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Matrix Organisational Structures: Headquarter subsidiary type relations impact on financial performance

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Abstract

Multinational corporations executing multidimensional strategies can select various organisational structures, with the matrix structure as one possible option. Where organisations select this matrix structuring the subsidiary role allocation is a critical step in ensuring financial performance, yet research within the field of international business on this topic is nascent. Where organisations achieve fit between their strategy selected, structure opted for, and the environment within which it operates this is reflected in their performance. This research through the application of the information processing view focusses on the impact that the subsidiary type, defined as Autonomous, Receptive and Active has on financial performance when considering the configuration and coordination in multinational companies that have adopted the matrix organisational structure. The research thus focusses on a gap in research on the matrix structuring at macro level between the organisational HQ and the subsidiaries and contributes to a field that has stalled since 2017.

This research study applied a quantitative cross-sectional study conducted at the subsidiary level within multinational companies with a matrix structuring. The survey questionnaire was distributed through convenience and snowball sampling to senior executives, with 57 valid responses received of which 52% were South African based and predominantly in the services industry, where most studies historically were done within the manufacturing industry. The study used two-stage procedure of cluster analysis to determine the underlying group structure within the sample, identifying the three clusters and empirically determining ideal profiles. From the ideal profiles for the implementation variables for the three subsidiary types a differentiated fit score was determined and with multiple regression relationships between the differentiated fit and performance were assessed. The study confirmed the subsidiary taxonomy defined by Martinez and Jarillo (1991) and expanded by Meyer and Su (2015). Further the study found that no significant relationship existed between the subsidiary type and performance, and that where Autonomous subsidiaries worked on improving the coordination fit they would perform better. This study contributes to the stalled research on MNCs matrix organisational structures, specifically at a macro level between the HQ and subsidiary, contributing to the understanding of the operational capability impact on performance. The study also proposes THE “IRCC matrix” that HQ managers can use to structure organisations optimally in the matrix structuring, or subsidiary managers can use to ensure strategy-structure-environment fit, contributing to performance.

Key words:

Matrix organisational structure, headquarters subsidiary relations, subsidiary type, performance

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University.

I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Leon Nel

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List of Abbreviations

CA: Cluster Analysis

CFA: Confirmatory factor analysis

CSAs: Country-specific advantages

DT: Destructive Testing

EFA: Exploratory factor analysis

FSAs: Firm-specific advantages

HQ: Headquarters

HQS: Headquarters Subsidiary

MNC: Multinational corporation

NDT: Non-Destructive Testing

OLS: Ordinary least squares method

PCA: Principal Component Analysis

ROI: Return on Investment

RQ: Research question

Chapter 1: Definition of problem and purpose

1.1 Introduction

Globalisation and environmental pressures are increasing the need for companies to obtain a competitive advantage, the multinational corporation (MNC) matrix organisational structure with diverse subsidiaries can provide this through multidimensional strategies (Egelhoff, 2020; Egelhoff et al., 2013; Galbraith, 2014). Companies that have successfully implemented the matrix organisational structure are amongst the biggest, and most prosperous companies in the world, such as NEC, Unilever, Starbucks and Philips, underscoring the importance of this structure, yet research on the topic is nascent (Egelhoff et al., 2013; Kiruba Nagini et al., 2020; Pitts & Daniels, 1984; Qiu & Donaldson, 2012), specifically on the impact the type of subsidiary has on performance (Chiba, 2019). What is known is that where organisations achieve fit between the environment they operate in, their strategy selected and their structure, these organisations perform financially (Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Galbraith, 2014, 2018). What is not known within the MNC organisations that have adopted the matrix structure is what the impact the subsidiary type has on financial performance, something that is of critical importance for managers when selecting a global strategy, and possibly having a major influence.

1.2 Purpose

Globalisation has accelerated competition and for companies to both sustain and achieve performance (Geng et al., 2017) it is imperative that they select the right structure; more so for MNCs that require multidimensional strategies and flexibility between the HQ and subsidiaries (Barron et al., 2017; Qiu & Donaldson, 2012; Romelaer & Beddi, 2015). The MNC matrix organisational structuring, with a head office serving geographically spread subsidiaries provides the flexibility required with multidimensional strategy execution (Egelhoff et al., 2013; Romelaer & Beddi, 2015), still the nascent research on this specific type of structure needs to be expanded, specifically in the strategy-structure-environment-fit paradigm in international business. The impact of the structuring between the HQ and subsidiary on financial performance is not well researched (Chiba, 2019) and needs to be expanded to provide MNCs better comprehension of structural design leading to superior performance and competitive advantage.

Research on the matrix organisational structures came to an end in 2017 (Egelhoff, 2020), with only one study (Andersson et al., 2007) looking at subsidiary contributions to MNC performance, and one (Chiba, 2019, p. 1) looking at “the impact of strategy, flexibility, efficiency and HQ control orientations

on the performance of MNCs adopting a matrix organisational structure" since the Eighties, slanting literature towards older studies (Kostova et al., 2016). This study aims to fill the gap, and further understand the impact that alignment to the subsidiary type allocated has on performance in multinational corporations that adopted a matrix organisational structure, confirming that when a subsidiary actively pursues a specific role allocated to it within the global strategy the subsidiary will achieve positive financial performance. The configuration and coordination is thus critical, as misalignment leads to failure in strategy execution and financial performance (Burton, 2020; Donaldson & Joffe, 2014; Schlevogt, 2002). The research is designed to understand subsidiary type (role) financial performance as a function of strategy, configuration and coordination within the matrix structure multinational corporation. The overarching research question: What impact does the subsidiary type have on financial performance in the MNC matrix structured organisation?

1.3 Context of the study

MNC organisations require multifaceted strategies to achieve financial performance in increasingly complex environments, requiring a multidimensional organisational structure to execute from (Barron et al., 2017; Romelaer & Beddi, 2015). The MNC matrix organisation structure, with a head office serving geographically spread subsidiaries provides the flexibility required with multidimensional strategy execution (Chiba, 2019; Egelhoff et al., 2013; Romelaer & Beddi, 2015). Research on the MNC matrix structure organisation must still fully evolve within the sphere of international management and international business with research stalling in 2017, and with the sphere of strategy, structure and organisational theory well developed (Aubry & Lavoie-Tremblay, 2018; Luo et al., 2016; Wilden et al., 2013). The limited research conducted on matrix organisational structures relate more to the design, management of internal and external environmental complexities, with only limited research relating to the structural alignment and performance (Kostova et al., 2016). Egelhoff et al. (2013) contributed to strategy-structure-fit, with Andersson et al. (2007) studying subsidiary contributions to performance in MNCs, whilst Chiba (2019) contributed to the performance in relation to strategy, flexibility, efficiency and orientations of headquarter control. A multitude of the research found that the matrix structure contained problems, leading to companies abandoning the implementation, with only a few being successful, and little research conducted on the subsidiary-type impact on performance (Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Piskorski & Spadini, 2007; Pitts & Daniels, 1984; Qiu & Donaldson, 2012). More research is thus required on the MNC matrix organisational structures, specifically the impact that the subsidiary has on financial performance.

There would be further value in studying a seemingly flawed structure, as companies in the current fast paced globalised economy, with ever changing environments need to accurately structure in line with their strategy to ensure competitive advantage and superior performance (Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Galbraith, 2013). The matrix structured organisation permits the configuration of the subsidiaries in a flexible manner, allowing for contextual variables like host country conditions to be considered in each subsidiary (Benito et al., 2019; Buckley & Hashai, 2005; Schmid et al., 2016). The structure allows for better coordination of the subsidiaries, attributable to its dispersed nature and network formed by the multifaceted structure (Barron et al., 2017; Claggett & Karahanna, 2018; Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Hamel & Prahalad, 1983; Qiu & Donaldson, 2012). Where impediments are understood and managed, organisations can opt to implement the matrix structure ultimately allowing them to achieve the competitive advantage needed in the challenging environments caused by globalisation (Rugman & Verbeke, 2001). With the pace of globalisation, the matrix organisational structure is inevitable for many globally dispersed organisations, necessitating further research (Egelhoff et al., 2013). Thus, despite the fact that the matrix structure may not suite all organisations, there is a renewed interest in the matrix, or flexible matrix structures due to economic imperatives necessitating fit and performance (Egelhoff, 2020; Galbraith, 2008).

