using the information processing view or perspective (or "theory") on which to base our research questions and thus observe the findings from these research questions to make any confirmations and deductions as to which organisational structures used by MNCs (matrix or hierarchical) result in an effective alignment between strategy and structural design (Soiferman, 2010; Trochim, 2006).

This means working from the more "general" to the more "specific" understanding (Trochim, 2006) of the alignment of strategy and structure in MNCs, from an information processing view. More so, the arguments used for analysing the information processing capabilities and requirements for matrix and hierarchical structures in this research are based on widely accepted frameworks and principles deduced from previously well-researched studies conducted by accomplished authors (Egelhoff, 2010; Galbraith, 2014; Egelhoff et al., 2013; Qiu & Donaldson, 2012; Mintzberg, 1980; Kavale, 2012).

Therefore a deductive approach (Crowther & Lancaster, 2008) was adopted in this research with the perspective of concentrating purely on the responses regarding the information processing capabilities and requirements of the MNCs surveyed, whilst maintaining independence by keeping minimal interaction with the research participants throughout the process.

4.2.3 Type of study

Quantitative research relies on using scientific principles (Soiferman, 2010) and quantitative information that is presented in numbers and figures (Blumberg, Cooper, & Schindler, 2008) and is believed to play a significant role in justifying a number of researches that have been conducted since it is seen as a more objective, structured way of testing a theory (Park & Park, 2016). More quantitative research methods help to explain if there exists a relationship between variables (Blumberg et al., 2008), such as strategy and structure in this case. In this

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research, the strategy and structure alignment of MNCs at HQ and subsidiary level was investigated using the information processing theory.

Therefore the methodology employed in this research was a descriptive study which involved a series of quantitative analyses based on a structured questionnaire that was sent through to managers of MNC companies, as similarly pursued by authors (Qiu & Donaldson, 2012; Egelhoff et al., 2013) in their previous studies of information processing analysis in MNCs.

The use of a cross-sectional survey where each respondent from a given population completes the survey at a specific point in time (Rindfleisch et al., 2008) was deemed appropriate for this research in the belief that it was a reasonable method to collect data within the limited time frames at minimal costs (Alhassan, Ghazali, & Isha, 2014).

4.2.4 Research strategy

The strategy employed in this research is based on similar previous work on investigating the strategy-structure paradigm in MNCs, that was conducted by various authors (Galbraith, 1974; Egelhoff, 2010; Qiu & Donaldson, 2012; Egelhoff et al., 2013) and recently by (Nannoolal, 2015).

Primary quantitative data was gathered through a questionnaire-based research survey conducted on a sample of the targeted population of multinational corporations (MNCs) operating largely in South Africa and abroad (Zikmund, Babin, Carr, & Griffin, 2013). This was followed through by a series of statistical tests that were conducted to investigate the research questions.

The questionnaire design strategy enabled a structured collection of data (Saunders & Lewis, 2012) that was relevant to analysing the different organisational design structures and explaining why they have different information processing capabilities. This was viewed as a cheaper means of gathering information as compared to other research collection methods, such as focus groups or interviews. However, although this approach was bound to introduce some response biases, such as providing misleading or inaccurate information, on the survey responses gathered (Saunders & Lewis, 2012), further analysis of the responses using the Cronbach's Alpha showed that there were some consistencies in the responses from the survey. Those items that were found to be unreliable and inconsistent were not analysed further.

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4.3 Time dimension

Due to the limitation of time and cost of resources in conducting this research, a cross-sectional dimension was followed (Saunders & Lewis, 2012) as we viewed the information processing capabilities and requirements of the various MNCs by collecting data from the respondents at a single point in time, as opposed to conducting longitudinal studies (Saunders & Lewis, 2012) which often look at an organisation in its evolution at different time intervals. This longitudinal research approach would perhaps have been more significant for MNCs that may have evolved or changed their organisational design structures over time through adopting either a matrix or hierarchical structure, and thus this contrast in design approaches may not have been captured. However, the longitudinal approach in this particular research was not entirely significant, as the study looked at organisations that have either a matrix or hierarchical structure at that point in time.

4.4 Population

The population used in this research were individuals employed by MNCs (predominantly functional managers, line managers, divisional managers, products managers or any other senior employees) who had an intimate knowledge of the strategic and structural position of the organisation from a HQ-subsidiary relationship. These MNCS needed to operate on either a matrix or hierarchical structure.

4.5 Unit of analysis

According to Zikmund, Babin, Carr and Griffin (2013), a unit of analysis of a research study points to individuals or objects that should be providing data and at what level of aggregation it should be analysed. It represents the main object that is being studied (Trochim, 2006). The primary units of analysis in this data collection process were the MNC organisations, which were being represented by managers or individuals who were presumed to be familiar with the HQ-subsidiary relationship in MNCs, from a strategy and structure perspective and therefore could provide information and insights that were relevant to the research questions. These representatives had to be working within a matrix or hierarchical organisation.

4.6 Sampling method

Sampling involves drawing individuals or entities form a population that gives a general representation of the characteristics of a population (Zikmund et al., 2013) and it is supposed to adequately embody the unit of analysis (Pinsonneault & Kraemer, 1993).

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A non-probability sampling method was employed in this study since there was no complete list of the population of all companies with a matrix or hierarchical structure. Therefore convenience and snowballing sampling were predominantly used in this research (Saunders & Lewis, 2012).

4.6.1 Convenience sampling

The sample used by the researcher included existing professional networks and contacts who are currently working for MNCs that have subsidiaries in South Africa (easier accessibility), as well as those networks of contacts that would be based outside South Africa (reached through forums or group in LinkedIn). Moreover, there were further elements of convenience sampling (Saunders & Lewis, 2012) as the author made use of his immediate and easily accessible MBA colleagues, as well as those in his Global Trilateral MBA programme (GTMBA). However, the challenge faced was that only a handful of these colleagues worked for MNCs. Also, this technique is prone to introducing sampling bias as the sample may not be a true reflection of the entire population (Etikan, Musa, & Alkassim, 2016). To avoid this in this study, the researcher attempted to reach out to networks in various industries and professional backgrounds.

4.6.2 Snowball sampling

To overcome the challenge of having few immediate or direct professional networks and MBA colleagues that worked for MNCs, snowball sampling was used. This non-probability sampling technique involves using one's initial selection of immediate respondents to subsequently recruit or obtain information from additional respondents or acquaintances in their networks (Zikmund et al., 2013). In this study, the snowballing sampling was comprised of referrals from colleagues and friends who subsequently tapped into their respective networks of contacts working for MNCs. Although this technique makes it easier to reach populations that are otherwise problematic to sample by other methods of sampling , it does have its own challenges (Handcock & Gile, 2011). For instance, the researcher is introducing sampling bias since the initial respondents tend to nominate their respective colleagues or networks who possibly share the same traits and characteristics, thereby limiting representativeness (Zikmund et al., 2013). Therefore the researcher could potentially not have complete control over the overall sampling method since he merely relied on referrals.

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4.6.3 Sampling size

It is argued that the sample size depends on the level of variability of the actual sample (Zikmund et al., 2013) and a research judgement deemed a sample size of at least 150 to be appropriate as this was fairly higher than other samples size of similar studies performed (Egelhoff et al., 2013) that had a sample of fifty-seven. The sample size achieved was 148, which was deemed sufficient for this research

4.6.4 Survey response rate

Completed survey responses on the SurveyMonkey tool were collected from respondents across MNC subsidies in various geographic locations and used in this analysis, whilst all the incomplete questionnaires were discarded.

Table 1: Summary of Response Rate

	Polled	Responses	Valid responses	Response rate
Total	502	148	124	29.48%

The overall survey response rate was 29.48%. This figure is in line with most survey based research which is generally low (Saunders & Lewis, 2012) and appears to be close to the acceptable online response rate of 30% average (Glaser, 2008). Twenty-four responses with missing data were excluded from analysis and thus the analysis only involved 124 responses. The researcher is confident that this sample size is large enough represent the population of MNCs especially if you compare to the that of fifty-seven on similar study conducted by (Egelhoff et al., 2013).

4.7 Data collection tool

As discussed earlier, the measurement instrument was a questionnaire used to gather primary data from the respondents. The questionnaire was structured in such a manner that it investigated and addressed all the information processing dimensions that contributed to effective information processing in an organisation. These questionnaires provided information that were used to investigate the statistical hypotheses that were linked to the research question (Harwell, 2011).

This questionnaire method was preferred to interviews due to time limitations and reduced the cost of reaching out to respondents residing in dispersed geographic locations (Zikmund et al., 2013).

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Some of the commonly known advantages of using surveys for quantitative research include quick responsiveness, low costs, efficient and accurate means of assessing information of a selected sample size (Zikmund et al., 2013). However, a few notable challenges with the use of survey are delays in getting responses or feedback.

The design of the questionnaire used in this survey was based on the quantifiable variables which were derived from the research constructs listed in Chapter 3, which were aimed at understanding the information processing characteristic of an organisation and how it is related to evidence-based decision making, strategy and structure of an MNC.

The foundation of this questionnaire is largely taken from the work that was initially done by Van de Ven and Ferry (1980) regarding some of the instruments that are used when measuring and assessing organisations, with the information processing perspective being the field of interest, since organisations are viewed as information processing systems (Patrick et al., 1999), of which information is a key component when it comes to aligning strategy contents and structural processes (Patrick, Miller & Judge, 1999; Galbraith, 1974, 2009; Premkumar, Ramamurthy, & Saunders, 2005; Herbert, 1984). Some of the questions used in this survey were derived from similar research work that was conducted by Qiu and Donaldson (2012; Egelhoff et al. (2013). Similar research has also been done (Nannoolal, 2015) and thus some of the questions used in the current study were extracted from there.

The design of the questionnaire was also influenced by work that was initially done by Van de Ven and Ferry (1980) on measuring and assessing organisations, as well as recent work on examining characteristics of organisational design that was done by Hernaus, Aleksic and Klindzic (2013) and Nannoolal (2015). It was therefore important to note that the following factors were taken into consideration during the design of the questionnaire (Van de Ven & Ferry, 1980):

- The short-to-medium perspective of time to respond to the questions
- Variations in relevance of questions pertaining to individuals, business units or overall organisation
- Objective versus subjective responses from questions

The questions formulated in this survey were standardised (Saunders & Lewis, 2012) to allow the comparison of responses between hierarchical and matrix structures. These questions were compiled with input from similar previous work (Egelhoff et al., 2013; Qiu & Donaldson, 2012) that was used a basis for formulation.

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A total of about 400 surveys were sent out to respondents in MNCs. The questions were directed at employees of MNCs in a management position that had a certain understanding of the overall business strategic orientation. Typical with most survey based researches, there were elements of non-response bias (Ambrose & Anstey, 2010; Wei, Yi, & Changhong, 2011) that cropped up, resulting in some surveys not being completed.

The compiled questionnaire, provided in Appendix A, was orderly and based on the following sections/constructs:

4.7.1 Demographics

The significance of the demographics and geographical information is to provide the background of the respondent and organisation, and the relevance thereof. Demographics are widely defined to include measures regarding the individual or company, such as age, gender, location, industry type, job levels, etc. (Ambrose & Anstey, 2010). In most cases, demographics are intended to assess the variability of the sample in terms of the spread of responses as well as the respondent's relevance to the study to enable descriptive analysis (Zikmund et al., 2013).

4.7.2 Information flow

This construct relates to determining the frequency and ease/difficulty of information flow within or outside of the organisation. Respondents were requested to answer a total of 15 questions, of which six were emphasising the frequency of communication or information transfer between subsidies or HQ-subsidy. The other nine questions were aimed at determining the ease or accessibility of information within and outside the organisation, based on a 5-point Likert scale.

4.7.3 Evidence-based decision making

This construct attempted to determine the processes and rational on how decisions are made or formulated in an organisation, especially when it comes to the HQ-Subsidiary relationship. The underlying determinants include; the level of involvement in decision making, the influence of HQ on subsidiary decision-making or vice versa, the rationale which is followed in making decisions and the role players in making decisions. All these were determined using a 5-point Likert scale.

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4.7.4 Organisational structure

This construct was aimed at determining how the organisational structure is configured to deliver solutions to clients. The essential elements include determining the flexibility of the structure in adjusting to any external/internal changes in the environment as well as the depth or width of the structures. This was done through analysing responses from the survey (see Appendix A) which were specifically related to understanding the level of flexibility of each organisation based on a range of scores on a Likert scale (1-not flexible, 5-very flexible).

4.7.5 Organisational strategic orientation

This was aimed at outlining the strategic perspective of the organisation. There were questions that aimed at understanding the organisation's strategic horizon (short/medium/long) and the processes followed in the planning or formulating the strategy. Furthermore, there are questions that seek to determine the HQ-subsidiary strategic orientation, to determine which strategy takes precedence (local vs. global strategies or both equally).

4.8 Likert scale

Either the 5-point or 7-point Likert scale could have been used in designing the research questions. However, in this study, the quantification of the constructs was done using Likert type questions on a scale ranging from 1(strongly disagree) to 5 (strongly agree) (Ljubica & Aust, 2016), which some authors argue to be an ideal range for questionnaires since 7 options are considered too many (Elias, 2015). Also, the 5-point scale is argued to be the preferred one when compared to the 7-point scale, in situations where respondents are asked for absolute responses (Lietz, 2010). An odd number range was chosen for the scale in order to ensure that there is a somehow defined midpoint that presents a balanced feedback (Elias, 2015). The Likert scale is similar to the one that was adopted from similar work done by Nannoolal (2015). A Likert scale was chosen since it is widely used by most researchers as it provides a multi-point scale which enables respondents to express how much they agree or disagree with specific statements (Elias, 2015).

4.9 Questionnaire accuracy

In order to determine the internal consistency and reliability of the questionnaire (questions in each construct), the Cronbach's alpha test was carried out (Ljubica & Aust, 2016). A Cronbach alpha figure above 0.7 infers that the majority of the variance in the combined total

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score is due to true score variance and thus the developed range has an acceptable level of reliability which can be used for further analysis (Ljubica & Aust, 2016).

4.10 Questionnaire pre-testing

Pretesting of a questionnaires consists of performing a pilot run with a group of respondents in order to reduce any potential sampling and designs errors, thereby eliminating any fundamental errors and improving the quality of data gathered during the survey (Zikmund et al., 2013). In this research, the pretesting was in two parts as derived from Zikmund et al (2013).

4.10.1 Part 1 pre-test: Supervisor and research professionals

This was conducted through a first pass screening with the researcher's supervisor and other research professionals at GIBS. The questionnaire was documented in a word document and sent through for pre-checks. This was mainly to address any fundamental issues such as the design and flow of questions and to ensure that these addressed the research questions. A few errors were picked up which related to a reduction of the length of questions and avoiding repetition. The bias due to question order (Zikmund et al., 2013) was also highlighted and addressed. When all these issues were addressed, the questionnaire was then flighted online on SurveyMonkey, with just a few formatting errors which needed to be fixed. These included adding progress bars, alignment of text on questions and visual aesthetics.

4.10.2 Part 2 pre-test

Subsequent to the above, a pilot run was distributed to 17 respondents to identify any grammatical errors and also to determine if the questions asked made sense to someone who did not have prior background about the research project. This was particularly important to address since these respondents did not have intimate knowledge of the research background and therefore their responses and challenges were likely to mirror those in the identified sample. The pilot test did not show any misgivings about the questionnaire design and most of the responses did not reveal any fundamental design issues, except for a few spelling and grammar errors that were raised and resolved thereafter.

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4.11 Data Collection

The self-administered questionnaire was initially configured in a word document and later transposed to SurveyMonkey and distributed to the individuals working in MNCs via email with a link to complete the survey online. A web-based survey was used since they were regarded as the most convenient way of attaining a global reach (Grandcolas, Rettiei, & Marusenko, 2003) on a variety of MNCs, that otherwise could not have been easily reached by other questionnaire forms, such as via post, telephone or face-to-face (Saunders & Lewis, 2012). In addition, it is believed that online research has less exposure to normative bias and pliability (Grandcolas et al., 2003) as compared to face-to-face questionnaires, for instance, since the respondent has no direct interaction with the researcher. However, challenges of inaccuracies due to non-response rates mismatch between the targeted population is rife (Grandcolas et al., 2003).

Furthermore, because the researcher predominantly relied on email addresses to connect with far-reaching networks globally that have been built over the years, the increased turnover of email addressed as people moved between jobs resulted in some respondents not being reachable, thereby reducing the reliability of the online survey (Zikmund et al., 2013). To mitigate this, the researcher used the web based LinkedIn platform to request email addresses, since the chances of professionals migrating from the LinkedIn platform was regarded as minimal. Therefore LinkedIn was also used to track the current email addresses of potential respondents working in MNCs.

Over and above using direct emails, LinkedIn was further used to distribute the survey links to the relevant professionals working in multinational companies globally, whose email addresses could not be obtained. This was aimed at growing the population sample size as well as obtaining information from other MNCs subsidiaries outside the South African environment in order to have a well balanced response from MNCs globally, thereby reducing sampling bias.