1.4 Problem statement

Multidimensional strategy execution, thus strategies at a global, regional, national, and possibly even local level, demands the use of multidimensional organisational structures for corporations to achieve higher-level financial performance (Barron et al., 2017; Egelhoff & Wolf, 2017; Hamel & Prahalad, 1983; Qiu & Donaldson, 2012; Romelaer & Beddi, 2015). The matrix structure is one multidimensional macro structuring that can be utilised to effect strategies on multidimensional level, where the design consists of the headquarters (HQ) of the multinational corporation (MNC) overseeing globally dispersed subsidiaries (Barron et al., 2017; Egelhoff et al., 2013; Qiu & Donaldson, 2012; Romelaer & Beddi, 2015). Within the matrix structured MNC superior performance can only be achieved if there is alignment at the macro level between the HQ, the geographically dispersed subsidiaries, the environment within which it operates, and with subsidiaries following the subsidiary roles(types) they were allocated as per the global strategy (Egelhoff et al., 2013). The HQ thus configures the global subsidiaries as required for strategy execution and then needs to coordinate the various subsidiaries to allow for proper integration, leading to competitive advantage. Three types of subsidiaries have been identified (Martinez & Jarillo, 1991; Meyer & Su, 2015; Wu et al., 2019; Zeng et al., 2018), namely receptive, active and autonomous in the multinational corporation context, each having different configuration and coordination requirements, each having a different role in relation to the MNC HQ to fulfil.

The matrix organisational structure, specifically set up for flexibility to accommodate multiple strategies (Egelhoff et al., 2013), where the macro structure is divided into a Product/Service primary dimension x Geographic region secondary dimension for example, a problem is created regarding coordination as the matrix manager has to report to two bosses (Levinthal & Workiewicz, 2018; Sahlmueller et al., 2022). The matrix manager in the dispersed subsidiary thus must answer to the MNC HQ and to the regional management simultaneously, causing coordination issues and impacting on performance. Previous studies within the strategy-structure-environment-fit paradigm have focussed on how to design and manage MNC matrix organisational structures (Egelhoff et al., 2013), and what "impact strategy, efficiency, flexibility, and HQ control has on performance" (Chiba, 2019), but these have not provided clarity on the expected impact of the subsidiary type on financial performance. Andersson et al. (2007) studied subsidiary contributions to performance in MNCs only and did not cover matrix organisational structures. Thus, there exists a gap in the understanding of the impact of the subsidiary type on financial performance in the MNC that has adopted the matrix organisational structure.

This study based within the strategy-structure-environment-fit paradigm seeks to prove that where a subsidiary follows closely the exact type (role) as allocated by the HQ in the MNC (Martinez & Jarillo, 1991; Meyer & Su, 2015; Wu et al., 2019; Zeng et al., 2018) matrix structure, that subsidiary will financially perform.

1.5 Significance of the study

With ever more increasing forms of connectivity, improved transportation, scheduling, and growing fragmentation of production in the world, value chains are becoming more and more interconnected, and globalization will lead to the growth of MNCs, making the use of matrix organisational structure inevitable (Bartlett & Ghoshal, 2000; De Backer & Miroudot, 2018; Stopford & Wells, 1972). This assumption will be further supported by the increased performance resulting from globalization on MNCs (Kyove et al., 2021; Sledge, 2006). This study seeks to gather insights into the impact that adoption of the subsidiary type (role) as defined by the MNC HQ, in line with the global strategy, will have on financial performance in the subsidiary. By understanding the impact of subsidiary type (role) on financial performance the study aims to contribute further insights into the matrix organisational structure, something that is currently lacking (Chiba, 2019). The findings can in the context of South Africa assist managers in achieving superior performance, ultimately contributing to GDP growth, job creation and prosperity. The study contributed on a practical, methodological and theoretical level.

1.5.1 Academic Significance

Academic studies on the matrix structure were to a large extent forsaken in the late Eighties, mainly due to implementation failures of the structure (Pitts & Daniels, 1984; Wolf & Egelhoff, 2013). Limited research followed with predominantly negative lines of conclusion; Gobeli and Larson (1986) looking at project management, called it a fad and destined to fail; Barker et al. (1988) conflict management in the matrix; Levinthal and Workiewicz (2018) dual challenges of coordination and specialization in the matrix. Goś (2015) and Levinthal and Workiewicz (2018) respectively reviewed and commented on all the disadvantages and advantages of the matrix structure. MNCs continued adopting the matrix organisational structure notwithstanding the dwindling academic research focus (Egelhoff, 2020; Egelhoff et al., 2013).

Academic research specifically in relation to the matrix structured organisational format still is in a nascent state, with relevant studies covering the structure mostly including a combination of elementary and matrix structures (Egelhoff et al., 2013; Qiu & Donaldson, 2012). As per the call from Egelhoff et al., (2013) for research focused on solely matrix organisational structures, this study considered only this structure.

This research adds another degree of understanding of the headquarter subsidiary (HQS) relationship, contributing to the work of Martinez and Jarillo (1991) followed by Meyer and Su (2015) and as per the review by Kostova et al. (2016), providing insights into financial performance specifically, and the impact that structuring has on macro level (Wu et al., 2019). Where MNCs want to adopt the matrix organisational structure, or review viability, the current research provides more information of relevance.

Studies on the matrix organisational structures predominantly contained smaller samples, or were limited geographically to Europe, America or single Asian countries, and was limited to the manufacturing industry (see Egelhoff, 1988a, 1988b; Lin & Hsieh, 2010; Taggart, 1997; Wolf & Egelhoff, 2013 for some examples). The current study achieved more of a global spread, and mostly not in the manufacturing industry, more weighted towards Testing Inspection and Certification businesses, providing a new perspective from the services sector and adding a completely different sector. This contributes to widening the scope of coverage of matrix organisational structure industry sector research.

1.5.2 Practitioner Significance

The study contributes to a better understanding of the impact the subsidiary type has on financial performance, providing practitioners practical insights into the precedent condition or structuring on a macro level. This would allow organisations to review alignment with strategy at the inception stages, ensuring success and superior performance (Lin & Hsieh, 2010; Wilden et al., 2013). The study provides management with a clearly defined classification system for subsidiaries that can be applied over time, as the fit and alignment can change over time.

1.5.1 South African Significance

The South African economy is dominated mostly by MNCs in almost all sectors, with the top ten locally listed companies employing 865,000 employees alone, whilst showing good profitability (Teuteberg, 2022). Given the probability that these companies are either in a matrix organisational structure or will in future evaluate the possibility of adopting this structure, these companies can benefit from the current study. The study can provide relevant insights that can be utilized to improve structuring, and through this action lead to improved financial performance, ultimately providing job security, and possibly more job opportunities. This improved financial performance could assist in countering the huge unemployment rate in South Africa as a start.

1.6 Delimitations

The study was concentrating on comprehending the effect that the subsidiary type has on the financial performance of the subsidiary, within MNCs that adopted matrix organisational structures, and would therefore be limited to MNCs that have adopted matrix organisational structures. Previous research conducted by Chiba (2019), Egelhoff et al. (2013) and Qiu and Donaldson, (2012) concluded that research on the topic was needed and called for research on the matrix organisational structure to focus only on these and not on other forms of structuring.

The study has a specific focus on the structure between the HQ and the subsidiary, and as such only the primary and secondary dimensions were considered. Matrix organisational structures can be constituted by primary, secondary, and tertiary dimensions such as Functional dimension x Product/Service dimension x Geographic region dimension, all dimensions were considered. The consideration relates to explaining the “two bosses” system, which is negative of the matrix structure, and relates to reporting to two individuals within the structure (Galbraith, 2008; Levinthal & Workiewicz, 2018; Sahlmueller et al., 2022). The study was limited to the constructs subsidiary type, configuration and coordination only in relation to financial performance.

Literature reviewed indicated that four individual subsidiary roles (types) had initially been identified as being receptive, active, quiescent, and autonomous (Martinez & Jarillo, 1991; Wu et al., 2019). Although a fourth subsidiary type had been identified (Taggart, 1997) this research excluded the fourth, quiescent type from the research due to perceived difficulty in really identifying such subsidiaries in practice.

The study design was the quantitative method where metrics used to measure the constructs subsidiary role (type), configuration, coordination, and financial performance were retrieved from previously established studies (Auh & Menguc, 2005; Chiba, 2019; Egelhoff et al., 2013; Gresov, 1989; Kumar & Antony, 2009; Lin & Hsieh, 2010; Madangombe, 2017; Spanos & Lioukas, 2001; Van de Ven & Ferry, 1980; Wolf & Egelhoff, 2002), and built into a questionnaire collected at subsidiary level, with no open-ended questions. The constructs being measured were covered by multiple questions. Although the responses received gave global coverage, the highest percentage was received from South Africa, and as such the findings cannot be generalized globally.

1.7 Definition of terms

The following definitions were taken up in order to ensure understanding uniformity in the current study.

a. Definitions related to the information processing view
b. Definitions related to the multinational corporation
c. Definitions related to organisational structure
d. Definitions related to performance
e. Definitions related to configuration
f. Definitions related to coordination
g. Definitions related to control; and
h. Definitions related to headquarter subsidiary relations.