4.12 Data coding

When conducted effectively, survey based researches are regarded as the most powerful means of soliciting valuable data and information from a wide spread of immediate respondents (Elias, 2015; Saunders & Lewis, 2012). Surveys involve establishing a framework of questions that need to be addressed and tested by information acquired from the respondents of the study (Lietz, 2010). The encoding of this information requested by the researcher was presented in a carefully standardised process which included being mindful

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of; question length and order, grammar, as well as avoiding double-barrelled and negatively worded questions (Lietz, 2010). This was done to enable respondents to subsequently decode this information and provide answers or responses which can easily be analysed by the researcher to draw meaningful conclusions (Lietz, 2010).

On analysis of the raw data, there were some errors that were established in the data and these included incomplete responses or noticeable mistakes during data entry.

4.13 Data analysis approach

The analysis of the empirical data was conducted using both descriptive and inferential statistical approaches. The descriptive was mainly used to describe the profile of the sample including the biographic information, while inferential statistics was used to test the hypothesis generagted by the research questions.

4.13.1 Descriptive statistics (measure of central tendency (mean) and variability)

The descriptive statistics were used to measure the central tendency and the measure of the spread of the sample, making use of the mean and standard deviation, respectively for the continuous variables (strongly disagree to strongly agree). For the categorical variables, the frequency and percentage frequency were used to summarise the data in a meaningful way. Where applicable, the graphical representation, using pie charts and bar charts, is used to visualise this data.

4.13.2 Principle Component Analysis (PCA) and Factor analysis (FA)

The principle component analysis (PCA) is a basis for multivariate analysis as it provides analyses of a data table or items in which responses are simplified by having inter-related dependant variables (Williams, 2010). This is similar to another data reduction technique called “factor analysis“ which some researchers often use interchangeably to reduce a large number of variables into smaller interpretable sets of factors or components as well as analysing structure in the relationship between variables to confirm validity of the constructs (Pallant, 2005). This data reduction technique is aimed at removing redundancy from a set of correlated variables by condensing these large sets of variables into a more manageable number of factors (Pallant, 2005). Research has shown that both the PCA and FA often bring about similar patterns of results.

Factor analysis can either be **exploratory**, where the researcher is not sure about the number of factors that may exist in a set of variables, or it could be **confirmatory** where the

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researcher has a strong theoretical expectation about the outcome of the factors and the allocation of the relevant variable to each factor (Zikmund et al., 2013).

Factor loading is used to give an indication of how strongly correlated a measured variable is to that assigned factor (Zikmund et al., 2013). Acceptable loading factors should have a value of more 0.5, with 0.7 being considered as good (Hair, Black, Babin, & Anderson, 2010). Therefore, variables that are similar will have high factor loadings, an indication that the variable is closely related to the factor or multicollinearity (Walker & Maddan, 2009).

In this study, there were four main constructs that were presented by the research questions and these included:

- Construct 1 - Information flow (RQ1)
- Construct 2 – Evidence-based decision making (RQ2)
- Construct 3 - Organisational configuration (RQ3)
- Construct 4 - Strategy formulation process (RQ4)

The first construct (**Construct 1**) on information flow had a total of 18 continuous variables (questions) whose outcome was measured on a 5-point Likert's scale.. In order to collapse these variables to extract the smaller factors, a Principal Component Analysis (PCA) was used using Varimax with the Kaizer normalisation method for rotation (Williams, 2010). Five different constructs were developed, of which four were found to be reliable for further analysis in this study.

There were 17 variables in the evidence-based decision making (**Construct 2**). These consisted of 13 continuous variables whose outcome was measured using a 5-point Likert's scale and the other remaining four variables were either descriptive or categorical and therefore their outcome could not be factorised.

Therefore, a confirmatory PCA was conducted on these 13 variables which consisted of these two pre-determined sub-constructs whose items were derived from the previously tested surveys in literature as indicated in the questionnaire in Appendix A:

- Employee influence on decision making (6 Items)
- Decision making process flow (7 items).

There was no PCA conducted on the main research **Constructs 3** and **Construct 4** since they consisted of items that had different variable types and outcomes which could not be reduced into smaller associated factors and thus could not be factorised (Zikmund et al., 2013). It is further alluded that a successful factor analysis can only be conducted if the variables (or items) represent outcomes of some common underlying dimension or concept

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which allows them to be grouped both theoretically and mathematically (Walker & Maddan, 2009). Therefore the mix of descriptive and categorical variables in these constructs could not allow this.

4.13.3 Cronbach Alpha

Tavakol and Dennick (2011) indicated that a range of 0.7 - 0.95 is generally considered to be acceptable. However, several studies have indicated that the Cronbach Alpha coefficient of 0.6 is also deemed as acceptable. Pallant (2005) cited several authors who agree with 0.6 as a cut off. According to research presented by Nimako, Azumah and Donkor (2012), they also agree with the cut-off of 0.6.

4.13.4 KMO and Bartlett's Test

The Bartlett's Test of Sphericity matches the observed correlation matrix to that of the identify matrix in order to check for redundancy between the variables or items (Pallant, 2005). Similar to the Bartlett's test, the KMO is a measure of sampling adequacy which checks the variables to determine if they can be factorised (Walker & Maddan, 2009). Therefore both the KMO and Bartlett's Test for Sphericity are indicators used to check if the PCA can be applied on a given set of variables (Pallant, 2005). The range of applicable values range from 0-1, with 0.6 being the minimum permissible limit for sampling adequacy (Pallant, 2005).

4.13.5 Shapiro-Wilk test for normality

A lot of statistical tests rest upon the assumption of normality and thus, deviations from normality render those statistical tests inaccurate (Field, 2013). It is on this basis that the data collected was tested to determine whether it was normal or non-normal. The Shapiro-Wilk test was used to test the validity of the assumption that the sample data used in the analysis was drawn from a normally distributed population (Spinks & Canhoto, 2015). If the assumption of normality is rejected, it means that the subsequent tests for significance should be conducted using non-parametric tests which do not require normality, or alternatively manipulating the data to try and give it normal distribution (Spinks & Canhoto, 2015). This study decided to ignore the latter, due to the complications involved which could possibly have an impact on the already existing time limitations of this research.

In this study, results of the Shapiro-Wilk test were examined closely in order to determine the normality through significance ($p < 0.05$). If the p-value is greater than 0.05 then we would assume normality of the data. However, if the p-value < 0.05, it means that the data

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significantly deviates from a normal distribution (Pallant, 2005). This emphasis on the Shapiro-Wilk test is based on the sample size of the data, which is less than 2000 (Spinks & Canhoto, 2015).

The outcome of the Shapiro-Wilk test in the study is used to determine the type of test to be used. The data were found to violate the assumption of normality, and thus the non-parametric test was conducted using the Mann-Whitney U to test for difference between the two groups, instead of analysing the data using the t-test which is normally reserved for parametric data (Field, 2013).

4.13.6 Test for difference between the group

This study aimed at determining if the structure of an organisation (matrix vs. hierarchical) has an influence on its information flow and evidence=based decision making capabilities. The Independent t-test is normally used to compare whether there exists a difference between two means of two independent sample groups (matrix and hierarchical MNCs in this case) on some continuous dependant variable (Pallant, 2005). The t-test is typically associated with running parametric tests which are usually conducted when the data set conforms to the assumption of normality (Field, 2013). As discussed in the previous section (4.13.5), based on the results of the normality test conducted, it was found that the data collected violated the normality test and thus it was therefore recommended that the Mann-Whitney test be used, which is largely used for conducting non-parametric tests (de Winter & Dodou, 2010).

The Mann-Whitney U test is considered as a non-parametric alternative to the t-test as it compares the ranked medians of the two groups through converting scores into ranks. However, some authors have highlighted its presumed shortcomings in comparison to the t-test, when it comes to its inferior sensitivity aspect when it comes to detecting the difference between or relationship between groups (Pallant, 2005). As a sense check, a preliminary t-test was conducted first and the results did not differ much from the subsequent Mann-Whitney U test.

Therefore, the difference between the sample group, which in this study were hierarchical and matrix structures, was analysed using the Mann-Whitney U test, with a p-value of 0.05 indicating statistical significance between the groups under investigation. If $p>0.05$, the results shows that there is no significant difference between the two measured groups (Pallant, 2005).

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In that regard tests were conducted to determine whether there existed a difference between matrix and hierarchical structures when it came to their influence on information flow and evidence-based decision making. Furthermore, these two popular organisational structures were also analysed to compare which structure had a more effective structural configuration as well as to determine if there was a significant difference in their strategy formulation processes.

The independent Chi-squared test is also another non-parametric test which can be used when there exists two categorical variables from a given population, as it explores the relationship between two variables or groups (Pallant, 2005). The value of interest is determined by the outcome of the Pearson chi-square value, which shows significance if the p-value is <0.05.

4.14 Test for association or relationship

Where deemed relevant, the test for association or relationship (and strength thereof) can be conducted by using the Pearson correlation when using continuous variables or Pearson's Chi-square for categorical variables (Pallant, 2005). Where deemed necessary in this study, the Pearson's chi-square was used for analysis since the matrix and hierarchical variables are categorical. When it comes to statistical significance, $p<0.05$ confirms that there is a relationship between the variables being compared. To determine the strength of the degree of association, Cramer's V value is used to determine, with the following guidelines being suggested (Hinkle, Wiersma, & Jurs, 2003).

- 0.0 – 0.29 (Weak)
- 0.3 – 0.49 (Low)
- 0.5 – 0.69 (Moderate
- 0.70 – 0.89 (Strong)
- 0.9 – 1.0 9 (Very Strong).

4.15 Limitations

Due to the proposed research method involving the gathering of data using a questionnaire, there may be a challenge of securing enough participants who would have the time to complete the questionnaires, and thus the research could have been prone to non-response biases. Also, there are not a lot of multinational companies that are within reach (i.e. based in South Africa) and therefore this may have affected the sample size. Also, the sampling approach followed was non-probability sampling since it is not random. This could be mitigated by making use of professional forums such as LinkedIn.

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One of the drawbacks of using a questionnaire is that the responses may not be detailed enough, compared to other research methods (Saunders & Lewis, 2012). Therefore, in situations where this is possible, follow up interviews may be conducted to ensure that the information gathered is satisfactory

- Consistency – Because the respondents' level of management in the organisations varied across different organisations, they could have responded based on their personal view of the organisation, and not necessarily from a bird's eye-view of the HQ-Subsidiary relationship of the organisation. This may be difficult to pick up since the researcher relies solely on the responses provided by these respondents.
- Response bias – Although the researcher made an effort to ensure that the questions were framed in a unbiased and objective manner, response or participant bias was not completely ignored. This is due to the fact that some the respondents were in senior management and thus their responses could inherently have been influenced by their positions and thus they may have consciously or subconsciously responded "untruthfully" or with an element of falsification in order to protect the interests of the organisation, given the sensitive nature of the research (Rindfleisch et al., 2008). Also, the nature of questions can potentially limit the range of responses to the text in the survey, unlike in an interview where they can ask clarifying questions (Simon & Goes, 2013),
- Biases (Non-response) – The response rate was generally low and an increased sample size could have enhanced the generalisability of our research findings in this study.
- Non-probability Sampling - Because we used convenience, quota and snowball sampling as opposed to random probability sampling, results from this particular research can only be proposed, based on our study, but not generally applied to the wider population.
- Variability in Sampling size (not well assorted) – Having respondents from a selected few industries or geographies could potential limit the generalisation and validity of the findings across all sectors. However, the researcher has tried to ensure that the sample covers as wide a variety of respondents in different industries and geographies as possible to limit bias.
- Completeness – There are a number of MNC organisations globally and thus the sample could have at least covered all the MNC subsidiaries in all the continents to ensure a well-balanced research.
- Time – Because the study was conducted during a particular time interval (snapshot) (Zikmund et al., 2013), the findings are dependent on the information processing

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environment experienced during that particular time, and this could have influenced the perceptions of the respondents at that time.

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5 CHAPTER 5: FINDINGS OF THE STUDY

5.1 Introduction

In this research, the aim was to determine the effective strategy-structure fit for multinational corporations (MNCs) where the comparison was done between the matrix and hierarchical structure from an information perspective. The overarching question was to determine which structure had more efficient and effective (matrix vs. hierarchical) information processing capabilities. This main research question was to be answered using the following secondary questions.

- Which structure allows for more information flow between the environment and the organisation?
- Which structure facilitates more efficient evidence-based decision making process?
- Which structure has a more effective configuration when it comes to adaptability and flexibility?
- Which structure has a more effective strategy formulation process or capacity?

The design and methodology to investigate these research questions was presented in chapter 4, which comprised descriptive design, collecting the data through a structured questionnaire. Although there was a total of about 148 respondents, only 124 responses were deemed valid to be used in the analysis. These were the questionnaires that had less than 5% missing data, which were deemed insignificant by (Schafer, 1999). The results of the research were analysed and are presented in this chapter. The constructs of the research are developed and validated. In addition, the reliability of these constructs are done using a Cronbach Alpha coefficient. The biographic information and other characteristics of the data are presented using descriptive statistics and the research hypotheses using the inferential statistics. Lastly, this section is concluded by providing the summary of the findings.

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5.2 Descriptive statistics

5.2.1 Participant response rate

There were a total of 164 participants that responded to the questionnaire, out of a total of 650 individuals working in various MNCs who received the survey. This gives a response rate of 25.23%.

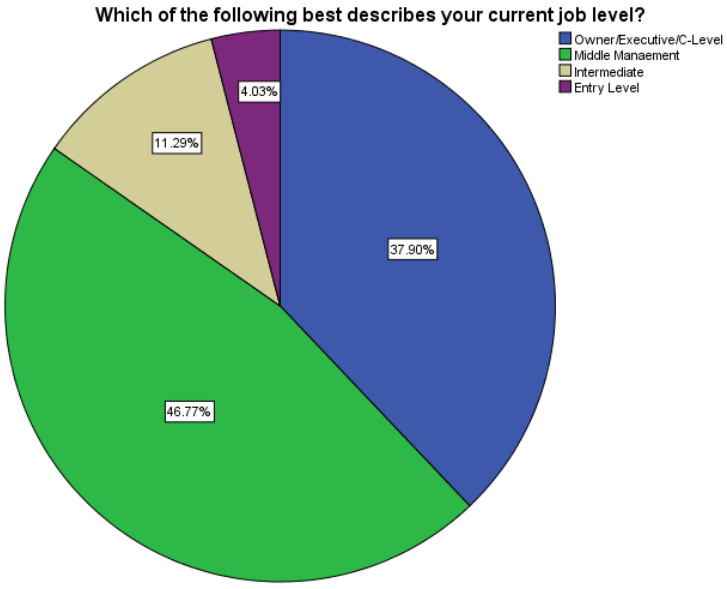
5.2.2 Biographic information

There were a total of 14 biographic variables that were used to profile the respondents. These included current job level, type of department of work, age, gender, current geographic location of the organisation, tenure in the current position, years of experience, number of countries you have worked in, principal industry of your organisation, type of organisational structure, size of the organisation, tenure of the organisation, number of product/service subsidiaries in the organisation, number of countries in which the organisation operates.

5.2.3 Current job level

Figure 5 represents the results on the current job level of the respondents. The majority of the respondents indicated that they were in the middle management with 46.7% (N=) followed by those who were in the owner/executive/C-Level with 37.9% (N=). And about 11.3% (N=) of the respondents were in the intermediate level while 4.0% (N=5) were in the entry level.

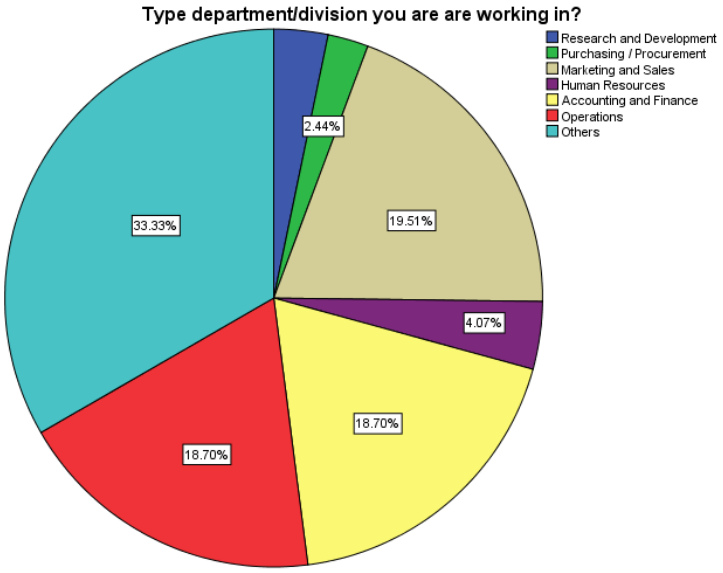
Figure 5: Current job level of the respondents



5.2.4 Type of Department or Subsidiary

Figure 6 shows the results on the department in which the respondents are working. A majority of the respondents worked in other departments with 33.3% (N=41). About 19.5% (N=24) of the respondents indicated that they worked in the marketing and sales department. About 18.7% (N=23) of the respondents who worked in the accounting and finance department and also 18.7% (23) worked in operations department.