1.7.1 Definitions related to the information processing view

Information processing view: The information processing view of the MNC is one branch of contingency theory (Kano & Verbeke, 2019), where contingency theory holds that no sole template exists for foremost formal organisational structuring and that the best suited structural design depends on variable contingencies (Joseph & Gaba, 2020). Contingency theory dictates that organisations can only be effective if a “fit” exists amongst its structure and its environment, whilst fit is obtained by internal mutually supportive functions, and through the matching of the organisation’s

structural features to its information processing requirements (Burton & Obel, 2004). The structure thus fulfills the role of increasing the organisation`s capacity to process information, to handle internal and environmental complexness (Galbraith, 1977; Gulati et al., 2005; Tushman & Nadler, 1978). This study thus uses the information processing view to look at the macro level fit between the HQ and the globally dispersed subsidiaries.

Fit: Within the information processing view of the organisation the concept of fit is a central construct. This study adopts the Perspective of Profile-Deviation Fit, as described by Venkatraman (1989, p. 22) as “the perspective views fit as the degree of adherence to an externally-specified profile”.

1.7.2 Definitions related to the multinational corporation (MNC)

Headquarters (HQ): The HQ is the geographic positioning in the home country, where the organisation`s executive members and main offices are located and represents an entity that fulfils numerous roles and simultaneously constitutes the location where the firm’s legal address is (Birkinshaw et al., 2006; Collis et al., 2007).

Home Country and Host Country: From the MNC context, Home country, is defined as the geographic positioning of the HQ, whilst Host country is defined as the geographic positioning of the subsidiary.

Multinational Corporation (MNC): Within the public discourse there is no defined definition or system of classification (Aggarwal et al., 2011; Rugman & Verbeke, 2008). The following definition is adopted in this study. A Multinational Corporation is an organisation that generates at least 10% of its sales from operations outside of its home country, whilst it has a minimum of two offices in other sovereigns (Chiba, 2019). Operational activities outside of the home country can include one of the following, or a combination of provision of services, production or distribution (Aggarwal et al., 2011; Rugman & Verbeke, 2004).

Subsidiary: The subsidiary is the entity that the MNC sets up in the host country as part of its global expansion. The subsidiary is the representative offices in the foreign sovereign that the MNC needs for the provision of services, production or distribution, it can be fully owned or wholly owned depending on the host country localization requirements. The subsidiary thus functions as the organisation in the foreign sovereign allowing the MNC to effectively expand outside of its home country. Depending on the organisational strategy, the MNC would have multiple subsidiaries in different countries and regions.

1.7.3 Definitions related to organisational structure

Organisational structure: The research rooted is in the comprehension of the macro level structure between the HQ and its subsidiaries within the MNC structure and as such the subsidiary structure in the host country is not relevant. Thus, the research covers the MNC structure as a whole on a macro level between the HQ and all subsidiaries.

Matrix organisational structure: For the purposes of this study, the matrix organisational structure, encompasses the complete grid (network) structure of the overall MNC linking the various reporting lines between the subsidiaries and the HQ (Piskorski & Spadini, 2007; Qiu & Donaldson, 2012).

Organisation: The organisation was defined by Lawrence and Lorsch (1967, p. 3) as “a system of interrelated behaviors of people who are performing a task that has been differentiated into several distinct subsystems, each sub-system performing a portion of the task, and the efforts of each being integrated to achieve effective performance of the system”. Conceptually the organisational structure is the instrument through which the objectives of the organisation are executed.

1.7.4 Definitions related to performance

Performance: Performance in the framework of the current study is achieved when the best fit between organisational strategy and the structure, as well as between strategy at corporate level and environmental demands is achieved. The performance is a product of the fit between the subsidiary type and constructs of configuration and coordination. The indicators of performance will be financial.

1.7.5 Definitions related to configuration

Configuration: Lin and Hsieh (2010, p. 54) defined configuration as “the arrangement of geographical (country) locations for carrying out the functional activities of each unit of the MNC” Configuration can be highly dispersed or concentrated.

1.7.6 Definitions related to coordination

Coordination: Coordination, or “the extent to which the subsidiary coordinates its functional activities with those of other subsidiaries in the worldwide network of the MNC” (Lin & Hsieh, 2010, p. 54).

Differentiation: Differentiation is defined as the division the organisational system into separate smaller parts or sections, where each part or section within its own external context leans towards developing context specific attributes as required (Lawrence & Lorsch, 1967).

Integration: Integration is defined as subsidiaries working independently, separated, but with a coherent goal of working to one conclusion of attaining the organisation's final aim (Ali & Varoğlu, 2022; Lawrence & Lorsch, 1967; O'Reilly & Tushman, 2013).

1.7.7 Definitions related to control

Control: Control was defined by Child (1977, p.117) as "regulating the activities within an organisation so that they are in accord with the expectations established in policies, plans and targets". Control within the current study relates to who has control over the subsidiary matrix manager between the subsidiary and the HQ. Thus, the matrix manager within the subsidiary can report to both the subsidiary and HQ (Davis & Lawrence, 1978; Grubenmann, 2017).

1.7.8 Definitions related to headquarter subsidiary relations

Headquarter subsidiary relations: Headquarters subsidiary (HQS) relations is defined as the manner in which the MNC coordinates and controls the globally spread subsidiaries (Kostova et al., 2016).

1.8 Assumptions

"An assumption can be defined as a condition that is taken for granted, without which the research point would be useless" (Leedy & Ormrod, 2019, p.26). The following assumptions were made in this study:

a. Theoretical Level Assumptions:

Within the strategy-structure-environment-fit paradigm numerous well documented and recognized theories exists that can be used to study organisational theory, design, and strategy. The information processing view of the firm, part of contingency theory, is used as the study seeks to comprehend the design fit between the matrix organisational structure HQ and subsidiaries on a macro level. The integration-responsiveness (I-R) framework is deemed suitable as the congruence of the subsidiary with the allocated strategy as allocated by the MNC HQ is a critical part of the current study. The primary focus of the current study is thus not the strength of the strategy but rather the fit of the subsidiary with its allocated role.

b. Methodological Level Assumptions:

The positivism research philosophy used for this study, with the quantitative referential model, within this study`s context has likely consequences for the results obtained and applicability in a dissimilar

context. The quantitative mono method, following the positivist philosophical referential model was applied to this research, aligning with the nature of the researcher and the research. All further assumptions regarding human nature, the nature of reality (ontology), and about knowledge (epistemology) are detailed under Section 4.2.

c. Practical Level Assumptions:

Practical assumptions are that the MNCs decide on a global strategy, and that subsidiaries then adopt the subsidiary role (type) as allocated, allowing for a fit as perceived in this study. The sample is more representative of the Testing Inspection and Certification industry and would not necessarily be applicable to all industries even though the respondents were globally spread.

1.9 Conclusion

This opening chapter provides the backdrop of the research and explains the selected constructs to be applied to get a better understanding of their impact on performance within the macro structure of the matrix organisational structure. In addition, the need for this research, as well as the overarching research question, scope and rational is provided. The literature review will follow in the next section, providing detailed coverage of the constructs and literary discourse.

Chapter 2: Theory and literature review

2.1 Introduction

Globalisation pressures often require that multinational corporations (MNCs) execute multidimensional strategies between the corporate headquarters (HQ) and globally dispersed subsidiaries (Barron et al., 2017; Egelhoff & Wolf, 2017). The strategy execution is effected through the matrix organisational structure, one form of an organisational structure, that the integration required amongst the HQ and subsidiaries (Andersson et al., 2005; Egelhoff et al., 2013) within the environment that the MNC operates. When organisations attain fit between the strategy opted for, the structure selected to enact the strategy, and the environmental compulsion directing strategy (Donaldson & Joffe, 2014; Egelhoff & Wolf, 2017; Egelhoff et al., 2013) it will ultimately be reflected in its performance (Ambroise et al., 2017; Wilden et al., 2013). Thus, it is well established that performance is dependent on a superior fit between organisational strategy, structure and environmental demands (Defee & Stank, 2005; Wasserman, 2008; Wilden et al., 2013). Whether these constructs fit together can be understood through the way information is processed within the organisation.

The information processing view of the firm has been used to understand how an organisation should structure (Egelhoff, 1991; Egelhoff et al., 2013; Galbraith, 1974; Moser et al., 2017). The information processing view of the organisation, with the focus distinctly on how organisational characteristics influence information processing (Egelhoff, 1991; Egelhoff et al., 2013; Galbraith, 1974; Moser et al., 2017) sees the organisation as an information processing structure (Galbraith, 1973; Thompson, 1967; Tushman & Nadler, 1978). The organisational structure has to ensure that the information processing needs, or requirements of the firms' strategy are satisfied by the information processing capacities of its structure, whilst further contributing to performance (Barron et al., 2017; Egelhoff et al., 2013; Galbraith, 1974; Moser et al., 2017; Qiu & Donaldson, 2012; Romelaer & Beddi, 2015). Thus, the information processing view states that organisations structure themselves to ensure that information processing is optimised and can thus be used as a theoretical lens to determine fit in an MNC.