Figure 6: Type of Department/division of work



5.2.5 Current geographic location of the subsidiary organisation

According to these results, the highest number of respondents are based in South Africa with 87.1% (N=108). About 4.0% (N=5) of the respondents indicated that they are based in the United Kingdom and 2.4% (N=3) are based in West Africa. Also about 2.4% (N=3) of the respondents indicated that they are based in SADC while others indicated that they are based in Europe with 0.8% (N=1). About 0.8% (N=1) of the respondents indicated that they were based in the Middle East, North America and East Africa.

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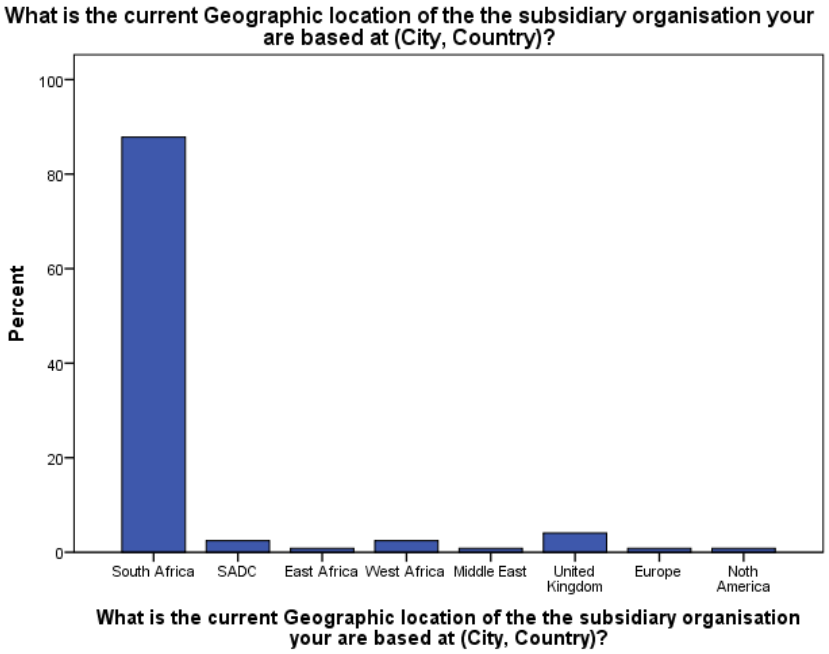
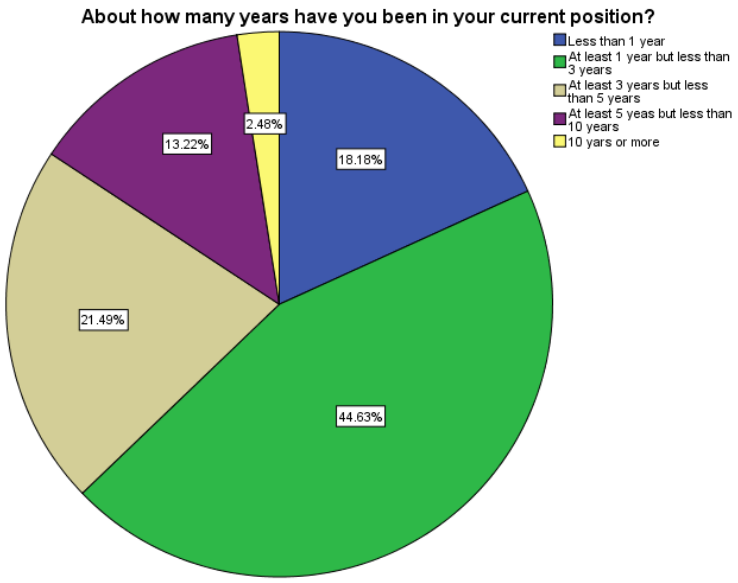
Figure 7: Current geographic location of the subsidiary organisation



5.2.6 Tenure in the current position

The majority of the respondents indicated that they had been in the current position for at least one year but less than three years at 44.6% (N=54) followed by those were in the current position for about at least three years but less than five years at 21.5% (N=26). About 18.2% (N=22) of the respondents were in the current position for less than one year and 13.2% (N=16) were in the current position for at least five years but less than 10 years. There were fewer respondents that were in their current position for 10 years or more with 2.5% (N=3).

Figure 8: Tenure in the current position



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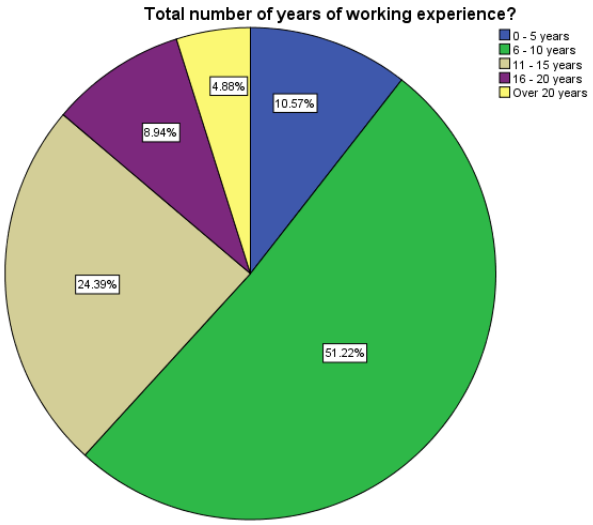
5.2.7 Years of working experience

The highest number of respondents had about 6-10 years of working experience (51.2%, N=63) and about 24.4% (N=30) had 11-15 years of working experience. There were about 10.6% (N=13) of respondents who had 0-5 years of working experience and also 8.9% (N=11) with 16-20 years of experience. Only about 4.9% (N=6) had a working experience of over 20 years. See Figure 9 below.

Figure 9: Years of working experience



5.2.8 Number of countries in which the respondents have worked

During the survey, the respondents were requested to indicate the number of countries in which they have worked with their organisation. A larger number of respondents indicated that they worked in two to four countries with 47.6% (N=59) while 45.2% (N=56) worked in one country. Only about 7.3% (N=9) worked in five countries or more.

5.2.9 Principal industry of the organisation

The highest number of respondents with 26.3% (N=31) indicated that the principal industry of their organisation was finance and financial services followed by 25.4% (N=30) of the respondents which was utilities, energy and extraction and 11.9% (N=14) of the respondents which was telecommunication, technology and ICT. There was about 7.6% (N=9) of the respondents which indicated that their principal industry was health and pharmaceuticals and food and beverages with the same equal percentage. About 5.9% (N=7) of the respondents indicated that their principal industry was construction, machinery and homes. There was about 2.5% (N=3) for manufacturing and also for insurance. Only about 1.6% (N=2) respondents whose the principal industry was automotive. There were four principal

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industries that the respondents indicated having the same percentage of 0.8% (N=1) these are advertising and marketing, education, entertainment and leisure, and non-profit.

5.2.10 Type of organisation structure

53.2% (N-66) of the respondents indicated that their organisation structure was hierarchical while 46.8% (N=58) indicated that they were from matrix organisations.

5.2.11 Size of organisation (number of employees)

A majority of the respondents indicated that the size of their organisation had over 1000 employees with 66.7% (N=82) and about 10.6% (N=13) of the respondents had about 0-50 employees. Also 10.6% (N=13) for those who had 501-1000 employees. Only about 12.1% (N=15) of the respondents their organisation had about 201-500 employees.

5.2.12 Tenure of the organisation

There were 32.3% (N=40) of the respondents who indicated that their organisation has been existing for over 100 years while 26.6% (N=33) indicated that their organisation has been existing for 51-100 years. About 21.8% (N=27) their organisation has been existing for about 21-50 years and 19.4% (24) indicated that their organisation has been existing for about 0-20 years (**Error! Reference source not found.**.

5.2.13 Number of Product/Service subsidiaries in the organisation

The majority of the respondents had about five years or more product/service subsidiaries in the organisation and 16.1% (N=20) had about 2-5 years. Only a few respondents had about less than 2 years with 5.6% (N=7).

5.2.14 Number of countries in which the organisation operates (subsidiaries)

There was a high number of respondents who indicated that their organisation operates in five countries or more with 81.5% (N=101) and 9.7% (N=12) of the respondents their organisation operated in two to four countries.

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5.3 Research Question 1:

Determining which structure has more effective information flow (matrix vs. hierarchical)?

5.3.1 Factor Analysis

The convergence was done in five iterations. Furthermore, the KMO test, developed by Kaiser-Meyer-Olkin was used to measure for sampling adequacy (Pallant, 2005) and it was found to be acceptable. In addiiton, the Bartlett's Test of Sphericity (Pallant, 2005) was performed and found to be acceptable for this analysis (Table 2).

Table 2: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.689
Bartlett's Test of Sphericity	Approx. Chi-Square	680.747
	Df	153
	Sig.	.000

The analysis reveals a five component structure, with Eigen values over 1 that account for 63.996% of the variance. Eigen values represent the total variance explained by each factor. This was an acceptable loading factor as it was above 0.5 in line with guidelines given in literature (Hair et al., 2010). The five factors developed were termed:

- Feedback discussions
- information management
- interaction difficulty
- operating environment knowledge
- goal management

The variables extracted for each factor are presented in Appendix C.2. The variables were further analysed using the Cronbach Alpha to determine which factors were reliable to be analysed further in answering RQ1.

5.3.2 Cronbach Alpha (Reliability of the factors)

The five factors extracted were analysed for reliability. Based on the 0.6, cut-off, results from analysing four out of five constructs on information flow that have been extracted, show an acceptable level of reliability when the Craonbach Alpha test is conducted (See Table 3). These factors produce and found to be reliable were:

- feedback discussions
- information management,
- interaction difficulty
- knowledge of the operating environment

This confirms that the questions grouped were asking the same construct (see Table 3)

Table 3: Results from the Cronbach Test

Construct	Items	Cases	Cronbach Alpha*	Rule of thumb (George & Mallery, 2003)
Feedback discussions	4	119	0.816	Good
Information management	4	122	0.773	Acceptable
Interaction difficulty	2	119	0.6848	Acceptable
Operating environment knowledge	3	117	0.658	Acceptable**
Goal management	4	120	0.582***	Poor

*Based on Rule of Thumb by George & Mallery (2003);

**Questionable by George & Mallery and acceptable by Pallant (2005), Kline (2005) and Garson (2007).

The fifth exception of "goal management", was initially found to have a poor reliability result. There was a successive elimination of some of the items or questions from the sub-construct to try determining if an acceptable reliability value would be obtained (Pallant, 2005), but this subsequent alternative of eliminating some of the individual items which were deemed unreliable still did not yield reliable results that could provide an acceptable Cronbach alpha coefficient (Table 3) This low reliability occurs even when there are items that are deleted, with a value of less than 0.6. This indicates that the questions grouped where not related to the same construct, and thus this construct is not used during further analysis.

Table 4: Reliability of the factors

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
To what extent did individuals in the other subsidiaries/business units hinder your subsidiary in performing functions during the last 3 months?	10.38	6.892	.389	.488
During the past 3 months to what extent has your subsidiary/business unit changed or influenced the service or operations of another subsidiaries/ business units?	9.83	6.947	.330	.543
How well informed are you about the specific goals and services of the other subsidiaries or business units in the organisation.	9.53	7.814	.420	.479
During the past 3 months how frequently have people in your subsidiary/unit been in contact with people in the other subsidiaries/business units?	8.97	7.579	.334	.533

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5.3.3 Descriptive analysis for information flow

One of the aspects for determining the effectiveness of an organisation's information flow was conducted via a set of questions which sought answers when the respondents were evaluated on the information flow within or external to the organisations.

Most of the respondents responded to the questions as being in some extent or considerable extent range. These are the top four questions that were evaluated:

- To what extent is the level of technology intensity in your organisation (including IT and ICT networks)? (88.8%)
- How well are you informed about the business environment outside your organisation i.e. market, economic and political awareness? (85.5%)
- To what extent do you follow what's happening in your industry (skills, market information, procedures) and try to adapt that within your business? (79.0%)
- To what extent is the organisation efficient and effective in gathering data? (75.9%)

Eighty-eight per cent of the respondents indicated that the level of technology intensity of their organisations were to "some or considerable extent", while 85.5% of the respondents indicated that they were informed to "some or considerable extent" about the business environment outside their organisation. About 79.0% of the respondents who indicated that it was to "some or considerable extent" that they followed what is happening in their industry and try to adapt with their businesses and 75.9% indicated that it was to "some or considerable extent" that the organisation was efficient and effective in gathering data.

Appendix D.1 gives an illustration of the concentration or spread of responses from the questions relating to information flow. It shows that the concentration of responses was leaning towards the maximum ranking of the Likert's scale, for the majority of the questions.

Following are the bottom four questions in terms of the most disagreed with:

- *How much difficulty do you experience in getting ideas clearly across to people in other subsidiaries? (72.6%)*
- *During the past 3 months, how often do you receive or send written reports or documents from or to Parent-Headquarters?* (54.9%)
- *During the past 3 months, how often do you receive or send written reports or documents from or to other subsidiaries /business units?* (53.2%)
- *During the past 3 months, how often did you receive or send written reports or memos from or to other organisations or agencies?* (50.0%)

About 72.6% of the respondents indicated that they experienced difficulty to "no extent or little extent" in getting ideas clearly across to people in other subsidiaries. Also 54.9% of the respondents indicated that it was to "no or little extent" that they often receive or send written

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reports or documents from and to parent-headquarters during the past three months. There were about 53.2% who indicated that it was to “little or no extent” that they often receive or send written reports or documents from or to other subsidiaries in the past three months and also about 50.0% of the respondents indicated that it was to “little or no extent” that they often receive or send written reports or memos from or to other organisations or agencies during the past three months.

5.3.4 Test for Difference

A t-test analysis was initially done to ascertain the difference between the matrix and hierarchical structures. The p-value that was less than .05 indicates that the null hypothesis should be rejected and that the alternative hypothesis, which states that there exists a difference between the structures, should be accepted. Before the t-test could be done, the assumption of normality was done using Shapiro-Wilk test (Table 5). Based on the results of the Shapiro-Wilk test, the data was non-normal, and since it violates the normality test, a Man-Whitney U test, which is a non-parametric equivalent of the t-test was used to test the hypothesis.

Table 5: Results from the Shapiro-Wilk Test for normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Feedback discussions	.090	110	.027	.957	110	.001
Information Management	.124	110	.000	.938	110	.000
Interaction difficulty	.198	110	.000	.894	110	.000
Operating environment knowledge	.165	110	.000	.893	110	.000

a. Lilliefors Significance Correction

The hypothesis test summary indicates that all four constructs’ population means that the matrix structure and hierarchical structure are equal, with p-values higher than .05.

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Table 6: Hypothesis Test Summary

Null Hypothesis	Test	Sig.	Decision
The distribution of "Feedback discussions" is the same across categories of "How best can you describe the type of your organisational structure?	Independent-Samples Mann Whitney U Test	0.198	Retain the null hypothesis
The distribution of "Information management" is the same across categories of "How best can you describe the type of your organisational structure?	Independent-Samples Mann Whitney U Test	0.979	Retain the null hypothesis
The distribution of "Interaction difficulty" is the same across categories of "How best can you describe the type of your organisational structure?	Independent-Samples Mann Whitney U Test	0.243	Retain the null hypothesis
The distribution of "knowledge of the operating environment" is the same across categories of "How best can you describe the type of your organisational structure?	Independent-Samples Mann Whitney U Test	0.155	Retain the null hypothesis
Significance level is .05			

Table 7 shows the means rank and the sum of ranks between the two group which are matrix and hierarchical organisational structures, while Table 8 presents the test statistics.

Table 7: Rank Table

	How best can you describe the type of your organisational structure?	N	Mean Rank	Sum of Ranks
Feedback discussions	Matrix	56	64.30	3601.00
	Hierarchical	63	56.17	3539.00
	Total	119		
Information Management	Matrix	58	61.41	3562.00
	Hierarchical	64	61.58	3941.00
	Total	122		
Interaction difficulty	Matrix	55	56.14	3087.50
	Hierarchical	64	63.32	4052.50
	Total	119		
Operating environment knowledge	Matrix	55	63.67	3502.00
	Hierarchical	62	54.85	3401.00
	Total	117		

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Table 8: Test Statistics

	Feedback discussions	Information Management	Interaction difficulty	Operating environment knowledge
Mann-Whitney U	1523.000	1851.000	1547.500	1448.000
Wilcoxon W	3539.000	3562.000	3087.500	3401.000
Z	-1.287	-.026	-1.159	-1.421
Asymp. Sig. (2-tailed)	.198	.979	.246	.155

a. Grouping Variable: How best can you describe the type of your organizational structure?

5.3.5 Summary of Research Question 1

Based on the outcome of the test, the following results were revealed:
The matrix structure had a mean rank for feedback for discussion with a value of 64.30 compared to hierarchical with 56.17. The Mann-Whitney U test was 1523, z = -1.287 with a *p*-value of .198. It can be inferred that although the mean rank for feedback discussion in a matrix structure was higher, it was not statistically significant when compared to an hierarchical structure ($U = 1523$, $p = .198$).