MNCs allocate a different role to each subsidiary within the network, and the organisation`s overall global strategy (Ambos et al., 2020; White & Poynter, 1984), due to the global strategy and varying contexts in geographies where subsidiaries are situated (Ghoshal & Nohria, 1989; Grøgaard & Colman, 2016). The role allocated would determine the activity that the subsidiary would perform, for example being a subsidiary with one specialised factory in a country, supplying the globe (Ali &

Varoğlu, 2022; O'Reilly & Tushman, 2013), as part of the global task that needs to be linked back into the organisation. The subsidiary would at the same time also experience local responsiveness pressures, where the subsidiary has to be more accommodating towards the local market, government demands, market conditions and tastes (Demir et al., 2021; Martinez & Jarillo, 1991; Meyer & Su, 2015; Wu et al., 2019; Zeng et al., 2018). MNCs thus constantly face the twin pressures of local responsiveness with global integration, where the activities of the global task being performed in the subsidiary has to be linked into the global organisation (Martinez & Jarillo, 1991; Meyer & Su, 2015; Wu et al., 2019; Zeng et al., 2018).

For MNCs to be successful globally there has to be integration of their different international units into the global organisation, with the configuration of the organisation impacting on this. The global configuration of subsidiaries can be highly dispersed where subsidiaries are scattered globally or concentrated, where subsidiaries are bundled together in a region (Buckley & Hashai, 2005; Porter, 1986a, 1986b; Schmid et al., 2016) with each of the subsidiaries having a different configuration and fulfilling different activities of the global task (Martinez & Jarillo, 1991; Meyer & Su, 2015; Wu et al., 2019; Zeng et al., 2018). More concentrated configurations with individual value chain activities separated and placed in single sovereign locations would require higher integration, whilst a more dispersed configuration with the complete value chain replicated in every country would require a more responsive approach to the value chain (Fuchs, 2022; Roth et al., 1991), both requiring different approaches to coordination within the organisation to manage interdependence. Organisational coordination, defined as the linking or integration of different organisational parts (Claggett & Karahanna, 2018; Harrison et al., 2022; Van de Ven, 1976), is executed through various mechanisms that effectively coordinate or link these subsidiary activities back into the organisation in line with the global strategy and successful organisations will reflect this in their performance.

The chapter sets off with a general review of the Information Processing View of the firm, as the theoretical lens applied, which is followed by the literature review. The phenomenon forming the basis of the research, the matrix organisational structure, initiates the literature review followed by an appreciation of performance in the organisational context, and then a review of the subsidiary type. The organisational configuration and coordination follow sequentially to close off the literature review.

2.2 Theory: The information processing view of the firm

The information processing view of the organisation (Egelhoff, 1991; Egelhoff et al., 2013; Galbraith, 1974; Moser et al., 2017) states that organisations are structured in such a manner that information processing optimisation is ensured. Matrix organisational structures research has traditionally been

viewed through the bifocal complementary cognitive view and the information processing view of the organisation (Egelhoff, 1991; Egelhoff et al., 2013; Galbraith, 1974), with the focus of the latter distinctly on how organisational characteristics influence information processing. The information processing view sees the organisation as an information processing structure (Galbraith, 1973; Moser et al., 2017; Thompson, 1967; Tushman & Nadler, 1978) where decision makers have to process a greater amount of information between them with greater task uncertainty, *whilst the task is being executed* (Galbraith, 1974). Task uncertainty was described by Galbraith (1977, p. 37) in the information processing context as "the difference between the amount of information required to perform the task and the amount of information already possessed by the organisation", with information processing defined as data gathering, data conversion into information and communication, as well as the storage of information (Galbraith, 1973; Moser et al., 2017; Tushman & Nadler, 1978). Where tasks are well understood before execution it allows for preplanning, whilst unclear tasks necessitate knowledge acquisition *during* execution, resource adjustments, rescheduling and reprioritization, all of which require information processing throughout the course of task execution (Galbraith, 1974; Moser et al., 2017). Thus, greater task uncertainty requires a greater amount of information processing amongst decision makers *during* task execution to attain a set level of performance, with uncertainty limiting the organisations pre-planning and advanced decision making prior to task execution (Galbraith, 1974; Moser et al., 2017). Organisations thus structure themselves, or adopt certain organisational forms, as a strategy to reduce task uncertainty, to allow them to increase pre-planning ability, increase flexibility with regards to adaptability around pre-planning inability, and to decrease required operational performance levels to ensure viability (Galbraith, 1974; Larson & Berente, 2011). Pre-planning ability can be increased by the creation of self-contained tasks; adaptability around pre-planning inability flexibility can be accommodated through the creation of lateral relationships, whilst decreasing the required operational performance levels is achieved through the creation of slack resources. Which strategy an organisation will follow would largely depend on the costs of each strategy, as the more mechanisms for coordination and control increase in complexity, they inevitably become more costly due to resources, time, energy and managerial control (Galbraith, 1973; Saberi et al., 2019), directly impacting on organisational design, especially in large organisations.

Within a large organisation, such as MNCs, with resources and specialized groups that collectively work on a global output task, the task can be split into smaller subtasks and the integration of these subtasks is a function of the organisational design (Galbraith, 1974; Moser et al., 2017). Within this organisational design mechanisms have to be created to permit coordination of a large number of independent roles globally to ensure task completion, and to handle uncertainty (Egelhoff, 1991;

Galbraith, 1974; Moser et al., 2017). Where organisations face minute amounts of uncertainty, rules and programs for routine predictable tasks can be implemented to reduce information processing between the HQ and subsidiary. Increased uncertainty leads to exceptions not covered by rules and programs requiring decision making by authority higher in the hierarchical structure, where the lower levels cannot manage, requiring hierarchical referral. When the uncertainty increases further, threatening to overburden the management structure, goal setting and planning is implemented, facilitating the movement of decision-making to the lower organisational levels, reducing the information processing workload on the hierarchical structure. Thus, the need for information processing is reduced as-long-as the organisation operates within the rules and plan. Refer to figure 2.1. Where the above steps are not sufficient, to diminish the quantum of cases of exceptions referred higher up in the organisation through hierarchical channels, overloading management, the organisation can either increase its processing capacity, or diminish the quantum of information being processed (Egelhoff, 1991; Galbraith, 1974, 2018; Moser et al., 2017).

Reducing the need for information processing, the organisation can be structured to either create slack resources by increasing the operational planning targets so that less exceptions occur, or by the creation of self-contained tasks by amending the subtask groups (Egelhoff, 1991; Galbraith, 1974; Moser et al., 2017). These mechanisms would again negate the need to move decision-making upward in the hierarchy and are mechanistic mechanisms. To increase its processing capacity the organisation can look at design strategies for the organisation, by investing in vertical information systems or creating sideways relationships within the organisation. Vertical information systems implement mechanisms within the hierarchical structure for processing information acquired whilst the task is performed, but not overloading hierarchical channels of communication. Examples would be accounting procedures and computer systems (Chen et al., 2021). The last strategy to apply when hierarchical channels of communication are still being overloaded is the creation of sideways relationships or selectively employing joint decision-making processes that cut across authority lines within the organisation (Egelhoff, 1991; Galbraith, 1974, 2018; Moser et al., 2017). With this design strategy the decision-making level is moved lower-down in the organisation, specifically where the information is created, or exists. In order of increased task uncertainty, the following lateral relationships can be applied as defined by Galbraith (1974, p. 32): “direct contact between individuals, liaison roles, task forces, teams, integration of roles, managerial linking of roles and the matrix organisational design”. Thus, people are brought together via the organisational structure. Applying the matrix organisational design with dual reporting lines would thus be the apex in design of an organisation to manage information processing and uncertainty, as explained through the information processing view (Egelhoff, 1991; Galbraith, 1974, 2018; Moser et al., 2017).