The hierarchical had a mean rank of 61.58 (sum of ranks = 3941) for information management compared with matrix structure with a value of 61.41 (sum of ranks = 3562). The Mann-Whitney U test was 1851, z = -0.26 with a *p*-value of .979. Although, this was the outcome, the mean rank for information management was not statistically significant compared to a matrix structure ($U = 1851$, $p = .979$).

The hierarchical had a mean rank for interaction difficulty for discussion with a value of 63.32 (sum of ranks = 4052) compared with matrix structure with a value of 56.14 (sum of ranks = 3087). The Mann-Whitney U test was 1547, z = -1.159 with a *p*-value of .246. Although, this was the outcome, the mean rank for interaction difficulty was not statistically significant compared to a matrix structure ($U = 1547$, $p = .246$).
The matrix structure had a mean rank for knowledge of operating environment with a value of 63.67 compared to hierarchical with 54.85. The Mann-Whitney U test was 3041, z = -1.421 with a *p*-value of .155. It can be concluded that the mean rank for operating environment knowledge in a matrix structure was higher, it was not statistically significant compared to an hierarchical structure ($U = 3041$, $p = .155$).

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Although, there was no statistically difference between the matrix and hierarchical structures on information flow, the feedback discussion and operating environmental knowledge had higher flows, while in information management and interaction difficult were higher in the hierarchical structure.

5.4 Research Question 2

Determining which structure has more effective evidence-based decision capabilities (matrix vs. hierarchical)?

5.4.1 Cronbach Apha

There were two existing constructs which were developed to determine the evidence-based decision-making process of the two different structures:

- Employee influence on decision making
- Decision making process flow.

These constructs had six and seven questions respectively, and a reliability test was done to confirm if these items are asking the same thing. Both constructs were found to be reliable with α = 0.744 and α = 0.854, for employee influence and decision making process followed, respectively.

Table 9: Results of Cronbach Alpha

Construct	Items	Cases	Cronbach Alpha	Rule of thumb (George & Mallery, 2003)
Employee influence on decision making	6	120	0.744	Acceptable
Decision making process followed	7	124	0.854	Good

The normality test for the two constructs indicates that there was normality for decision making process followed, while the data for employee influence was non-normal (Table 10).

Table 10: Test for normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Employee influence on decision making	.137	120	.000	.916	120	.000
Decision making process followed	.087	120	.028	.981	120	.087

a. Lilliefors Significance Correction

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5.4.2 Test for difference

5.4.2.1 Employee influence on decision making.

The Mann-Whitney U was employed to test the organisational structure, while the t-test was used to determine the influence of the structure on the decision making procedures followed.

Looking at the employee influence on decision making in an organisation, the hypothesis test summary indicates that the population means for both matrix structure and hierarchical structure are equal, with p-values higher than .05. (Table 11).

Table 11: Hypothesis Test Summary

Null Hypothesis	Test	Sig.	Decision
The distribution of employee influence on decision making is the same across categories of "How best can you describe the type of your organisational structure?	Independent-Samples Mann Whitney U Test	0.824	Retain the null hypothesis

Significance level is .05

Table 12 indicates that the hierarchical had a higher mean rank for employee influence on decision making with a value of 61.17 (sum of ranks = 3853) compared with matrix structure with a value of 59.76 (sum of ranks = 3406).

Table 12: Employee influence on decision making

Ranks				
	How best can you describe the type of your organizational structure?	N	Mean Rank	Sum of Ranks
Employee influence on decision making	Matrix	57	59.76	3406.50
	Hierarchical	63	61.17	3853.50
	Total	120		

The Mann-Whitney U test was 1547, z = -1.159 with a *p*-value of .246 (Table 13). Although this was the outcome, the mean rank for employee influence on decision making was not statistically significantly higher compared to matrix structure (*U* = 1547, *p* = .246).

Table 13: Test Statistics

Test Statistics[a]	
	Employee influence on decision making
Mann-Whitney U	1753.500
Wilcoxon W	3406.500
Z	-.222
Asymp. Sig. (2-tailed)	.824

a. Grouping Variable: How best can you describe the type of your organizational structure?

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5.4.3 Decision making process

In addition to ***employee influence on decision making***, the ***decision making process followed*** in the matrix structure and hierarchical structure was also evaluated. As already mentioned, the t-test was used for the investigation. Having tested the normality of the sample, the homogeneity of the variance was then tested using Leven's test of Equality of variance. This test provides an F-test and p-value for significance. The F statistics = .120 with p-value = 0.730. The p-value was found to be greater than 0.05, which indicates that the groups can be treated the same and thus a t-test can be used.

Table 14: Levene's test for equality of variances

		Levene's Test for Equality of Variances	
		F	Sig.
Decision making process followed	Equal variances assumed	.120	.730
	Equal variances not assumed		

The results of the t-test are presented in Table 15 and Table 16 which are group statistics and t-test for equality of means, respectively.

Table 15: Group Statistics

	How best can you describe the type of your organizational structure?	N	Mean	Std. Deviation	Std. Error Mean
Decision making process followed	Matrix	58	24.3103	5.23553	.68746
	Hierarchical	66	24.0455	5.36493	.66038

Table 16: Test for equality of means

		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Decision making process followed	Equal variances assumed	.277	122	.782	.26489	.95477	-1.62518	2.15496
	Equal variances not assumed	.278	120.645	.782	.26489	.95326	-1.62239	2.15217

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The analysis of the normality was determined using Shapiro-Wilk and the results confirmed normality. In addition, the homogeneity of variance as assessed by Levene's test shows homogeneity. Therefore, at 95 % confidence interval (CI), the mean difference between the matrix and hierarchical structure on decision making process followed was not significant : t(122) = 0.277, p = .782 with a difference of .265 (95% CI, -1.62 to 2.15)

In addition to these two constructs, there were three questions that were used to evaluate the difference between these two organisational structures, insofar as the level of decision making and feedback loop on decisions is concerned. All of these questions did not confirm normality and hence the Mann Whitney U test was used.

Table 17: Test for normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Every employee is empowered to make decisions that will influence the organisation?	.227	124	.000	.879	124	.000
Operational decisions making only happens at the Top Management?	.357	124	.000	.635	124	.000
Middle to Junior management is often consulted during operational decision making?	.415	124	.000	.605	124	.000
How long is feedback loop on operational decision making?	.239	124	.000	.869	124	.000

a. Lilliefors Significance Correction

The mean ranks for "*every employee is empowered to make decisions that will influence the organisation*", organisational decisions making only happens at top management and length of feedback loop on operational decision making, the matrix structure was found to be higher, though not statistically significant with all p-values higher than .05. (see Apendix D.1)

Table 18 provides the test statistics for the "**decision making process**" construct.

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Table 18: Test Statistics

	Every employee is empowered to make decisions that will influence the organisation?	Operational decisions making only happens at the Top Management?	Middle to Junior management is often consulted during operational decision making?	How long is feedback loop on operational decision making?
Mann-Whitney U	1868.000	1736.000	1816.000	1825.500
Wilcoxon W	3579.000	3947.000	3527.000	4036.500
Z	-.241	-1.031	-.592	-.460
Asymp. Sig. (2-tailed)	.809	.302	.554	.646

a. Grouping Variable: How best can you describe the type of your organizational structure?

5.4.4 Summary of Research Question 2

The two sub-constructs of evidence-based decision making, 'employee influence on decision; making and 'decision making process' were found to be reliable and accurate enough to be used for frther analysis with a Cronbach Alpha value of 0.74 and 0.854 respectively.This is fairly above the permissible value 0.6.

The results show that although the mean ranks of the matrix appeared to be higher than those of the hierarchical structure, there is no statistically significant difference between the matrix and hierarchical structure when it comes to their influence on the four sub-constructs of information flows. This was evident as all their values of p were greater than 0.05.

5.5 Research Question 3

***Determine which structure has better effective organisational configuration (matrix vs. hierarchical*)?**

5.5.1 Descriptive analysis of the organisational configuration results

The mean rank scores indicate that respondents have similar information flows in both the matrix and hierarchical organisations.

5.5.2 PCA

As indicated in section 4.13.2 of the methodology, there was no PCA conducted on the "organisational configuration" construct since it consisted of items which had different variable outcomes which could not be reduced further to small sub-constructs. Therefore the

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reliability test was performed for each individual question and all the scores measured appeared to be in good order.

5.5.3 Test for difference

For all these questions, the test for normality using Shapiro-Wilk shows a non-normal data. As a result the Mann-Whitney U was used for the evaluation.

Table 19: Normality results

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
What is the organization's supervisor-staff ratio?	.309	113	.000	.726	113	.000
During the past 3 years, how many times has the organisation been restructured or redesigned as way of improving operational efficiency?	.352	113	.000	.743	113	.000
What is the extent of this organisational re-design?	.414	113	.000	.644	113	.000
How flexible is the organisational structure in responding to the changing environment or market?	.172	113	.000	.915	113	.000
How flexible are the employees in adapting to the latest business techniques, processes and principles?	.189	113	.000	.915	113	.000
How many subsidies or divisions have you worked in within your organisation?	.308	113	.000	.744	113	.000
To what extent do you think that the existing standards and processes in your organisation limit your maximum output?	.210	113	.000	.893	113	.000
Which of the following best describe the structural dimension of the subsidy you are working in?	.328	113	.000	.743	113	.000
a. Lilliefors Significance Correction						

The Mann Whitney U test shows that none of the questions shows a statistical significant difference between the matrix structure and hierarchical structure on the effectiveness of organisational configuration (Table 20).

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Table 20: Test Statistics

Test Statistics[a,b]

	What is the organization's supervisor-staff ratio?	During the past 3 years, how many times has the organisation been restructured or redesigned as way of improving operational efficiency?	What is the extent of this organisational re-design?	How flexible is the organisational structure in responding to the the changing environment or market?	How flexible are the employees in adapting to the latest business techniques, processes and principles?	How many subsidies or divisions have you worked in within your organisation?	To what extent do you think that the existing standards and processes in your organisation limit your maximum output?	Which of the following best describe the structural di mension of the subsidy you are working in?
Mann-Whitney U	4.000	3.000	3.000	1.500	2.500	3.500	.500	.500
Wilcoxon W	7.000	13.000	6.000	11.500	5.500	6.500	3.500	10.500
Z	.000	-.559	-.707	-.363	-.750	-.250	-1.750	-1.750
Asymp. Sig. (2-tailed)	1.000	.576	.480	.717	.453	.803	.080	.080
Exact Sig. [2*(1-tailed Sig.)]	1.000[c]	.800[c]	.800[c]	.800[c]	.533[c]	.800[c]	.133[c]	.133[c]

a. What is the organization's supervisor-staff ratio? = More than 1:20

b. Grouping Variable: How best can you describe the type of your organizational structure?

c. Not corrected for ties.

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5.5.4 Test for association

Pearson's chi-square test was used on Q44 of the survey to test for "flexibility" by determining whether there exists a relationship between organisational structure and the level of flexibility for employees in adapting to the latest business techniques, processes and principles.

The results as depicted in Table 21 show a Pearson Chi-square value of $p < 0.05$ which confirms that the association is statistically significant. This implies that there is a relationship between the structure of an organisation and its level of flexibility when it comes to adapting to the latest business techniques, process and principles.

Table 21: Pearson's chi-square results on flexibility and organisational structure

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.534[a]	4	.049
Likelihood Ratio	10.431	4	.034
Linear-by-Linear Association	.188	1	.664
N of Valid Cases	123		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 4.24.

To dertermine the level of association, Cramer's V test resulted in a p-value of 0.49 as shown in Table 26, thereby bordering low and moderate. This implies that there is a low positive association in that relationship.

Table 22: Cramer's V results on flexibility vs organisational structure

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.278	.049
	Cramer's V	.278	.049
N of Valid Cases		123	

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5.5.5 Summary of RQ3

The results show that there was no statistical difference between the matrix and hierarchical structure when it comes to their influence on the confugration of the organisation, as evidence by the outcome of the Mann-Withney-U test with a value of p>0.05. However, it must be acknowledged that the results do confirm that the structure has an influence on the 'flexibility' of employees to adapt to the latest business techniques, processes and principles, as seen by the statisticall outcome on Q43 of the survey, as given Pearson's CHisquare value of 0.049. .

5.6 Research question 4: Strategy formulation process

Which organisational structure has a more effective strategy formulation process?

5.6.1 Cronbach Alpha

The Cronbach test for reliability was conducted on the data gathered from determining which structure had a better organisational configuration, based on eight nominal outcomes. As indicated in section 4.13.2 of the methodology, there was no PCA conducted on the "strategy formulation" construct since it consisted of items which had different variable outcomes which could not be reduced further to small sub-constructs. Therefore the reliability test was performed for each individual question and all the scores measured appeared to be in good order.

5.6.2 Test for difference

A Pearson Chi Squared test was done to establish whether there were differences between the strategic orientation for the different organisational structure (matrix vs. hierarchal). As indicated, this method was selected since there were categorical variables in question (Pallant, 2005).

The case summary is provided in Table 23 whilst **Appendix F** provides the case summary of the inferential analysis.

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Table 23: Case Summary

	Cases					
	Valid		Missing		Total	
	-N	Percent	N	Percent	N	Percent
Is there a formal long term plan/strategy in place which is familiar to most employees? [5 - 10 Years] * How best can you describe the type of your organizational structure?	124	100.0%	0	0.0%	124	100.0%
Is there a formal short to medium term plan/strategy in place which is familiar to most employees? [2 to 5 years] * How best can you describe the type of your organizational structure?	123	99.2%	1	0.8%	124	100.0%
How often is the strategy reviewed in the organisation? * How best can you describe the type of your organizational structure?	120	96.8%	4	3.2%	124	100.0%
What approach is used to formulate strategy in the organisation? * How best can you describe the type of your organizational structure?	123	99.2%	1	0.8%	124	100.0%
Who is involved in the strategy formulation process? * How best can you describe the type of your organizational structure?	123	99.2%	1	0.8%	124	100.0%
What is the parent organisation's extent of orientation to local strategies in foreign subsidiaries (i.e. Localization content)? * How best can you describe the type of your organizational structure?	122	98.4%	2	1.6%	124	100.0%
What is the parent organisation's extent of orientation to its global strategic orientation in foreign subsidiaries (global strategy content)? * How best can you describe the type of your organizational structure?	122	98.4%	2	1.6%	124	100.0%
Which strategy takes precedence in the organization's foreign subsidiaries? * How best can you describe the type of your organizational structure?	121	97.6%	3	2.4%	124	100.0%

The outcomes of the test are presented in **Appendix F.**

- **Existence of formal strategic plan.** There were two questions that asked about the formal strategic plan with regards to whether it was in place or not, as well as determining if employees were familiarised with it. This was based on long and short to medium term plans.
    - In determining the existence of a formal long term plan/strategy (5-10 years) in place which is familiar to most employees, the cross tabulation shows that 69% of the participants within the hierarchical structure have a long term strategy compared to 30.3% who do not have a long term formal strategy (Table T). This is fairly similar to the matrix structure where 60.3% compared

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to 39.7% who do not have the formal strategy. When looking at the Chi square test there was no significant difference with *p* value >.05, that was found between the different structures when it comes to having a long term strategy that is familiar to most employees: $\chi(1) = 1.192$, $p = .275$

- In determining the existence of a formal short to medium term plan/strategy (2-5 years) which is familiar to most employees, the cross tabulation tables show that 87.7% of the participants have a short term and medium term strategy in the organisations with an hierarchical structure compared to 12%, who do not. This is similar for matrix structure. Therefore this infers that there is no difference between the two organisational structures when it comes to their influence on the strategic orientation plans or horizon. This is confirmed by Chi-squared ($\chi(1) = 1.192$, $p = .275$.

- **Frequency of strategy revision**. In both the matrix and hierarchical structures, the revision was mainly once a year (Matrix = 50.0% Hierarchal = 59.4%) followed by twice a year which was about 20%. There was no significant difference between these two types of strategy when comparing there frequencies, and this was confirmed by Chi square with high p -value. $\chi2(4, 120) = 3{,}598$, $p = 0{,}463$
- **Approach to strategy formulation**. There was minimal difference between the groups based on top down or a combination of top down and bottom up, and across the organisational structure which is matrix vs. hierarchical.
- **Involvement of employees in the strategy formulation process**. There was a difference between the level of personnel that was involved in the strategy formulation process, with board and senior management involvement higher in a matrix structure (60.3%) compared to an hierarchical structure which was 41.5%. This was about 20% difference. Hierarchical structures showed a higher involvement of the junior and senior managers in the strategy formulation processes (Matrix = 12.1% vs. Hierarchical = 24.6%). This was confirmed by a significance in Chi-square with p value of < 0.05: $\chi2(3, 123) = 10{,}545$, **p =0,014.** (See Table 24 below for results)
- **Parent orientation. The two questions that dealt with orientation, were both not showing significant difference between the two organisational structure:**
  - What is the parent organisation's extent of orientation to local strategies in foreign subsidiaries (i.e. localisation content)? : $\chi2(4, 122) = 0{,}607$, $p = 0{,}962$
  - What is the parent organisation's extent of orientation to its global strategic orientation in foreign subsidiaries (global strategy content)?: $\chi2(4, 122) = 5{,}597$, $p = 0{,}231$

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- **Precedence strategy in the organisation's foreign subsidiaries**. Similar to the aspects of the parent orientation, there was no significant difference between the organisational structure when it comes to the strategy that takes precedence in the organisation's foreign subsidiaries: $\chi 2(2, 121) = 1{,}109$, $p = 0{,}121$

The level of personnel who were involved in the strategy formulation was the only aspect of strategy orientation that had a significant difference between the two organisational structures. The rest of the results that did not show any significant dinffierence between the matrix and hierarchical structure are shown in Appendix F.

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Table 24: Chi-square results for involvement in "Strategy Formulation"

Who is involved in the strategy formulation process?	Board level	Count	4	14	18	$\chi2(3, 123) = 10,545, p =0,014$
		% within How best can you describe the type of your organizational structure?	6,9%	21,5%	14,6%	
		% of Total	3,3%	11,4%	14,6%	
	Board and Senior Management	Count	35	27	62	
		% within How best can you describe the type of your organizational structure?	60,3%	41,5%	50,4%	
		% of Total	28,5%	22,0%	50,4%	
	Board, Senior and Middle management	Count	12	8	20	
		% within How best can you describe the type of your organizational structure?	20,7%	12,3%	16,3%	
		% of Total	9,8%	6,5%	16,3%	
	Board, Senior, Middle and Junior Management	Count	7	16	23	
		% within How best can you describe the type of your organizational structure?	12,1%	24,6%	18,7%	
		% of Total	5,7%	13,0%	18,7%	

5.7 Overall Summary of the Findings

The following section gives a summary of the findings as per research question:

5.7.1 Research question 1

A PCA analysis was done on the variables of the “information flow” constucts and subsequently developed five factors . These five factos that were reduced to four when the reliability test test were run, as the first factor failed the reliability test of the Cronbach.

The inferential statistic ran using the Mann-Whitney U test shown that although the matrix structure seemed to produce higher ranking values of the mean, there was no significant statistical difference between the means of the matrix and hierarchical structures.

5.7.2 Research question 2

The Cronbach test conducted on the existing constructs of “evidence-basd decision making” proved their realiability and two of the sub-constructs where further analyses to give inferential statistics.

Similar to research question1, the results from the Mann-Whitney-U test conducted showed that although the matrix structure seemed to produce higher ranking values of the mean, there was no significant statistical difference between the means of the matrix and hierarchical structures.

5.7.3 Research question 3

The inferential statistic ran using the Mann-Whitney U test shown that although the matrix structure seemed to produce higher ranking values of the mean, there was no significant statistical difference between the means of the matrix and hierarchical structures.

However,when the test for assocaiteion was conducted on anayssing the ilfuence or organisational structure on its flexibility to adapt to the chaning environment and process (Q44), there was empirical evidence to suggest that the orgnsiational structure has an influence on its flexibility to to adapt to the environment and its conditions, although this association was found to lowly positive (0.049).

5.7.4 Research question 4

The “strategy forumation” construct was analysed for both the matrix and heirachical structure. When it come to the influence of the organisational structure on its ability to implement a “long term strategy”, the results infer that there is no difference between the two organisational structures when it comes to their influence on the strategic orientation plans or horizon. This is confirmed by Chi-squared ($\chi(1) = 1.192$, $p = .275$. Furthermore, there was no significant difference between these two types of strategy when comparing

there ‘frequency of strategy revision’, and this was confirmed by Chi square with high p - value. $\chi 2(4, 120) = 3,598$, $p = 0,463$.

When it comes to “employee involvedment”, hierarchical structures showed a higher involvements of the lower employees in the strategy formulation process and there was a statistically significant difference between the matrix and hierarchical structures.

6 CHAPTER 6: DISCUSSION OF FINDINGS

6.1 Introduction

This chapter provides a comprehensive discussion about the relevant literature reviewed in Chapter Two, with findings from Chapter Five in order to deliberate on the inferences of the research questions presented.

The overarching objective of this research study was to understand the fit between strategy and structure of an organisation, by using the information processing perspective to determine which structure (matrix vs. hierarchical) has more effective information processing capabilities and evidence-based decision making practices, in the context of the MNCs operating in globalised environments.

The aim of the research was to determine how the organisational structure facilitates or hinders the information flow and decision making in an organisation. The research questions were developed from the body of existing literature on understanding the strategy-structure fit of MNCs, from an information processing view, with some findings showing that the matrix structure's flat configuration allows for efficient information flow and consequently, giving it the ability to implement complex transnational strategies (Egelhoff et al., 2013).

However, some researchers in this area have produced inconclusive findings and unanswered questions when it comes to applicability and superiority of the matrix (Qiu & Donaldson, 2012). This is largely due to the fact that there is a blur regarding when it is appropriate to use a matrix organisation as well as how to manage it more effectively. This possibly could be the reason why the matrix structures have been abandoned by some established companies over the years in the US and Europe (Egelhoff et al., 2013).

One could possibly argue that the MNCs used in most of the research studies found in literature, were operating largely in the European and American environments. Due to time limitations, the sampling used in this study was largely targeted at MNCs operating in emerging economies (mostly South Africa in this case), and therefore there is some research interest when it comes to comparing the results obtained with those of the past literature.

Therefore the main research question in this study compared the matrix and hierarchical structures in order to determine which structure has more effective and efficient information processing capabilities? The supporting research questions were as follows:

- Which structure allows for more information flow between the environment and the organisation?
- Which structure facilitates more efficient evidence-based decision making process?
- Which structure has a more effective configuration when it comes to adaptability and flexibility?
- Which structure has a more effective strategy formulation processes or capacity?

Therefore this chapter is divided into sub-sections that relate specifically to the discussions of the demographics and supporting research questions presented above.

6.2 Demographics

6.2.1 Sampling

As presented in Chapter Five, demographic information was collected using a total of 14 questions or variables that were used to profile the respondents. The quantitative descriptive data from these respondents constituted 46.7% middle managers, 37% C-level or executives and the rest in lower levels of management. In most cases, when it comes to understanding the overall relationship between HQ and subsidiary levels of an MNCs, one would expect the executives or C-level management to have a much better understanding of strategy-structure fit in the organisation. Therefore, since the middle-management constituted the majority of the respondents, there is a possibility of a Type II error bias (Field, 2013) which could have specified that a condition failed which in reality it was successful and this could have led to a false negative of the inferential statistics. However, the sample size was varied enough to mitigate against some of these error types. Also, the demographics of the sample population considered the data gathered to be suitable for analysis and making inferential statistics that will add to the body of knowledge on the information processing capabilities and decision-making processes of matrix and hierarchical structures.

The majority of the respondents were from large (66.5 % of the organisations with over 1000 employees) and established (operating for over 100 years) MNCs operating in the South African environment and also in more than five other geographic regions.

6.2.2 Current job level

The current job level of the respondents shows that the majority of the respondents (almost 47%) were in middle management, as compared to almost 38% at executive level. This research analyses the information processing capabilities of an MNC, looking at the HQ-subsidiary relationship. Therefore there is a high likelihood that mostly employees working at senior management or executive level are likely to understand the alignment between strategy and structure more than those working at middle-management or below . One could therefore argue that there is likelihood of response bias (Pallant, 2005) resulting from the respondents not having completely comprehended the actually alignment between strategy and structure of their respective organisation, leading to these biased responses. This is extremely prevalent in questionnaire based research surveys where the researcher has no face-to-face or direct interaction with the respondent (Simon & Goes, 2013). This could potentially explain why there were almost similar responses for the matrix and hierarchical structures and may have contributed somehow to the validity of the survey results. Also , there have been studies that have been conducted which have shown that opinions regarding the challenges realted to matrix structures differ between top and middle level management (Hanover Research, 2013). Therefore since the majority of respondents were middle management, it is possible to infer that they may not have had a clearer understanding of the strategis elements or process to differentatite between the two forms of structures.

6.3 Research question 1: Information flow

Which structure allows for more information flow between the environment and the organisation?

Most of the literature presented by past researchers has contended that the structure of an organisation does have an influence on its information processing capabilities (Galbraith, 1974; Wolf & Egelhoff, 2001; Qiu & Donaldson, 2012), a perspective which is often used to explain the alignment between strategy and structure of an organisation. Furthermore, although the matrix and hierarchical structures have been the most common forms used by most MNCs to align their global strategies (Ocasio & Thornton, 2006), the matrix structure is still argued to be the preferred one over the hierarchical due its presupposed superior information processing capabilities in uncertain environments (Egelhoff et al., 2013; Qiu & Donaldson, 2012).

However, there have been some conflicting views regarding the dominance of the matrix structure when it comes to its ability to adapt seamlessly to the complex and rapidly changing operating environment to which most MNCs have found themselves exposed in

recent years (Galbraith, 2010). Although they were known for enhancing lateral relationships and communication between the units, some companies that initially introduced the matrix structure into their organisations have since abandoned it due to its associated challenges of ambiguity and lack of accountability that are introduced by the dual reporting mechanisms and so forth (Cummings & Worley, 2009; Egelhoff et al., 2013). Galbraith also argues that some of the reasons why the matrix structure has failed in some organisations is due to bad management which often leads to poor implementation of the strategy which the structure is meant to execute (Galbraith, 2009). On the other hand, the hierarchical structure is considered to be suitable for enabling decision making due to the clarity of authority and responsibilities at each level of the organisational structure (Deville et al., 2014). This consequently enables each level to focus and become specialists in achieving each level's goals.

Therefore the aim of this construct was to determine which structure, between matrix and hierarchical, results in a more effective and efficient flow of information which is key for making strategic decisions.

6.3.1 Descriptives

Looking at the information flow sub-constructs that were developed in this research (frequency of communication, information management, ease of interaction and knowledge of the operating environment), the information management construct seems to notable (though there's no significant statidtical difference) when it comes to influencing the information flow since its average means rank rank highly for both the matrix and hierarchical structures. This could be poibbily be explained in relationa to globalisation ignited a rapid increase in technological advancements in the IT and ICT sector and thus forced most organisations to procure efficient and effective data management, processing and storage systems that will align to their fast-paced evolving business strategy (Karimi & Konsynski, 1991).

6.3.2 Inferential statistics

The interential statistics were run on the following sub-costructs of "**information flow**"'

- Frequency of communication
- Information management
- Ease of interaction
- Knowledge of the operating environment (strategy related)

The KMO and Bartlett outcomes for all these sub-constructs confirmed that the questions were related to the constructs or factors developed.

The results from the Mann-Whintey-U showed that there was no significant difference, $p>0.05$, between the means of the four sub-constructs, when comparing the matrix and hierarchical structures. This means that average scores of both the matrix and hierarchical structures, in relation to the four sub-constructs of information flow were similar.

The results have further demonstrated that there is NO statistically significant difference between the matrix and the hierarchical structure when it comes to their influence on the information flow. These findings infer that although different from a design perspective, both these structures facilitate the flow of information. However, these results are in contrast with some of the previous research work done that has been found in literature which has intimated that the matrix structure is superior to the hierarchical structure when it comes to enabling the flow of information under complex and dynamic environments (Egelhoff et al., 2013; Galbraith, 2009).

In addition, literature also shows that the although the although the matrix structure has been considered to possess efficient information processing capabilities from a structural perspective, there are other underlying inter-relational challenges that are introduced by the ambiguity and conflicts resulting from the dual reporting system, which affect the quality of communication (Schnetler et al., 2015).

Since managing a matrix structure can be difficult and challenging (Sy & D'Annunzio, 2005), one can also infer that this played a role in the results since, although some companies may have been designed in a matrix configuration, its superiority over other structures (e.g. hierarchical) may have been weakened by its implementation and management challenges, as discussed in literature (Schnetler et al., 2015).

However, it must be noted that these findings may not be immediately generalised since the inter-relational and softer elements, such as culture and leadership were not considered in this study, which are also important for successful implementation of a matrix, and could have made the study more comprehensive (Hanover Research, 2013). More so, as Bartlett

and Ghoshal (1990) have also pointed out in their previous work, a matrix is not simply formal structure but rather a frame of mind as management needs to collabotare the corporate culture and thinking with its systems and processes to ensure success. .

From the results obtained, although not statistically significant, the matrix structure had a higher mean ranking for *feedback discussion, information management and knowledge of the operating environment.* Conversely, when it comes to *ease of interaction,* the hierarchical structure appears to have a higher mean ranking than the matrix structure.

Therefore these result DO support the hypothesis developed in RQ1 which states that both the population means of the matrix and hierarchical structure, on information flow are equal. This means that an organisation cannot merely implement a matrix structure and expect to notice a siginificant difference or success since managing the implementation process is regarded as very critical in ensuring that its success is realised (Kate and Erickson, 2008). Furthermore, othee HR intenventions such as training and development programmes need to be put in place to complement its effectiveness that could potentially give it a significant difference than other organisational structures (Bartlett & Ghoshal, 1998).

6.4 Research question 2: Evidence-based decision making

Which structure has more effective evidence-based decision processes (matrix vs. hierarchical)?

In order to survive in the hyper-competitive environment, managers need to make evidence-based decisions that will give them a competitive advantage (Pfeffer & Sutton, 2006). In order for organisations to make these evidence-based strategic decisions, they need a superior and reliable flow of information about the operating environment (e.g. Information relating to political, markets, supplier, customer aspects etc.) that will ensure long-term sustainability of the business (Frishammar, 2002).

It has since been argued that the structure of an organisation may have an influence on its ability to make evidence-based based decisions (G.L. Neilson et al., 2008). The aim of this research study (supporting RQ2) was to also add to this body of limited knowledge by comparing the matrix and hierarchical structures in order to determine if the structure of an organisation has an influence on its ability to make evidence-based decisions.

Because of their supposed increased information processing capabilities and increased multidimensional coordination mechanisms, matrix structures are contended to have superior capabilities when it comes to evidence-based decision making (Chi & Nystrom, 2010). On the other hand, the hierarchical structure is considered to be inferior to the matrix

structure when it comes to the speed of decision making, as well as struggling to adapt to the dynamic operating environment (Hernaus et al., 2013). However, it must also be contended that the hierarchical structures have also been praised in literature (Goold & Campbell, 2002) because of their clear and formal authority channels that enable strategic decisions to be made efficiently since centralisation allows for integration and coordination of different units in an organisation (Willem & Buelens, 2009). Therefore, although one would have expected that the results would highlight the advantage of the matrix over the hierarchical structure, it is possible that hierarchical structures also could have presented equally as effective decision making characteristics, not far off from the matrix.

The following existing sub-constructs were used to further discern the research question on determining which structure (matrix vs. hierarchical) have more effective evidence-based decision making capabilities:

- Employee influence on decision making
- Decision making process flow

These constructs had six and seven questions respectively. Based on the results obtained from the research study, both research questions conformed to the normality test and were also found to be reliable. However, although the hierarchical structure appeared to have a higher mean rank for "***employee influence on decision making***", there was no statistically significant difference between the means of both the hierarchical and matrix structures.

Although there was no statistically significant difference in the research findings from this study, Egelhoff (2010) argues that the ability of hierarchical structures to standardise decisions can help minimise the information processing requirements at the HQ by simplifying things. Also, the greater clarity of the authority levels enables decision making to be more predictable and efficient (Goold & Campbell, 2003).

The second construct on "**decision making process**" discusses the steps followed when taking decisions in an organisation. When it comes to decision making, it is argued that organisations can either follow a "top-down" approach (directive from top management) or "bottom-up" approach (allows input from employees" (Mahnke et al., 2012). Since there have been mixed views regarding which organisational structure has more effective decision making processes (flat vs. hierarchical), the research study was further extended to try and compare the matrix and hierarchical structures in order to determine which configuration has more effective decision making processes.

Further, other researchers have argued that the matrix structure allows for efficient decision making since its lateral configuration gives it closer proximity to the information source as opposed to the hierarchical structure (Premkumar et al., 2005).

The results from the study indicated that although the matrix had a higher mean rank, there was NO statistically significance between the means of the matrix and hierarchical structures. This infers that the structure of an organisation has no influence on its decision-making processes. This could possibly be because some of the organisations may not have had a good fit between their structure and strategic orientation, since it is argued that in order to ensure success of the matrix structure, there has to be alignment between the strategy and the type of matrix structure which the organisation seeks to implement based on a combination of structural dimensions of functional, product and geographical divisions (Egelhoff et al., 2013). In other words, the conditions under which the matrix is adopted should also be aligned to the type of matrix structure implemented, otherwise its effectiveness will not be fully exploited. Hence some of the organisations have abandoned the matrix structure previously since it did not work for them due to implementation failures (Burns & Wholey, 1993; Egelhoff et al., 2013).

6.4.1 Descriptives

The two constructs that were found to be reliable for determining the influence of organisational structure on the evidence-based decision making included:

- Extent of employee influence on decision-making
- Decision making process followed.

The results showed that the hierarchical structure had higher mean rank for "extent of "***employee influence on decision-making***" when compared to the matrix, although there was NO statistically significant difference between the two.

It could be argued that because globalisation has resulted in the expansion of MNCs into various geographical areas, this had led to minimal involvement by most executives in the day-to-day operations, thereby favouring a bottom-up decision making process (Mahnke et al., 2012) which may result in the establishment of realistic goals and by-in from the employees, thereby creating a coordinated environment for better decision making processes. This relies on the flow of information both internally (employees) and externally from the operating environment.