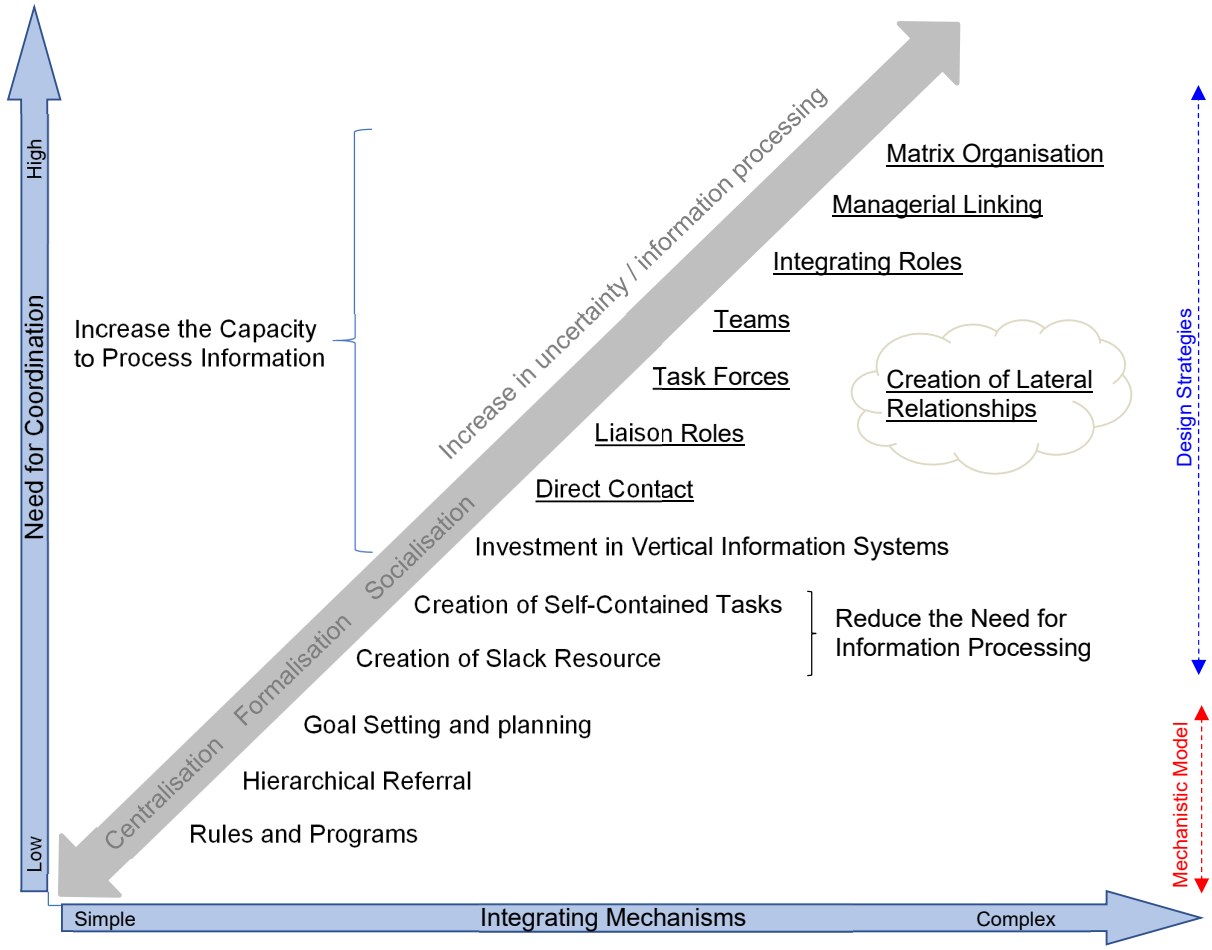

Figure 2.1: Design strategies in order of increased need for coordination (Galbraith, 1974)

The emphasis of the information processing view is on how organisational design impacts on the development, the transfer, and utilization of information or knowledge (Egelhoff et al., 2013). Thus, the use of the information processing view as a lens is valuable in the comprehension of the manner in which the macro structure of an organisation mediates the information flow from the exterior environment (Egelhoff et al., 2013; Galbraith, 1974, 2018; Moser et al., 2017).

The exterior environment is however not stable (Ambroise et al., 2017; Child, 1972; Sarabi et al., 2020). The environment organisations are operating in is rapidly changing, due to increased globalization of industries and destination country responsiveness requirements, leading to firms experiencing multiples of different conditions (Collis et al., 2007; Martinez & Jarillo, 1991; Obel & Gurkov, 2022; Thompson, 1967). Fit, or the matching of the organisation`s strategy, structure and the exterior environment within which it operates. is of cardinal importance for the survival and financial performance of organisations (Ambroise et al., 2017; Wilden et al., 2013). Good fit between

the strategy and structure is thus achieved when the information processing needs of a firm's strategy are satisfied by the information processing capability of its structure, whilst further contributing to performance (Egelhoff et al., 2013; Galbraith, 1974; Moser et al., 2017; Romelaer & Beddi, 2015). Thus, when the capacity to process information is insufficient to handle demand, it can lead to coordination and integration difficulties, produce sub-optimal decision making, and amplify the company`s organisational inefficiencies (Bergh, 1998; Tushman & Nadler, 1978), ultimately impacting on performance. One specific aspect impacting on performance is the dual reporting lines friction caused between a globally dispersed subsidiary and the global HQ within the matrix organisational structure MNC, as defined by the macro view information processing perspective.

The information processing approach was specifically designed to review the multinational corporation (MNC) structures requiring the translation of strategic conditions into information processing requirements, and organisational structure into information processing capacities to measure fit (Egelhoff et al., 2013; Moser et al., 2017). With the information processing theory (Galbraith, 1973; Tushman & Nadler, 1978) as foundation the clearest logic for matching MNC structure to strategy was advanced by Egelhoff (1982). The logic dictates that optimum organisational performance demands good fit between both the firm's structure defined information processing capacities and strategy particular elements derived information processing requirements. The information processing view of the organisation (Egelhoff, 1991; Egelhoff et al., 2013; Galbraith, 1974, 2018; Moser et al., 2017) thus states that organisations are structured in such a manner that information processing optimisation is ensured. Derived from this logic and as an example, a global divisional product structure would be inclined to fit a strategy that embraces increased foreign diversity of product, as this furnishes an unrelated channel of stratified information processing per business or product line within the MNC (Egelhoff & Wolf, 2017). With this work Egelhoff et al. (2013) provided the requisite framework needed to analyze the differing requirements placed on information processing amongst the foreign based subsidiary and the headquarters (HQ) in the matrix organisational structure.

2.3 Literature Review

2.3.1 MNC Matrix organisation structuring HQ and subsidiaries

Organisations consist of work portions split between various departments (differentiated e.g. marketing, production or products), working separated and independently from each other, with a coherent goal of attaining the organisation`s final aim or task (Ali & Varoğlu, 2022; Lawrence & Lorsch, 1967; O'Reilly & Tushman, 2013). Organisations can further adopt various corporate

strategies and supporting structures, depending on the environment within which it operates (Bartlett, 1986; Egelhoff, 2020; Egelhoff et al., 2013; Wolf & Egelhoff, 2013), with the organisational structure fulfilling a mediating role at the macro level ensuring harmony between the environment and the strategy (Chandler, 1962; Egelhoff et al., 2013; Galbraith, 2014, 2018). This organisational structure can also be seen as the placement of decision-making responsibilities, where these can be either centralized or decentralized (Hill et al., 2014), depending on the strategy, structure and environment. The multinational company matrix structuring is one such organisational structure that can be used, consisting of a headquarters (HQ) in the organisation`s home country or country of origin, and foreign based subsidiaries (Bartlett, 1986; Egelhoff & Wolf, 2017; O'Reilly & Tushman, 2013). In the MNC matrix organisational structure there is also a formal division of the organisation into subdivisions such as functional areas, products/services, customer market or geographic operations, with the use of integrated coordination levers for the activities of subsidiaries geographically dispersed, to achieve the organisation`s final aim or task (Hill et al., 2014; Qiu & Donaldson, 2012).

The MNC emphasizes the importance of local adaptation and responsiveness to national differences to be competitive with local companies; and is one form of a differentiated and integrated network (Bartlett, 1986; Egelhoff & Wolf, 2017; O'Reilly & Tushman, 2013). Differentiation implies that activities are spread amongst different global subsidiaries, and that these subsidiaries adapt to local needs and tastes, whilst integration of activities means raising the level of interdependence among subsidiaries. MNCs that simultaneously require increased integration and differentiation, defined as organisational ambidexterity (Ali & Varoğlu, 2022; O'Reilly & Tushman, 2013), would require increased coordination within its internal "network" to be able to implement its international strategy (Martinez & Jarillo, 1991; Zeng et al., 2018), often adopting the matrix organisational structuring. The matrix organisation term refers to a cross-functional organisational type that "brings people together from two or more usually separated organisational functional areas to undertake a task on either a temporary basis (as in a project team) or on a relatively permanent basis" (Ford & Randolph, 1992, p. 269). This "bringing together" is achieved through the structuring of the organisational dimensions. The matrix organisational structure is built around two or more dimensions, overlaying elementary structures (dimensions) such as a combination of either functions, products/services divisions or geographic regions, allowing for flexibility (Galbraith, 2008; Sahlmueller et al., 2022). The overlay adds sideways authority, communication and influence between the HQ and subsidiaries, and within which managers often have two bosses in these structures (Galbraith, 2008; Levinthal & Workiewicz, 2018; Sahlmueller et al., 2022). See figure 2.2 below.

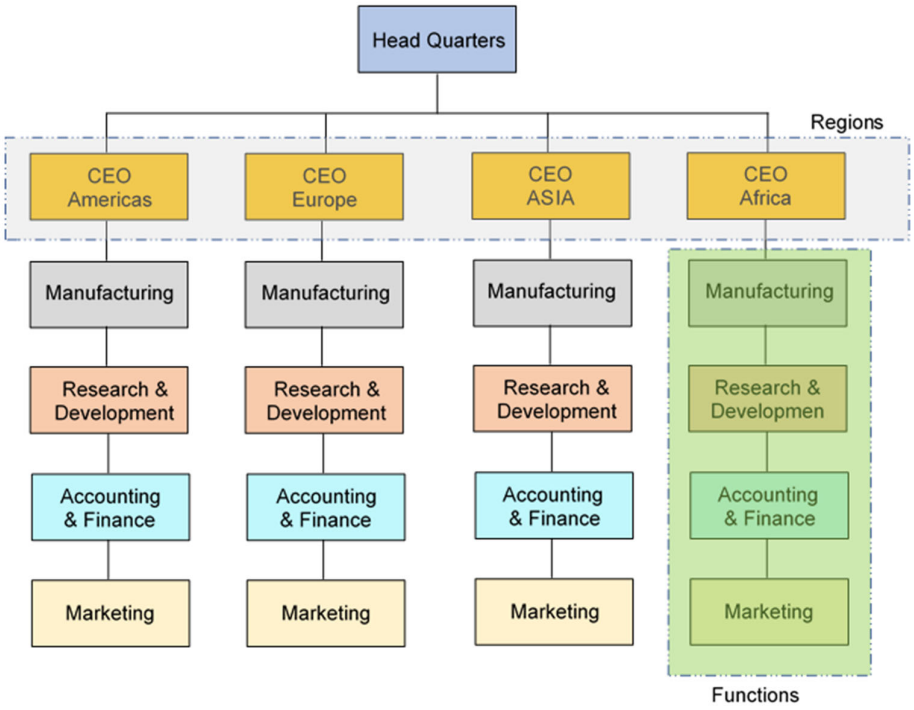

Figure 2.2: Depiction of regional structure, overlaying regions x functions

The MNC matrix organisational structuring thus consists of a corporate HQ, with subsidiaries globally dispersed in different geographies and countries, in a multidimensional macro structure, all working towards a common goal, with the foreign subsidiaries of MNCs controlled by the headquarters (Donaldson, 2009; Egelhoff & Wolf, 2017; Stopford & Wells, 1972).

2.3.1.1 MNC macro-organisational structures

MNCs achieve an innate competitive advantage through their capability to coordinate activities across geographical and organisational boundaries (Zeng et al., 2018). Van de Ven (1976) defined organisational coordination as the linking or integration of different organisational parts, whilst Martinez and Jarillo (1991) expanded this further by defining coordination across dispersed subsidiaries through the use of the integration mechanisms of centralization, formalization and socialization (Baumstark, 2020; Nohria & Ghoshal, 1994; Palmié et al., 2016). Refer to figure 2.1. Centralization with the focus on the control exercised by the HQ, or decision-making by way of the organisational hierarchy (Kim et al., 2003; Palmié et al., 2016). Formalization (standardization) with a focus on routines within policies, rules, standard processes and codifying processes utilized within the subsidiaries in the MNC (Ambos & Schlegelmilch, 2007; Palmié et al., 2016). Socialization addresses organisational levers that shape and forge interpersonal relationships, shared values and

goals amongst the personnel working within the globally dispersed subsidiaries in the MNC (Cicekli, 2011; Ghoshal & Nohria, 1989; Grøgaard & Colman, 2016; Gupta & Govindarajan, 2000; Palmié et al., 2016). Formalization and centralization are viewed as hierarchical or formal structural mechanisms, and socialization mechanisms being regarded as mechanisms of an informal normative nature (Martinez & Jarillo, 1991). All of the abovementioned integration mechanisms, formal and structural are important within the MNC matrix organisation structure, simultaneously requiring increased integration and differentiation (responsiveness) to implement its international strategy contributing to competitive advantage (Martinez & Jarillo, 1991; Zeng et al., 2018).

With globalization and MNCs setting up subsidiaries in foreign territories where they also have to be responsive to the home market needs, and exploit market imperfections in different nationalities (Collis et al., 2007; Lin & Hsieh, 2010) the MNC thus constantly faces the twin pressures of local responsiveness and global integration, requiring more coordination within MNCs (Martinez & Jarillo, 1991), necessitating the correct organisational structure. Organisational structures used in MNC configurations are in essence a broad dyad between the one-dimensional (elementary) or matrix structures (Egelhoff, 2020; Qiu & Donaldson, 2012; Wolf & Egelhoff, 2002, 2013). Differentiating the matrix and elementary structures are the dimensionality and number of reporting lines. Elementary structures characteristically are mostly one-dimensionally focused on one product or service dimension. Matrixes are multi-dimensional (e.g., Service/Product x Functional dimension) and characterized by multiple reporting lines (Egelhoff & Wolf, 2017; Qiu & Donaldson, 2012). Elementary structures are foundational to forming a matrix organisational structure, with the MNC divisional structuring at the HQ forming the basis of differentiation of the matrix that is developed. The one-dimensional structure is a hierarchical structure, where only one chain of command is followed from top to bottom with only one reporting line (Wolf & Egelhoff, 2013). Samsung as an example of a hierarchical structure has only one line of command from top to bottom, with a product manager in South Africa reporting to the Africa head, who in turn reports to the CEO in the HQ in Korea as per the example in figure 2.3 below.

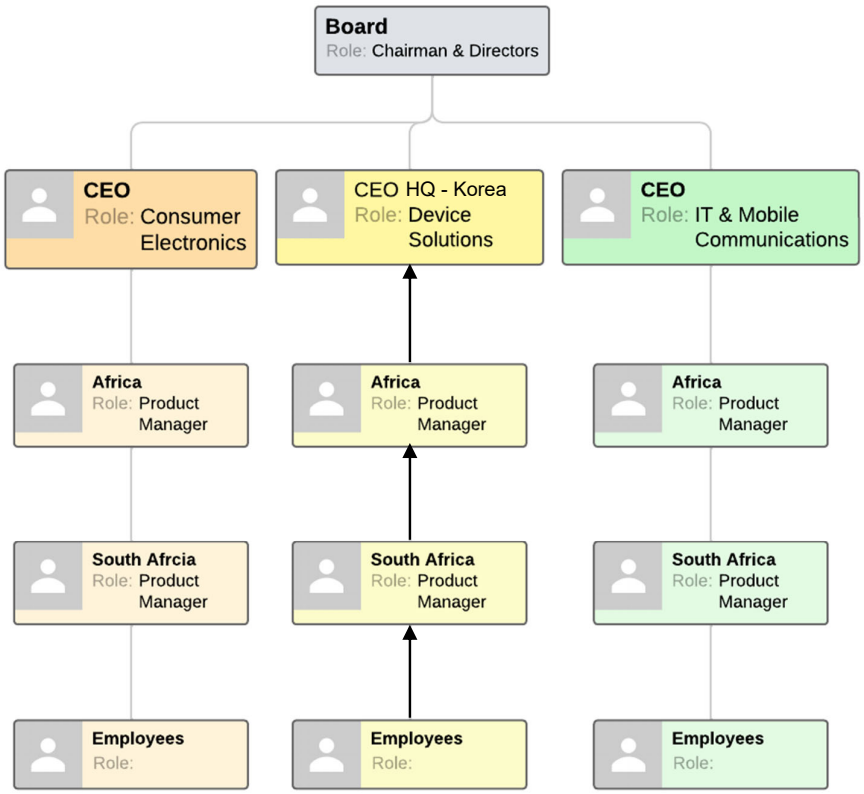

Figure 2.3: Hierarchical structure of Samsung (Evans, 2019)

Where strategies require that organisations be simultaneously extremely good at two or more activities, products or services globally (Galbraith, 2014), the structure can be set up either as elementary structures or matrices as defined by Qiu and Donaldson (2012). With the addition of a new hierarchical dimension to an existing one-dimensional structure a matrix organisational structure is created that provides the control and coordination required to execute on multi-dimensional strategies (Egelhoff, 2020; Egelhoff et al., 2013). These matrix organisational structures are uniquely appropriate where MNCs want to implement multidimensional strategies (Egelhoff et al., 2013), also providing the flexibility required with multidimensional strategy execution (Chiba, 2019; Egelhoff, 2020; Egelhoff et al., 2013; Romelaer & Beddi, 2015). Multidimensional strategies followed by MNCs attempt to implement differential advantages at global, regional, national, and possibly even local levels (Egelhoff & Wolf, 2017). The matrix structure flexibility allows organisations to formally structure according to four dimensions; functional dimensions, geographical region dimensions, product/service or customer market dimensions depending on the strategy and objectives (Egelhoff, 2020; Piskorski & Spadini, 2007; Qiu & Donaldson, 2012).