Therefore the findings show that both matrix and hierarchical structures have similar influences when it comes to the "***decision making processes***" and "***extent of employee involvement***" during evidence-based decision making.

These results DO support the hypothesis developed in RQ2 which states that both the population means of the matrix and hierarchical structure, on "evidence-based decision making" are equal. As indicated, although this may seem somehow surprising since the matrix structure would have been expected to be more effective when it comes to evidence based decision making, Schnetler, Steyn and Van Staden (2015) have also argued the conflicts brought about the dual reporting system in a matrix structure could results in decisions being taken in isolation and thereby resulting in poor overall decision-making.

6.5 Research question 3: Organisational configuration

Determine which structure has a more effective organisational configuration (matrix vs. hierarchical)?

6.5.1 Descriptives

Just by looking that the mean ranking scores, there was no difference in the influence of the effectiveness of organisational configuration between the matrix and the hierarchical structure.

6.5.2 Inferentials

It has been mentioned in literature that MNC organisations need to adapt to the rate of change in their operating environment, in order to sustain their future growth prospects (Egelhoff, 1991). This concept of organisational flexibility allows organisations to easily implement new strategic plans and is more pronounced in flat structures since the communication layers are few and closer to each and thus allow decisions to be made and communicated quicker (Rishipal, 2014). However, although this is viewed as an enabler to ensuring flexibility of the organisation, this can lead to confusion and lack of accountability on the reporting structures since flatter structures are usually associated with dual reporting systems. This is the form of structure that is often adopted by the matrix organisations.

On the other hand, hierarchical structures are usually viewed as inflexible (Rishipal, 2014) since they are presumed to hinder timely adaptation of the organisation to the changing business environment, although they are highly recommended in more stable environments where processes are standardised. It is further argued that a higher level of employee involvement as well as the increased flexibility are essential for effective implementation of a business strategy (Rishipal, 2014).

However on analysing the results, the Man-Whitney U test indicated that there was no statistically significant difference between the means scores of the matrix and hierarchical

structure when it comes to their effectiveness of organisational configuration. These findings once again infer that the structure of an organisation does not influence the effectiveness of its configuration. This is once again contrary to the available literature (Burton et al., 2015; Helfat & Karim, 2014) which has contended the superiority of the matrix structure as being more flexible and suited to adapting to dynamic and rapidly changing operating environments.

Once again, this could also be attributed to the fact that there are other inter-relational elements, such as culture, which could explain the influence of structure on the effectiveness of the organisational configuration. Other researchers have shown that the success of a matrix structure should go beyond the configuration itself, as there are other complementing elements such as leadership, information technology and culture that contribute to its effective implementation.

Although the cultural element did not form part of the core of this research, it may have played a part in how the results were somehow evenly associated for both matrix and hierarchical structures (Burton et al., 2015).

Therefore, the results DO support the hypothesis developed in RQ1 which states that both the population means of the matrix and hierarchical structure, on “effective organisational configuration” are equal.

On examining the association between organisational structure and Q44 of the survey which relates to “flexibility of the employees to adapt to the latest business techniques, process and principles”, the results showed that there was a positive association between two as depicted by results shown in Table 21 of the findings sections in 5.5.4 which shows Pearson’s Chi-square value of $p < 0.05$. There one can infer that the structure of an organistation is related to its flexibility to adapt to the oeparting environment. One would expect that the matrix structure, would use its widespread lateral communication channels to handle increased information flows amongst its different subsidiaries, thereby facilitating its flexibility to cope with the changing environment (Egelhoff et al., 2013)

However, Kate and Erickson (2008) have argued that simply adopting the matrix structure will not guarantee any success to the business as there are other supporting elements such as leadership, training and culture that need to be indoctirned the business to ensure hugh performance.

6.6 Research Question 4: Organisational strategy formulation

The alignment between strategy and structure is considered key for the success of organisations, especially in dynamic environments (Galan & Sanchez-Bueno, 2009; Wolf & Egelhoff, 2002).

It is argued that the formulation of a strategy requires a cross-functional perspective (Egelhoff et al., 2013), and thus in a functional division (FD) where the functional activities in a foreign subsidiary report directly to the corresponding FD at the headquarters, this arrangement could nullify the advantages of the cross-functional benefits since the FD may not be in a position to fully understand what the overall business strategic focus is. Therefore the sub-units of the foreign subsidiary are usually not involved in the overall strategic formulation process, thereby limiting the amount of strategic information (about that particular operating environment) processing that sits with the sub-units in the foreign subsidiary. This is typically how some of the functional divisions in matrix organisations are structured, although these can be complemented by crossing them with other matrix dimensions, such as geographical dimensions and product dimensions and these differ widely when it comes to their information processing capabilities, an aspect which is crucial for strategic formulation (Egelhoff et al., 2013).

6.6.1 Existence of formal strategic plan

The empirical evidence from this study showed that there was no statistically significant difference between the matrix and hierarchical structures when it comes to having a long term strategy in place that is familiar to most employees.

6.6.2 Frequency of strategy revision

Since strategy provides a blueprint for the overall direction of the organisation, it is argued that taking a long-term horizon to the strategy formulation process is essential for ensuring that the structure and focus of an organisation is maintained (Kavale, 2012). However, with the current dynamic environments, it could become essential for companies to consistently tweak their strategies in order to align themselves with the rapidly changing operating environment (Wolf & Egelhoff, 2002). The matrix has always been viewed as a structure that is more suitable to adapting to the dynamic environments (Burton et al., 2015). However, the results in this study did not show a significant difference between the matrix and the hierarchical structure when it comes to the existence of both the short to medium term plans. This was also evident in the results that showed that there was no significant difference between the two structures when it comes to comparing the frequency at which their corresponding strategies are reviewed, as given by the Chi-square with a high p-value >0.05.

This leads to the inference that the structure of an organisation has no influence on its strategic formulation process or horizon, as well as the frequency at which it reviews its strategy.

Therefore these results DO support the hypothesis developed in RQ4 which states that both the population means of the matrix and hierarchical structure, on “strategy formulation process” are equal.

6.7 Summary of the discussions

Several authors (,Galbraith, 1974; Qiu & Donaldson, 2012; Romelaer & Beddi, 2015; Lunenburg, 2012; Mathews, 2016) have argued that the structure of an organisational has an influence on its information processing capabilities and its ability to make evidence based decision making. Furthermore, literature has also contended (Nose, Sato, & Ito, 2003; Grogaard, 2012; Galbraith, 2014) that the current complex and dynamic requires a structure that is capable of re-configuring and aligning itself so that it can adapt wit the changing environment.

The matrix structure, due to its complex form with its underlaying mutli-dimensional strutures, has widely been regarded being more superior than any other organisational designs when it comes to dealing with complexities and rapid changes (Burton et al., 2015; Galbraith, 2009; Egelhoff et al., 2013; Kuprenas, 2003) . It multi-cordinated lateral channels [reference] are believed to failciate its information processing and decision making abilities as well as flexibility in dealing with chaning envrionments (Julian Birkinshaw & Gupta, 2013; Harvey et al., 2009). However, other literature (Goold & Campbell, 2002; Koplowitz, 2008; Deville et al., 2014) has also shown that the hierarchical structure also does have formalised and coordinated decision making capabities due to its formal lines of authority and accountability. Further, there has been other challenges to its implementation that have been highlighted in literatures (Helfat & Karim, 2014; Kate and Erickson, 2008; Bartlett and Ghoshal, 2008) which are associated to the power struggles and slowing down of decision making as a result of its dual reporting system.

However, most of the results obtained in this study indicated that there was no significant difference between the matric structure when it comes to their influence on the following variables;

- Information flow
- Evidence-based decision making
- Strategic formulaton

- Effectivess of organsiational configure

Several arguments were raised in literature which could help explain the outcomes of our results. It is argued that the implementation of a matrix structure appears to be a very tedious and complex process which involves more than just changing the organisational structure since other non-mechanistic elements such as leadership, culture and behaviors could make or break this structure (Hanover Research, 2013; Kates & Erickson, 2008). This had led to some organisations abandoning it due to failures to comprehend the overall implementation process (Egelhoff et al., 2013). Therefore this implies that not every organisation that employs a matrix structure would be more effective than others organisation structures since managing the implementation process is key as there are other factors that can influence its adoption (Kates & Erickson, 2008). More so, this also implies that an MNC cannot just adopt a MX structure and expect guaranteed success. There are other complementing factors such as training and development that are needed to empower the employees and ensure that a corporate culture is created that will facilitate this implementation process.

7 CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

This overall objective of this research was to contribute to the existing literature on the alignment between strategy and structure, through using an information processing perspective to determine which organisational structure was more suited to increased information flows which necessitate active evidence-based decision making in complex and dynamic environments (Rishipal, 2014). This was done through comparing the effectiveness of matrix and hierarchical organisational structures, which are two commonly employed structures by the majority of MNCs, from an information processing perspective. There has been limited literature that has been found that compares these two organisational structures in MNCs, especially using the information processing view of the organisation which was initially explored by past and recent researchers of organisational design and the "strategy-structure" nexus (Galbraith, 1974; Chandler, 1962; Kavale, 2012; Mintzberg, 1980).

This research was of particular importance for analysing the alignment of strategy and structure in MNCs, as they usually operate in various geographical locations and thus are experiencing the globalisation effects of increased complexities related to processing excess and large volumes of information, technological advancement and rapidly changing operating environments (Blom & Carraro, 2014). In order to coordinate and maintain effective information flows and decision making between headquarters and their corresponding subsidiary units, an MNC's organisational structure should be configured to facilitate effective information processing and decision making in order to sustain competitive growth (Franklin, 2010; Galan & Sanchez-Bueno, 2009).

The matrix has always been viewed as being more suited to the complex and rapidly changing business environments (Galbraith, 2012) and thus has received favourable recognition from researchers (Helfat & Karim, 2014; Egelhoff et al., 2013), although it has apparently been abandoned by other large MNCs in the past due to challenges emanating from its implementation and management (Schnetler et al., 2015; Rugman & Verbeke, 2008). Thus, modern researchers, such as Qiu and Donaldson (2012), have argued that the matrix structure can only be successful if it is only applicable in certain strategic conditions such as corporate integration and area diversification. Further counter-arguments were also inferred in literature which stated that although matrix structures have received growing interest from some organisations recently, the trick lies in designing the matching overlaying

structural dimensions which would then make the matrix structure more effective, since there are various matrix structures that can used under differing conditions (Egelhoff et al., 2013). On the other hand, the hierarchical structure is believed to reduce the information processing requirements through standardisation and clarity in authority levels of decision makers (Goold & Campbell, 2002). Also, the decentralisation of decision-making to subsidiary levels ensures that the headquarters HQ) is relieved from information overloading from operational functions and thus can concentrate on the strategic direction of the business (Egelhoff, 2010).

Therefore all these conflicting opinions about superiority of either the matrix or hierarchical structures when it comes to alignment of strategy and structure through information flow and decision making, have led to further interest in the research study to try and compare the two organisational structures.

This chapter therefore presents the main findings of the study and subsequently highlights any possible implications these could have on businesses, as well as any contributions to the existing body of literature on the alignment of strategy and structure from an information processing view, through the comparison of the matrix and hierarchal organisational structure of MNCs.

7.2 Main Findings

This research was aimed at determining the influence of structure on the information processing capabilities of MNCs, from a HQ-subsidiary relationship. This was done through developing research questions that were based on the following constructs:

- Information flow
- Evidence-based decision making
- Organisational configuration
- Strategy formulation

The general overview from the findings of this research have added to the existing body of literature and inferred that there appears to be no statistically significant difference between matrix and hierarchical structures when it comes to the alignment of the strategy and structure, from an information processing perspective. This is in contradiction to previous literature which has often praised the matrix as a suitable structure that enables effective information flow and strategic decision making (Egelhoff et al., 2013)

7.2.1 Information flow

The empirical evidence from the study indicated that there was no statistically significant difference between the matrix and the hierarchical structure when it comes to their influence on the information flow. This implies that although both these two organisational structures were configured differently from a mechanistic view, they both had similar levels of effectiveness when it comes to facilitation of information flow. Although it may have been widely expected that the matrix structure would be more effective when it comes to enabling the flow of information under complex and dynamic environments, based on some of the existing literature (Galbraith, 2009), this superiority could have been moderated by some of the post-implementation challenges of managing it (Egelhoff et al., 2013; Qiu & Donaldson, 2012). In addition, this nullification of matrix efficiencies could have been compounded by the potential invisible effects of cultural or leadership challenges (Hanover Research, 2013) which are considered to be critical when it comes to the successful execution of the matrix structure. Both these elements were not considered in this study and do present a potential scope to further refine future research on the comparison of the matrix and hierarchical structures.

7.2.2 Evidence-based decision making

The findings from the study indicated that although the matrix seemed to have a higher mean rank, there was no statistically significant difference between the matrix and hierarchical structures when it comes to their influence on evidence based decision making. This further infers that the structure of an organisation appears to have no influence on its decision-making capabilities. Therefore, although different in design configuration, both the hierarchical and matrix structures have similar influences when it comes to their effect on evidence-based decision making. As explained earlier, this could have been due to the invalidation of the superior decision making capabilities of the matrix structure by other underlying non-mechanistic elements, such as culture and leadership, which have not been considered in this research (Hanover Research, 2013). Also, it is possible that other challenges, such as conflict brought about by the confusion in lack of accountability of the dual reporting systems (Schnetler et al., 2015;Burton et al., 2015) could have had a hand in nullifying the prominence of the matrix MNCs that were used in this study. However, it must also be contended that the hierarchical structure has also been praised in literature because if its clear and formal authority channels (Goold & Campbell, 2002) that enable strategic decisions to be made efficiently (Hernaus et al., 2013) since its centralised structure allows for holistic and effective integration and coordination of different subsidiaries in an organisation (Willem & Buelens, 2009).

The availability of timely and quality information is critical for strategic decision making in MNCs so that they can adapt to the complexities of environmental uncertainty (Premkumar et al., 2005). Although more often than not, literature tends to associate matrix structures with better information flows, the findings in this study contradict this analogy. It was concluded that this could possibly have been as a result of its lack of compatibility with the conditions under which the matrix was adopted for those different types of matrix forms, thereby killing its effectiveness (Egelhoff et al., 2013).

Since MNCs exist in highly complex and conflicting operating environments, management is often required to make decisions and act on them with limited information within a short space of time (Rishipal, 2014). Configuring the design of an organisational structure so that it is capable of responding to these environments and supporting their overall global strategy, becomes critical for success in the globalised world (Steers et al., 2010).

7.2.3 Organisational configuration

The results from the study indicated that there was no statistically significant difference between the means scores of the matrix and hierarchical structure when it comes to their effectiveness of organisational configuration. These findings once again infer that the structure of an organisation does not influence the effectiveness of its configuration. This is once again contrary to the available literature (Burton et al., 2015; Helfat & Karim, 2014) which has contended the superiority of the matrix structure as being more flexible and suited to adapting to dynamic and rapidly changing operating environments. Although it must be mentioned that the test for association revealed that there was a positive low association between structure and flexibility to adapt to adapt the environment.

7.2.4 Strategy formulation

The empirical evidence from this study showed that there was no statistically significant difference between the matrix and hierarchical structures when it comes to having a long term strategy in place that is familiar to most employees.

7.3 Recommendations

7.3.1 Implications for Management

The aim of this section is to provide management in MNCs with practical applications of some of the insights from the study.

A big take away for management is that they shouldn't just adopt a matrix structure without understanding the underlying conditions which call for it to be instituted. This means that they must first diagnose their current organisational design to undertstand what their existing problems are and from henceforth incorporate a type of matrix structure that would be conducive for that particular strategic direction that they wish to take.

Management should not be blinkered when they adopt the matrix structure since the mechanistic structure alone may not necessarily translate to successful implementation. Other inter-personal elements described earlier, such as culture and leadership, could potentially influence its success (Hanover Research, 2013; Kate and Erickson, 2008).

Also, the strategic condition under which its organisational structure is implemented is critical in determining the success of its strategic intent. This means the application of either the matrix or hierarchical structures in MNCs should be context based. Management must also realise that to ensure that the matrix structure is successful, they need to get the buy-in from the people that are actually will be invovlved in executing work in this structure. The people's element is critical and has led to the failure of most matrix structure in the past. A lo of lessons can be learnt from there.

7.3.2 Implications for Academics

The aim of this section is to provide researchers and academics with some insights from the study which could assist with their future research.

When conducting research of comparing the organisational structures, the context of each organisation should be taken into consideration since this could present findings that may only be unique to that particular environment, and thus not generalisable. This research was done on MNCs predominatly operating in South Africa, and did yield contrasting results to those that were perfomed in German (Egelhoff et al., 2013) and other European mulitnationals. It would be recommended to undertake similar studies whose sample size of MNCs will cover fairly blanaced global footprint covering European, Western and Asian and Africa MNCs. This could present some insights as to where geographic location has any influence on the strategy-structure fit of MNCs.

Academics should collaborate with business to try and examine the currently existing matrix models in order to understand their practical issues that are currently being faced with practical implemented matrix structure.