Matrix organisational structures are strikingly different, in juxtaposition with elementary structures characteristically having several command lines of authority, with subsidiary managers having reporting lines at both the subsidiary and HQ level (Levinthal & Workiewicz, 2018; Piskorski & Spadini, 2007; Sahlmueller et al., 2022). Where a two-dimensional matrix structure containing a functional dimension by geographic region dimension would be set up, a 'two-boss' or 'multiple command' structure would be created as described by Davis and Lawrence (1978). The subsidiary manager in a foreign subsidiary reports at the same time to two heads along the two structural dimensions, one the functional head in the parent company HQ, and the second the regional head. In the same instance, the business unit head in the subsidiary can report to the country manager as well as to the HQ (Davis & Lawrence, 1978; Piskorski & Spadini, 2007; Sahlmueller et al., 2022). As an example, using DEKRA, a MNC structured along the divisional (service) by regional matrix organisational structure, the CEO of the subsidiary in South Africa reports simultaneously to the divisional manager in Germany, and to the regional business unit manager for APAC (East & South Asia and Southern Africa & Oceania). Similarly, a business unit manager in South Africa reports to the local CEO and to the divisional manager in Germany. Refer to figure 2.4 for the graphical representation of the structure and two reporting lines of DEKRA.

As per the DEKRA example, where the HQ is structured divisionally per Product/Service the subsidiaries in foreign countries would then report to the Product/Service heads directly at the HQ. Thus, a worldwide Product/Service dimensional structure is formed between the subsidiary and HQ, with a sole reporting line, with the Product/Service head for SA reporting to the CEO for SA and the Product/Service Divisional CEO in the HQ in Germany. Applying similar reasoning, with regards to the Functional, Geographic Region and Customer Market aspects to form respective dimensional structures with each aspect. The salient point being that differentiation of the elementary structures is grounded on the way in which the HQ is structured, respectively Functional, Product/Service, Customer Market and Geographic Region with a sole command and reporting line. The strategic choices made by the MNC will determine the initial elementary structures that form the foundation for later multi-dimensional strategies and multidimensional structure with multiple reporting lines.

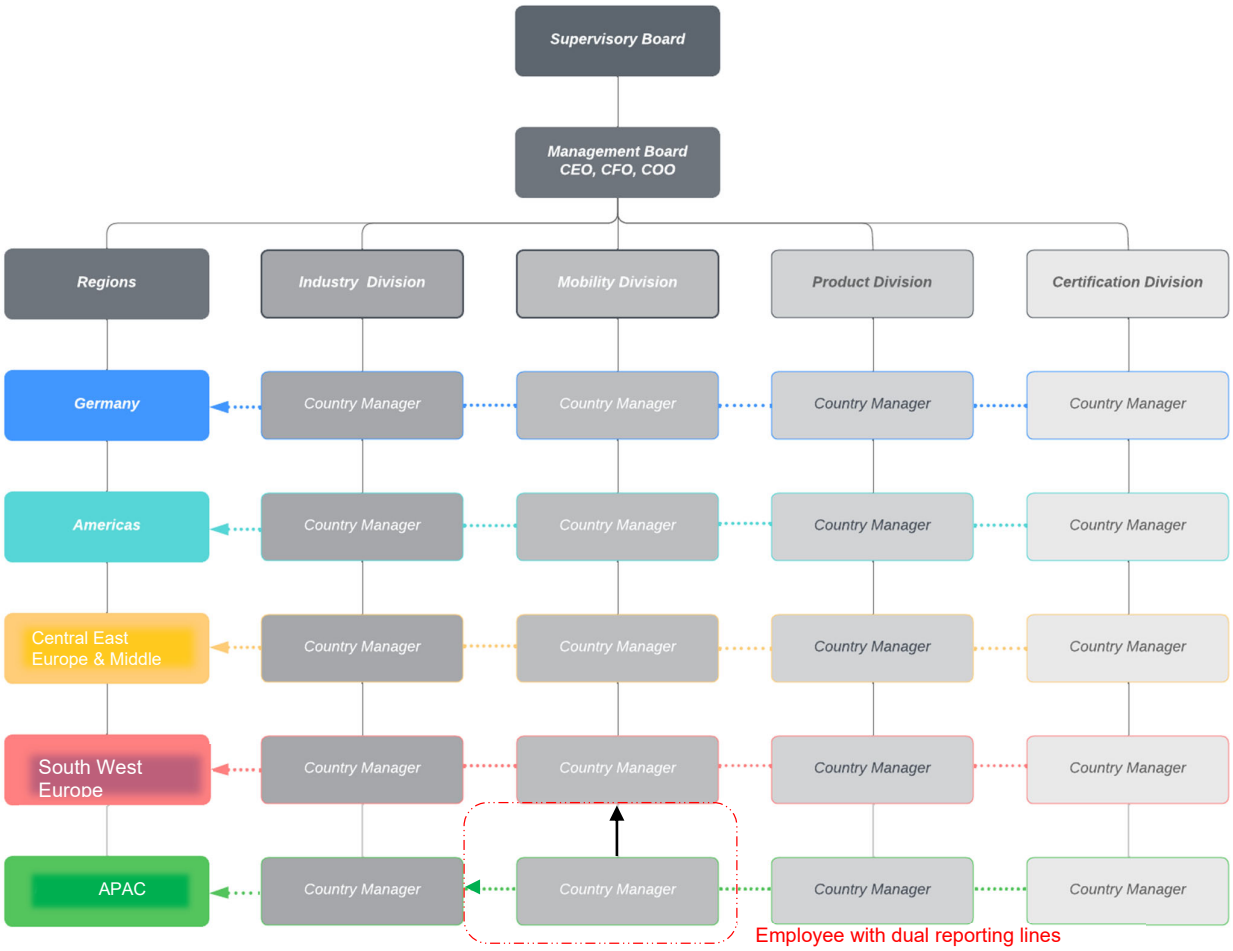

Figure 2.4: The matrix structure used by German MNC DEKRA. (DEKRA, 2022)

The two reporting lines, identified as a distinct disadvantage of the matrix structure, were defined by solid line reporting to the HQ, and dotted line reporting in respect of the subsidiary or region (Piskorski & Spadini, 2007). This dual reporting structure complicates the control and coordination of the subsidiary through the subsidiary manager as the various managers at different hierarchical levels have different views of strategy (Davis & Lawrence, 1978; Doz & Prahalad, 1984). Comparing the elementary structure with single command line, the multidimensional structure combined with the double reporting lines of the matrix structure poses implementation challenges (Bartlett & Ghoshal, 1990; Egelhoff & Wolf, 2017; Galbraith, 2013; Rugman et al., 2011; Verbeke & Greidanus, 2009). Other disadvantages of the dual reporting system are that it leads to ambiguous authority, generates conflict, indecisiveness, and in the long run affects the control of assets (Bartlett & Ghoshal, 1990; Galbraith, 2013; Rugman et al., 2011; Sy et al., 2005; Verbeke & Greidanus, 2009). All the disadvantages of the matrix structure need to be considered with the development of multinational strategies for MNCs.

MNCs in a dynamic world are facing changes in international strategies, the speed and mercurialness of technology, global knowledge dispersal, and increased intensity of global competition resulting in uncertainty and increased information processing requirements, demanding more coordination and multidimensional strategies (Egelhoff & Wolf, 2017a). When executing multidimensional strategies, MNCs require flexibility to adapt to environmental requirements (Andersson et al., 2005), something that the elementary structures as delineated above, and in figure 2.3 are not ideally suited for (Bartlett & Ghoshal, 1990; Egelhoff & Wolf, 2017; Galbraith, 2013; Mintzberg, 1979) thus requiring more complex structures. Where organisations regard strategic considerations, select structures and achieve fit between strategy, structure and the environment (Donaldson & Joffe, 2014; Egelhoff et al., 2013; Miles et al., 1978), it is reflected in the organisation`s performance (Defee & Stank, 2005; Wasserman, 2008; Wilden et al., 2013). Strategic considerations relevant to MNCs include the level of diversification, importance of local responsiveness to the MNC and global integration.

Bartlett and Ghoshal (2002) defined these strategic considerations as follows: high local responsiveness would mean that the MNC responds comprehensively to the local environments, through customized products for local tastes and cooperation with local governments; high global integration requires that the MNC would first and foremost be concerned with economies of scale on a global level, standardization of products and integrated global supply chains. From the strategic considerations a classification of four international strategies as well as their organisational structures that best fit have been defined (Donaldson & Joffe, 2014; Egelhoff & Wolf, 2017). The MNC following an international strategy with both low local responsiveness and global integration is best matched with an international divisional structure, and the coordination with foreign subsidiaries is managed by the domestic organisation`s international division (Bartlett & Ghoshal, 1998; Donaldson, 2009). Where a global level strategy with low local responsiveness paired with high global integration is followed this is best matched with a worldwide functional structure allowing for comprehensive coordination amongst the domestic organisation and foreign subsidiaries (Bartlett, 1986; Egelhoff & Wolf, 2017; O'Reilly & Tushman, 2013).