Since organisational ambidexterity is seen as a modern structure that is capable of dealing with dynamics environment, the matrix structure may need to perfected and re-modelled in order to accommodate the ambidextrous thatn will make it more flexible to cope with the rapid changes in operating environment.

7.4 Future Research

The aim of this section is to provide suggestions for areas of possible research that could potentially help in gaining deeper insights about comparing the strategy-structure fit of different organisational structures.

There is a potential gap in analysing the organisation-specific context when looking at the effectiveness of either the matrix or hierarchical structures.

- Include the cultural dimension
- Should be able to describe the type of matrix structure used by MNC organisations.

The information processing view was used a basis for this study. There are other types of perspectives (such as contingency model) that can be used to try and compare if there exists a difference in the relationships between strategy and MNC organisational structural configuration.

Other forms of organsitational structures, such as network structure may also need to be analysed and compared with matrix structure to determine which ones would be ideal for MNCs.

7.5 Limitations of the research study

The following limations in the overall research have been identified;

7.5.1 Research methodology

Section 4.15 of the methodology has highlted some of the limitations that were encountered during the design of the research methodology and these included the possible lack of consistency emanating from the respondant demographics as the respondents' level of management thus may not have had a bird's eye-view of the HQ-Subsidiary relationship of the organisation, resulting in response biases. More so, the non-probability sampling methods used such as convenience sampling (Zikmund et al., 2013) may have introduced

some bias into the out findings. It would also be interesting to see if the same study can be performed at least a year from now, using the same respondents to determine if there will be a difference in the findings. There was also limited variability in the sample size since most of the repsondant s were from South African based MNCs.

7.5.2 Research Scope

Due to time limitations, the research scope only covered the technical structural configuration of the organisational structure. As mentioned in literature, there are other inter-personal factors such culture and leadership that do play a critical role in the effectiveness of the matrix structure, but this research did not considered those elenents.

7.6 Conclusion

As global managers are being faced with the current challenges of survival in hyper-competitiveness and during uncertainities due to dynamic operating environment, information processing has become key to making informed decisions that will enable orgnsiational performance. This is more more critical for MNCs that are operating in dispersed geographical location as they have to ensure that there's a seamless coordination of information between these distributed subsidiaries to make ehance strategic decision making.

Developing an organisation capable of doing this will require more than just the formal skeletal or structural design, as there are other critical elements of human intenvetion that need to be addressed and implemented to support this efficient and effective orgnsiational structure. Therefore although the matrix is still regarded as a more effective and efficient structure to deal with the integration challenges facing most MNCs, it must be first be instilled in the mindset of the people that are supposed to implementing it, as Bartlett & Ghoshal (1990) have contended in their previous work. As Galrbraith,(2014) has also contended, having the right people is critical for the success of the matrix.

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Appendix A: Research Questionnaire

	Research Questionnaire:		
	A: Demographics (What is the background of the respondant and organisation and the relevance thereof)		(Nannoolal, 2015)
	Question	**Type of Question**	**Reference**
1	Name of Organisation		
2	Which of the following best describes your current job level?	Likert Scale (1-5): Ranges: 1-[Junior management], 2-[Middle management],3- [Senior management],4- [Executive management]	Van de Ven and Ferry (1980)
3	Type department/division you are are working in?	Drop down: [1]-Research and Development (R&D) [2]- Purchasing. [3]-Marketing (including Sales and Business Development) [4]-Human Resource Management. [5]-Accounting and Finance. [6] - Operations	Van de Ven and Ferry (1980)
4	What is the current Geographic location of the the subsidiary organisation your are based at (City,		
5	Age of Respondent	Drop down: 1-[0-24], 2-[25-34], 3- [35-40], 4- [41-50], 5-[51 or more]	
6	Gender of respondent	Drop down: 1 - [male], 2 - [female]	
7	Duration of Employment in Current Position (years)	Drop down: 1-[0-1], 2-[1-3], 3-[3-5], 4- [5-10], 5-[10 or more]	
8	Overall number of years of working experience?	Drop down: 1-[0-5], 2-[6-10], 3-[10-15], 4- [15-20], 5-[20 or more]	
9	How many countries have you wokrewd in?	Drop Down: 1- [1], 2-[2 to 4], 3-[5 or more]	

10	Which of the following best describes the principal industry of your organisation?	Drop Down: 1- Financial Services, 2- Infrastructure and Energy, 3 - Engineering Services, 4 - Media, 5 - FMCG, 5 - Transport and logistics, 6 - Utilities, 7 - Agriculture, 8 - Wholesale and retail, 9 - Mining and commodities, 10 - Other (specify)	Van de Ven and Ferry (1980)
11	How best can you describe your organisational Structure	Drop Down: 1 - [Matrix], 2 - [Hierarchical]	
12	What is the size of your organisation?	Drop down: 1- [0-50], 2- [201-500], 3- [501- 1000], 4- [>1000]	
13	How long has the Organisation been in existance? History of the organisation	Drop down: 1- [0-20], 2- [21-50], 3- [51-100], 4- [over 100]	Van de Ven and Ferry (1980)
14	What is the number of Product/Service sub-sidiaries or units in the organisation? (If applicable)	Drop Down: 1- [1], 2-[2 to 4], 3-[5 or more]	
15	How many countries does your organisation operate in? i.e. Number of Geographical sub-sidiaries	Drop Down: 1- [1], 2-[2 to 4], 3-[5 or more]	
	B: Information Flow (How easy/difficult is it to transfer information within or outside of the organisation)		
16	How well are you personally familiar with the people from other departments/business units that you work closely with	Likert Scale (1-5): 1- not all familiar, 2-a little familiar familiar, 3-somewhat, 4-quite familiar, 5-very well familiar	Van de Ven and Ferry (1980)
17	How well informed are you about the specific goals and services of the other departments/business units in the organisation.	Likert Scale (1-5) not at all informed, little informed, somewhat informed, quite informed, very well informed	Van de Ven and Ferry (1980)
18	During the past 3 months how frequently have people in your departments/business units been in contact with people in the other departments/ business units?	Likert Scale (1-5): 1- not once, 2-1 to 2 times,3- monthly, 4-every 2 weeks, 5- about weekly	Van de Ven and Ferry (1980)

19	When you want to communicate with individual in another departments/business units how much difficulty have you had in getting a hold of them	Likert Scale (1-5): 1-no contact, 2- no difficulty, 3- little difficulty, 4-some difficulty, 5-quite a lot difficulty	Van de Ven and Ferry (1980)
20	How much difficulty do you experience in getting ideas clearly across to other people	Likert Scale (1-5): 1-no contact, 2- no difficulty, 3- little difficulty, 4-some difficulty, 5-quite a lot difficulty	Van de Ven and Ferry (1980)
21	To what extent did individuals in the other departments/business units hinder your department/ business unit in performing functions during the last 3 months	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4- some extent, 5-considerable extent	Van de Ven and Ferry (1980)
22	During the past 3 months to what extent has your departments/business units changed or influenced the service or operations of another department/ business unit	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4- some extent, 5-considerable extent	Van de Ven and Ferry (1980)
23	How well are you informed about the business environment outside your organisation i.e. market awareness.	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4- some extent, 5-considerable extent	
24	How well informed are you about the specific goals and services your competitors in the industry? units in the organisation.	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4- some extent, 5-considerable extent	
25	To what extent do you follow what's happening in your industry (skills,techniques and procedures) and try to adapt that within your business?	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4- some extent, 5-considerable extent	
26	During the past 3 months, how often do you receive or send written reports or documents from or to other business units?	Likert Scale (1-5): 1- not once, 2-1 to 2 times,3- monthly, 4-every 2 weeks, 5- about weekly	(Gresov, 1989)
27	During the past 3 months, how often do you receive or send written reports or documents from or to Headquarters?	Likert Scale (1-5): 1- not once, 2-1 to 2 times,3- monthly, 4-every 2 weeks, 5- about weekly	Gresov, 1989)
28	During the past 3 months, how often do you have work related discussions with individuals in other Headquarters?	Likert Scale (1-5): 1- not once, 2-1 to 2 times,3- monthly, 4-every 2 weeks, 5- about weekly	Gresov, 1989)
29	During the past 3 months, how often did you receive or send written reports or memos from or to other organisations or agencies?	Likert Scale (1-5): 1- not once, 2-1 to 2 times,3- monthly, 4-every 2 weeks, 5- about weekly	Gresov, 1989)

30	To what extent is the level of technology intensity in your organisation (including IT and ICT networks)?	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4- some extent, 5-considerable extent	
31	To what extent is the organisation efficient and effective in gathering data?	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4- some extent, 5-considerable extent	
32	To what extent is your organisation efficient and effective in transforming this data into relevant and usable information	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4- some extent, 5-considerable extent	
33	To what extent is information storage in your organization efficient in terms of accessibility, quality and size of storage facilities	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4- some extent, 5-considerable extent	
	C: Evidence Based Decision - making (How are decisions made or formulated in your organisation)		
34	**How much influence do employees or employees have on the decision making?**		
34.1	What is the average influence of employees on Unit Operations/Office Operations?	Likert Scale (1-5): 1- don't know, 2- no influence, 3-little influence, 4- some influence, 5-considerable influence	Van de Ven and Ferry (1980)
34.2	what is the average influence of employees on External Organisational Affairs?	Likert Scale (1-5): 1- don't know, 2- no influence, 3-little influence, 4- some influence, 5-considerable influence	Van de Ven and Ferry (1980)
34.3	What is the average influence of Unit supervisors on Unit/Offie Operations?	Likert Scale (1-5): 1- don't know, 2- no influence, 3-little influence, 4- some influence, 5-considerable influence	Van de Ven and Ferry (1980)
34.4	what is the average influence of supervisors on External Organisational Affairs?	Likert Scale (1-5): 1- don't know, 2- no influence, 3-little influence, 4- some influence, 5-considerable influence	Van de Ven and Ferry (1980)
34.5	What is the average influence of Headquaters on business unit operations?	Likert Scale (1-5): 1- don't know, 2- no influence, 3-little influence, 4- some influence, 5-considerable influence	Van de Ven and Ferry (1980)
34.6	What is the average influence of other Organisations or Competitors on Office operations?	Likert Scale (1-5): 1- don't know, 2- no influence, 3-little influence, 4- some influence, 5-considerable influence	Van de Ven and Ferry (1980)

35	**What is the typical decision making process followed in the organization?**	Likert Scale (1-5): 1: Strongly disagree; 2: Disagree; 3:Neutral; 4: Agree 5: Strongly agree	O'Reilly, Chatman, and Caldwell (1991)
35.1	All employees in my organisation always find it important to think things through carefully before acting on them?	Likert Scale (1-5): 1: Strongly disagree; 2: Disagree; 3:Neutral; 4: Agree 5: Strongly agree	
35.2	All business decisions are analysed from every possible angle before they are implemented?	Likert Scale (1-5): 1: Strongly disagree; 2: Disagree; 3:Neutral; 4: Agree 5: Strongly agree	
35.3	Even though it takes more time, business decisions are always made based on analysis not intuition	Likert Scale (1-5): 1: Strongly disagree; 2: Disagree; 3:Neutral; 4: Agree 5: Strongly agree	
35.4	The outcome of a business decision can be predicted accurately by a logical analysis of that decision	Likert Scale (1-5): 1: Strongly disagree; 2: Disagree; 3:Neutral; 4: Agree 5: Strongly agree	
35.5	The majority of employees in my organisations always find it better to stop and plan THAN to act	Likert Scale (1-5): 1: Strongly disagree; 2: Disagree; 3:Neutral; 4: Agree 5: Strongly agree	
35.6	No matter what the situation, it is always worth the extra time it takes to develop a comprehensive plan	Likert Scale (1-5): 1: Strongly disagree; 2: Disagree; 3:Neutral; 4: Agree 5: Strongly agree	
35.7	The majority of employees in my organisation always use data (more than intuition) to make decisions	Likert Scale (1-5): 1: Strongly disagree; 2: Disagree; 3:Neutral; 4: Agree 5: Strongly agree	
36	Every employee is empowered to make decisions that will influence the organisation?	Likert Scale (1-5): 1: Strongly disagree; 2: Disagree; 3:Neutral; 4: Agree 5: Strongly agree	
37	Operational decisions making only happens at the Top Management?	Drop Down: 1- [Yes], 2-[No],	
38	Middle to Junior management is often consulted during operational decision making?	Drop Down: 1- [Yes], 2-[No],	
39	How long is feedback loop on operational decision making?	Likert Scale : 1 - [more than 1 week]: 2- btwn 2 to 4 wks, 3- within a week, 4-within 2 days , 5- daily	
	D: Organisational Structure (How is the organisational structure designed within the	Likert Scale (1-5): 1: Strongly disagree; 2: Disagree; 3:Neutral; 4:	

	org to deliver solutions to clients)	Agree 5: Strongly agree	
40	What is the organisations's supervisor-staff ratio?	Drop down: 1- [less than 1:10], 2-[between 1:11 and 1:20], 3-[More than 1:20]	
41	During the past 3 years, how many times has the organisation been restructured or redesigned as way of improving oeperational efficiency?	Drop Down: 1- [1], 2-[2 to 4], 3-[5 or more]	
42	What is the extent of this organisational re-design?	Drop dpwn: 1- [functional redesign], 2- [removal/addition of product or service lines], 3-[Complete change of product or service lines]	
43	How flexible is the organisational structure in responding to the the changing environment or market?	Likert Scale (1-5) not at all flexible, little flexible, somewhat flexible, quite flexible, very well flexible	
44	How flexible are the employees in adapting to the latest business techiniques, processes and principles	Likert Scale (1-5) not at all flexible, little flexible, somewhat flexible, quite flexible, very well flexible	
45	How many subsidiaries or divisions have you worked in within your organisation?	Drop Down: 1- [1], 2-[2 to 4], 3-[5 or more]	
46	To what extend do you think that the existing standards and processes in your organisation limit your maximum output?	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4- some extent, 5-considerable extent	
47	Which of the following best describe the structural dimension of the subsidy you are working in?	Drop Down: 1- [Functional division (e.g. manufacturing, R&D, etc)], 2-[Geographic region e.g. sub-Saharan, European, EMEA etc.], 3-[Product division (e.g. Plastic, paper, etc.)]	
	E: Organisational Strategy (How does the organisation view its strategic direction (short/medium/long) and how is the planning formulated)		
	To what extent do you have a clearly developed strategy to deal with each of the following events:		
48	Is there a formal long term plan in place which is familiar to most employees? [5 - 10 Years]	Drop down: 1- [Yes], 2- [No]	Kudla (1980)

49	Is there a formal short to medium term plan in place which is familiar to most employees? [5 - 10 Years]	Drop down: 1- [Yes], 2- [No]	Kudla (1980)
50	How often is the strategy reviewed in the organisation?	Likert Scale (1-5): 1- not at all, 2-Once in 5 years,3- Once in two years, 4-once a year, 5- at least twice a year	
51	What approach is used to formulate strategy in the organisation?	Drop down: 1-[Top to Bottom approach only], 2- [Top-Bottom and Bottom-Up approach]	
52	Who is involved in the strategy formulation process?	Range: 1 - [Board level], 2-[Board and Senior Management], 3 - [Board, Snr and Middle Management], 4 - [Board, Snr , Middle and Junior Management]	
53	What is the parent organisation's extent of orientation to local strategies in foreign subsidiaries (i.e. Localization %)?	Likert Scale (1-5): 1: Very low; 2: Low; 3: Medium; 4: High 5: Very High	Egelhoff, Wolf, & Adzic, 2013)
54	What is the parent organisation's extent of orientation to its global strategic orientation in foreign subsidiaries (global strategy %)?	Likert Scale (1-5): 1: Very low; 2: Low; 3: Medium; 4: High 5: Very High	Egelhoff, Wolf, & Adzic, 2013)
55	Which strategy takes precedence in Foreign subsidiaries?	Drop Down: 1 - [Global], 2-[local], 3-[Both]	

APPENDIX B: Demographic Results

Type department/division you are are working in?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Research and Development	4	3.2	3.3	3.3
	Purchasing / Procurement	3	2.4	2.4	5.7
	Marketing and Sales	24	19.4	19.5	25.2

	Human Resources	5	4.0	4.1	29.3
	Accounting and Finance	23	18.5	18.7	48.0
	Operations	23	18.5	18.7	66.7
	Others	41	33.1	33.3	100.0
	Total	123	99.2	100.0	
Missing	System	1	.8		
Total		124	100.0		

What is the current Geographic location of the the subsidiary organisation your are based at (City, Country)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	South Africa	108	87.1	87.8	87.8
	SADC	3	2.4	2.4	90.2
	East Africa	1	.8	.8	91.1
	West Africa	3	2.4	2.4	93.5
	Middle East	1	.8	.8	94.3
	United Kingdom	5	4.0	4.1	98.4
	Europe	1	.8	.8	99.2
	Noth America	1	.8	.8	100.0
	Total	123	99.2	100.0	
Missing	System	1	.8		
Total		124	100.0		

Age of respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25 - 34 years	87	70.2	70.2	70.2
	35 -40 years	23	18.5	18.5	88.7
	41-50 years	12	9.7	9.7	98.4
	Older than 50 years	2	1.6	1.6	100.0
	Total	124	100.0	100.0	

Gender of respondent?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	76	61.3	61.8	61.8
	Female	47	37.9	38.2	100.0
	Total	123	99.2	100.0	
Missing	System	1	.8		
Total		124	100.0		

About how many years have you been in your current position?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	22	17.7	18.2	18.2
	At least 1 year but less than 3 years	54	43.5	44.6	62.8
	At least 3 years but less than 5 years	26	21.0	21.5	84.3
	At least 5 yeas but less than 10 years	16	12.9	13.2	97.5
	10 yars or more	3	2.4	2.5	100.0
	Total	121	97.6	100.0	
Missing	System	3	2.4		
Total		124	100.0		

Total number of years of working experience?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 - 5 years	13	10.5	10.6	10.6
	6 - 10 years	63	50.8	51.2	61.8
	11 - 15 years	30	24.2	24.4	86.2
	16 - 20 years	11	8.9	8.9	95.1
	Over 20 years	6	4.8	4.9	100.0
	Total	123	99.2	100.0	
Missing	System	1	.8		
Total		124	100.0		

Number of countries you have worked in?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	One country	56	45.2	45.2	45.2

	Two to four contries	59	47.6	47.6	92.7
	Five countries or more	9	7.3	7.3	100.0
	Total	124	100.0	100.0	

Which of the following best describes the principal industry of your organization?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Advertising & Marketing	1	.8	.8	.8
	Automotive	2	1.6	1.7	2.5
	Business Logistics & Support	3	2.4	2.5	5.1
	Construction, Machinery & Homes	7	5.6	5.9	11.0
	Education	1	.8	.8	11.9
	Entertainment & Leisure	1	.8	.8	12.7
	Finace & Financial Services	31	25.0	26.3	39.0
	Food & Beverages	9	7.3	7.6	46.6
	Healthcare & Pharmaceuticals	9	7.3	7.6	54.2
	Insurance	3	2.4	2.5	56.8
	Manufacturing	3	2.4	2.5	59.3
	Non profit	1	.8	.8	60.2
	Retail & Consumer durables	3	2.4	2.5	62.7
	Telecommunications, Technology and ICT	14	11.3	11.9	74.6
	Utilities, Energy & Extraction	30	24.2	25.4	100.0
	Total	118	95.2	100.0	
Missing	System	6	4.8		
Total		124	100.0		

How best can you describe the type of your organizational structure?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Matrix	58	46.8	46.8	46.8
	Hierarchical	66	53.2	53.2	100.0
	Total	124	100.0	100.0	

What is the size of your organisation? (number of employees)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 - 50 employees	13	10.5	10.6	10.6
	201 - 500 employees	15	12.1	12.2	22.8
	501 - 1000 employees	13	10.5	10.6	33.3
	Over 1000 employees	82	66.1	66.7	100.0
	Total	123	99.2	100.0	
Missing	System	1	.8		
Total		124	100.0		

How long has the Organisation been in existence?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 - 20 years	24	19.4	19.4	19.4
	21 - 50 years	27	21.8	21.8	41.1
	51 - 100 years	33	26.6	26.6	67.7
	Over 100 years	40	32.3	32.3	100.0
	Total	124	100.0	100.0	

What is the number of Product/Service subsidiaries in the organisation? (If applicable)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 2 years	7	5.6	5.9	5.9
	2 - 5 years	20	16.1	16.8	22.7
	5 years or more	92	74.2	77.3	100.0
	Total	119	96.0	100.0	
Missing	System	5	4.0		

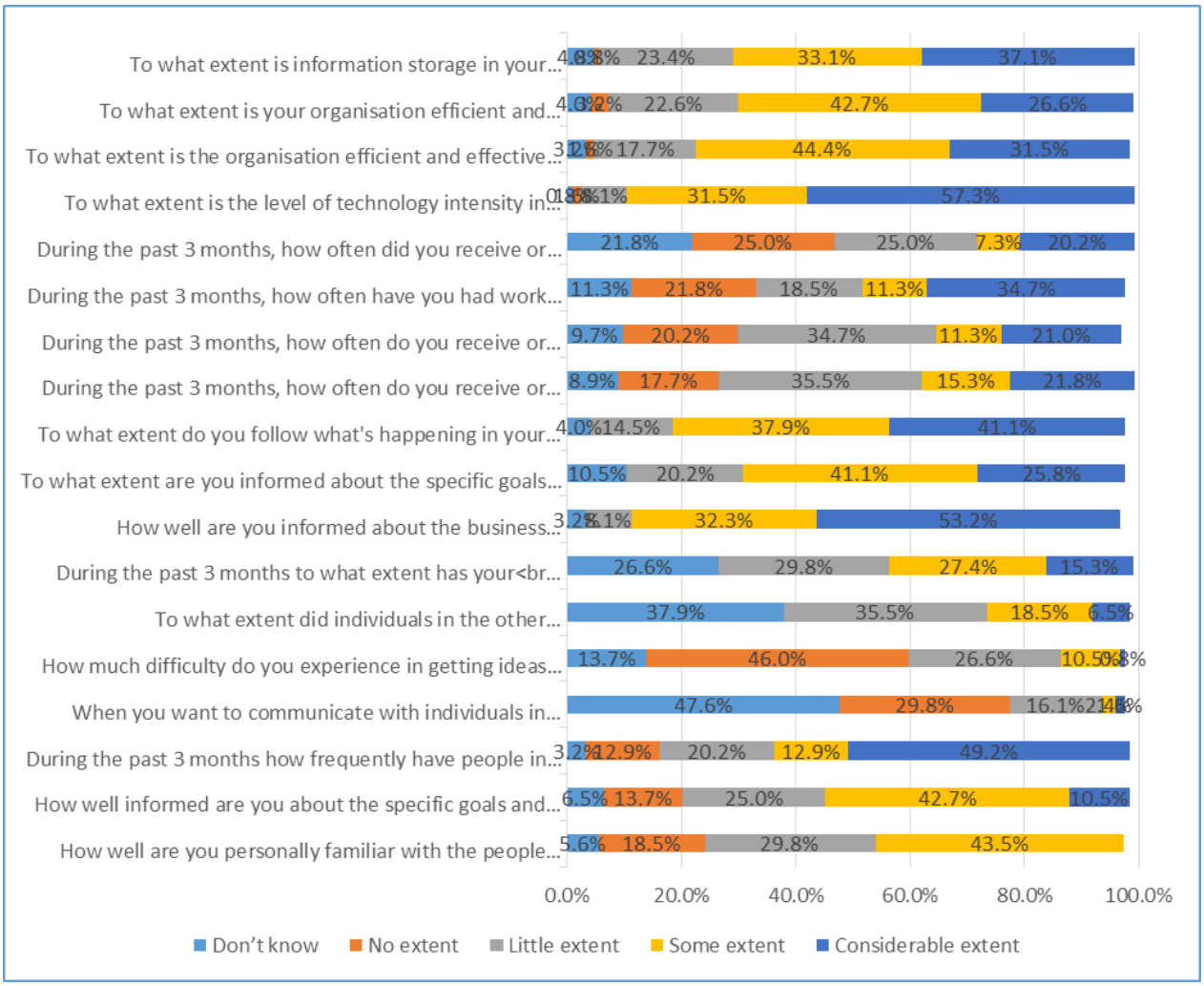
Total	124	100.0		

How many countries does your organisation operate in? i.e. Number of Geographical subsidiaries

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	One country	11	8.9	8.9	8.9
	Two to four countries	12	9.7	9.7	18.5
	Five or more countries	101	81.5	81.5	100.0
	Total	124	100.0	100.0	

APPENDIX C – Research Question 1

C.1: Illustration of the spread of respondent's responses on "Information flow"



C.2: Principal Component Analysis (PCA) – Factoring the variables

	Component				
	1	2	3	4	5
During the past 3 months, how often did you receive or send written reports or memos from or to other organisations or agencies?	,846	,039	,065	,052	,130
During the past 3 months, how often have you had work related discussions (face-to-face or by phone) to individuals in other organisations?	,802	-,135	,188	,035	-,006
During the past 3 months, how often do you receive or send written reports or documents from or to Parent-Headquarters?	,732	,182	-,016	,221	,034
During the past 3 months, how often do you receive or send written reports or documents from or to other subsidiaries /business units?	,725	,252	,241	,050	,277
To what extent is information storage in your organization efficient in terms of accessibility, quality and size of storage facilities?	,068	,843	-,049	,016	-,004
To what extent is the organisation efficient and effective in gathering data?	,003	,838	,087	,110	,127
To what extent is your organisation efficient and effective in transforming this data into relevant and usable information?	,005	,680	,066	,423	-,089
To what extent is the level of technology intensity in your organisation (including IT and ICT networks)?	,312	,520	,061	-,261	-,176
When you want to communicate with individuals in another subsidiaries/business units, how much difficulty have you had in getting a hold of them?	-,090	,036	-,827	,138	-,032
How much difficulty do you experience in getting ideas clearly across to people in other subsidiaries?	-,159	-,139	-,770	-,075	,151
How well are you personally familiar with the people from other subsidiaries/divisions that you work closely with?	,106	,044	,636	,143	,467
To what extent are you informed about the specific goals and services of your competitors in the industry?	,060	,049	-,012	,820	-,044
How well are you informed about the business environment outside your organisation i.e. market, economic and political awareness?	,063	,046	-,032	,705	,275
To what extent do you follow what's happening in your industry (skills, market information, procedures) and try to adapt that within your business?	,122	,074	,077	,678	,071
To what extent did individuals in the other subsidiaries/business units hinder your subsidiary in performing functions during the last 3 months?	,082	-,222	-,033	-,004	,748
During the past 3 months to what extent has your subsidiary/business unit changed or influenced the service or operations of another subsidiaries/ business units?	,101	,221	-,006	,185	,701
How well informed are you about the specific goals and services of the other subsidiaries or business units in the organisation.	,093	,045	,501	,258	,552
During the past 3 months how frequently have people in your subsidiary/unit been in contact with people in the other subsidiaries/business units?	,355	-,287	,371	-,098	,421

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

APPENDIX D – Research Question2

D.1: Mean ranks for Evidence Based Decision Making

	How best can you describe the type of your organizational structure?	N	Mean Rank	Sum of Ranks
Every employee is empowered to make decisions that will influence the organisation?	Matrix	58	61.71	3579.00
	Hierarchical	66	63.20	4171.00
	Total	124		
Operational decisions making only happens at the Top Management?	Matrix	58	65.57	3803.00
	Hierarchical	66	59.80	3947.00
	Total	124		
Middle to Junior management is often consulted during operational decision making?	Matrix	58	60.81	3527.00
	Hierarchical	66	63.98	4223.00
	Total	124		
How long is feedback loop on operational decision making?	Matrix	58	64.03	3713.50
	Hierarchical	66	61.16	4036.50
	Total	124		

APPENDIX E – Research Question 3

E.1 Pearson's Chi-square Test Results

Crosstab

Count

		How best can you describe the type of your organizational structure?		
		Matrix	Hierarchical	Total
How flexible are the employees in adapting to the latest business techniques, processes and principles?	Not at all flexible	2	7	9
	Little flaxible	13	16	29
	Somewhat flexible	25	23	48
	Quite flexible	17	11	28
	Very flexible	1	8	9
Total		58	65	123

APPENDIX F – Research Question 4

F.1 Cross tabulation and chi square for effective strategy formulation process in different organisational structures

			How best can you describe the type of your organizational structure?		Total	*p* - Value Matrix vs. Hierachical
			Matrix	Hierarchical		
Is there a formal long term plan/strategy in place which is familiar to most employees? [5 - 10 Years]	Yes	Count	35	46	81	χ2(1, 124) = 1,192, p =0,275
		% within How best can you describe the type of your organizational structure?	60,3%	69,7%	65,3%	
		% of Total	28,2%	37,1%	65,3%	
	No	Count	23	20	43	
		% within How best can you describe the type of your organizational structure?	39,7%	30,3%	34,7%	
		% of Total	18,5%	16,1%	34,7%	
Is there a formal short to medium term plan/strategy in place which is familiar to most employees? [2 to 5 years]	Yes	Count	51	57	108	χ2(1, 123) = 0,002, p =0,968
		% within How best can you describe the type of your organizational structure?	87,9%	87,7%	87,8%	
		% of Total	41,5%	46,3%	87,8%	
	No	Count	7	8	15	
		% within How best can you describe the type of your organizational structure?	12,1%	12,3%	12,2%	
		% of Total	5,7%	6,5%	12,2%	

How often is the strategy reviewed in the organisation?	Not at all	Count	3	1	4	χ2(4, 120) = 3,598, p =0,463
		% within How best can you describe the type of your organizational structure?	5,4%	1,6%	3,3%	
		% of Total	2,5%	,8%	3,3%	
	Once in 5 years	Count	3	6	9	
		% within How best can you describe the type of your organizational structure?	5,4%	9,4%	7,5%	
		% of Total	2,5%	5,0%	7,5%	
	Once in 2 years	Count	9	6	15	
		% within How best can you describe the type	16,1 %	9,4%	12,5%	

		of your organizational structure?				
		% of Total	7,5%	5,0%	12,5%	
	Once a year	Count	28	38	66	
		% within How best can you describe the type of your organizational structure?	50,0 %	59,4%	55,0%	
		% of Total	23,3 %	31,7%	55,0%	
	At least twice a year	Count	13	13	26	
		% within How best can you describe the type of your organizational structure?	23,2 %	20,3%	21,7%	
		% of Total	10,8 %	10,8%	21,7%	
What approach is used to formulate strategy in the organisation?	Top to Bottom	Count	33	40	73	$\chi2(4, 120) = 3,598, p =0,463$
		% within How best can you describe the type of your organizational structure?	56,9 %	61,5%	59,3%	
		% of Total	26,8 %	32,5%	59,3%	
	Top-Bottom and Bottom to top	Count	25	25	50	
		% within How best can you describe the type of your organizational structure?	43,1 %	38,5%	40,7%	
		% of Total	20,3 %	20,3%	40,7%	

What is the parent organisation's extent of orientation to local strategies in foreign subsidiaries (i.e. Localization content)?	Very Low	Count	5	7	12	$\chi2(4, 122) = 0,607, p =0,962$
		% within How best can you describe the type of your organizational structure?	8,6%	10,9%	9,8%	
		% of Total	4,1%	5,7%	9,8%	
	Low	Count	7	6	13	
		% within How best can you describe the type of your organizational structure?	12,1%	9,4%	10,7%	
		% of Total	5,7%	4,9%	10,7%	
	Medium	Count	25	26	51	
		% within How best can you describe the type of your organizational structure?	43,1%	40,6%	41,8%	
		% of Total	20,5%	21,3%	41,8%	
	High	Count	15	19	34	
		% within How best can you describe the type of your organizational structure?	25,9%	29,7%	27,9%	
		% of Total	12,3%	15,6%	27,9%	

	Very high	Count	6	6	12	
		% within How best can you describe the type of your organizational structure?	10,3%	9,4%	9,8%	
		% of Total	4,9%	4,9%	9,8%	

What is the parent organisation's extent of orientation to its global strategic orientation in foreign subsidiaries (global strategy content)?	Very Low	Count	4	4	8	
		% within How best can you describe the type of your organizational structure?	6,9 %	6,3%	6,6%	
		% of Total	3,3 %	3,3%	6,6%	
	Low	Count	3	5	8	
		% within How best can you describe the type of your organizational structure?	5,2 %	7,8%	6,6%	
		% of Total	2,5 %	4,1%	6,6%	
	Medium	Count	23	26	49	χ2(4, 122) = 5,597, p =0,231
		% within How best can you describe the type of your organizational structure?	39,7 %	40,6%	40,2%	
		% of Total	18,9 %	21,3%	40,2%	
	High	Count	24	17	41	
		% within How best can you describe the type of your organizational structure?	41,4 %	26,6%	33,6%	
		% of Total	19,7 %	13,9%	33,6%	
	Very high	Count	4	12	16	
		% within How best can you describe the type of your organizational structure?	6,9 %	18,8%	13,1%	
		% of Total	3,3 %	9,8%	13,1%	
Which strategy takes precedence in the organization's foreign subsidiaries?	Global orientation	Count	19	27	46	χ2(2, 121) =1,109, p =0,121
		% within How best can you describe the type of your organizational structure?	33,9 %	41,5%	38,0%	
		% of Total	15,7 %	22,3%	38,0%	
	Local or Domestic orientation	Count	14	17	31	
		% within How best can you describe the type of your organizational structure?	25,0 %	26,2%	25,6%	

		% of Total	11,6 %	14,0%	25,6%	
	Both are equally import ant	Count	23	21	44	
		% within How best can you describe the type of your organizational structure?	41,1 %	32,3%	36,4%	
		% of Total	19,0 %	17,4%	36,4%	

Appendix G: Ethics Approval Letter

Dear Taruziwa Madangombe

Protocol Number: **Temp2016-01024**

Title: **Determining the effective strategy-structure fit for multinational corporations (MNCs): Comparison of matrix and hierarchical structure from an information-processing perspective.**

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

You are therefore allowed to continue collecting your data.

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

Kind Regards,

Adele Bekker