Where a multinational strategy with high local responsiveness paired with low global integration is followed this is best matched with a world-wide geographic divisional structure, allowing for foreign subsidiary autonomy to accommodate local tastes (Bartlett, 1986; Egelhoff & Wolf, 2017; O'Reilly & Tushman, 2013). Where a transnational strategy with high local responsiveness paired high global integration is followed this is best matched with a functional geographic structure where coordination by the geographies is balanced by the products or functions (Bartlett, 1986; Egelhoff & Wolf, 2017; O'Reilly & Tushman, 2013). Where the organisation has selected the best-fit organisational structure

fitting its strategy and environment it will be reflected in its performance (Egelhoff & Wolf, 2017; Galbraith, 2013; Lin & Hsieh, 2010; Wu et al., 2019).

Succinctly, the section above provides insight into the research topic, the matrix organisational structuring as defined by the organisational strategy, between the subsidiary and the HQ. Research literature on the matrix organisational structure predominantly will be slanted to older literature as the research on the matrix organisational structures paused around 2017, leaving a gap that the current study is trying to fill.

The next section will discuss performance within the organisational context.

2.3.2 Performance in the organisational context

The environment-strategy-structure paradigm in organisational theory allows for an understanding of performance differences (Ambroise et al., 2017; Amitabh & Gupta, 2010). When organisations attain fit amongst the trio of environmental compulsion directing strategy (Donaldson & Joffe, 2014; Egelhoff & Wolf, 2017; Egelhoff et al., 2013), the strategy opted for, and the structure selected to enact strategy it will ultimately be reflected in performance (Ambroise et al., 2017; Wilden et al., 2013). Thus, performance is born out of a fit between organisational strategy and structure, as well as between strategy at corporate level and environmental demands. Where the organisational design is a misfit, it leads to disorganisation and ultimately lower performance (Burton, 2020; Donaldson & Joffe, 2014; Schlevogt, 2002). Ghoshal and Nohria (1993) found that specifically in MNCs misfit resulted in reduced profitability and reduced revenue growth in excess of 30%. MNCs that operate in various environments, with varying strategic considerations need to carefully consider the most appropriate supporting structure to allow for fit and performance (Donaldson & Joffe, 2014). Rather than being islands, or in a vacuum, organisations exist within an overarching external environment, which through its nature will shape organisations (Egelhoff et al., 2013; Holm et al., 2005; Sarabi et al., 2020; Tian & Slocum, 2014) and impact on their performance if organisations are not adaptable with changing inputs received.

Scott and Davis (2015) described organisations as open systems receiving inputs that they transform and export as outputs to the environment, where these outputs can be services, products or knowledge (information) that can be reinstated into the system, re-energizing it. Organisations, as open systems, operating in the bigger environmental context are directly affected by the environment, with the manner of interaction with the environment moderating the performance of the organisation (Child, 1972; Egelhoff & Wolf, 2017; Holm et al., 2005; Sarabi et al., 2020; Tian & Slocum, 2014).

Multinational companies with multidimensional strategies (Egelhoff et al., 2013) would be exposed to multitudes of interdependent relationships in various environments in foreign countries that have to be managed to ensure harmony with the environment, resulting in sustainability and performance (Andersson et al., 2014; Egelhoff & Wolf, 2017). Within this multi-strategic, multi-dependency, multi-country environment the decision-making executive teams in MNCs have to balance the internal tensions and interrelationships to ensure higher level performance (Egelhoff, 2020; Hedlund, 1986; Michailova & Zhan, 2015). Where organisations do perform, or achieve superior performance, this is indicative of achieving harmony with the environment within which the organisation operates (Easterby-Smith et al., 2009; Wu et al., 2019), and thus fit between strategy-structure and environment (Ambroise et al., 2017; Egelhoff, 2020; Wilden et al., 2013).

Thus, environment-strategy-structure fit translates into organisational performance, which is discussed in the next section.

2.3.2.1 Organisational performance

Organisational performance is constituted by the combination of several determinants, amongst which are leadership skills and competencies, knowledge (information) retention and transfer, organisational culture and strategy (Almatrooshi et al., 2016; Ferreira et al., 2020). The level of skills and competencies leaders possess when implementing strategies, translating into structure, configuration and coordination directly determines performance of an organisation (Almatrooshi et al., 2016). Within this strategy, a specific role is allocated to each subsidiary as decided per the global configuration (Banerjee et al., 2019; Bartlett & Ghoshal, 1986; Birkinshaw & Morrison, 1995; Ghoshal & Nohria, 1989; Martinez & Jarillo, 1991; Meyer & Su, 2015; Wu et al., 2019). The configuration of MNCs provides superior ability to acquire, utilize and transfer knowledge (information) across country borders, contributing to performance (Adarkwah & Malonæs, 2020; Michailova & Mustaffa, 2012; Wei & Nguyen, 2020; Zack et al., 2009). Within an organisation the culture, or ability to cope with problems of external adaption, internal integration and adapting to changes further contributes to performance (Martinez et al., 2015; Schein, 1985). Strategy, or the timing of guiding decisions the management make to steer the organisation with respect to the structure selected within the environment it operates in influences organisational performance (Kalkan et al., 2014; Pertusa-Ortega et al., 2010). The overall performance of the organisation will however be determined upon the strength of each of the individual attributes as they combine. To understand performance in the MNC for this study the subsidiary role, configuration and coordination was used, as determined by the strategy in order to operationalise performance (Lin & Hsieh, 2010).

The MNC allocates a strategic role to each of the globally dispersed subsidiaries. The closer a subsidiary matches its ideal role, the better the performance this subsidiary would show than those that do not closely match its fit (Lin & Hsieh, 2010). Subsidiary roles are allocated depending on how highly they are integrated within the network of their parent MNC's and how responsive they have to be to the host country local requirements (Kostova et al., 2016; Martinez & Jarillo, 1991; Taggart, 1997; Wu et al., 2019). Subsidiary roles however are closely related to the configuration as the MNC determines whether activities are dispersed or concentrated depending on where the country locations are situated for performing each functional activity for each MNC unit (Porter, 1986b), and what specific advantages have to be developed to contribute to a competitive advantage and performance (Hennart, 2012, 2018; Wilden et al., 2013).

MNCs need to develop competitive advantages when competing globally if they want to perform (Hennart, 2018). Where firms want to compete in foreign territories against indigenous competitors, firm-specific advantages (FSAs) need to be developed to counter disadvantages (Adarkwah & Malonæs, 2020). FSAs in the MNC are defined by three categorisations, as the retained knowledge (routines and culture), ability of recombination of internal resources, and stand-alone aspects like patents and trademarks (Ferreira et al., 2020; Teece et al., 1997; Verbeke, 2009; Verbeke & Greidanus, 2009; Wilden et al., 2013). Firm-specific advantages (FSAs) in the MNC are all aspects that can be transferred across borders to subsidiaries to exploit markets (Verbeke, 2009). Country-specific advantages (CSAs), or location advantages are attributes that originate outside of the locality in a country representing institutional or economic settings, for example geographic location, factor endowments, national cultures, government policy and regulations, industrial clusters and institutional frameworks (Ferreira et al., 2020; Gugler, 2017; Pavlínek, 2018; Verbeke, 2009). The functioning of the MNC in foreign countries is thus only possible with the bundling of the FSAs and CSAs within the MNC, with both the HQ and the subsidiary controlling certain resources and recombining old and new resources (Rugman & Verbeke, 2008; Teece et al., 1997; Verbeke & Greidanus, 2009; Wilden et al., 2013). Multinational companies amalgamate their CSAs and FSAs aiming to increase their competitive advantage, with FSAs being the primary driver (Hennart, 2012, 2018; Rugman & Verbeke, 2008; Rugman et al., 2011; Wilden et al., 2013). The structuring of the MNC is a critical contributor in the process of amalgamation of CSAs and FSAs and is perceived as an FSA in its own right within the current research as asserted by Rugman (1985).

MNCs ideally develop their CSAs as well as FSAs to increase their competitive advantage, increasing interdependence and requiring increased coordination (Adarkwah & Malonæs, 2020; Bartlett & Ghoshal, 1998; Fuchs, 2022; Kogut, 1992; Prahalad & Doz, 1987; Thompson, 1967). Coordination,

or “the extent to which the subsidiary coordinates its functional activities with those of other subsidiaries in the worldwide network of the MNC” (Lin & Hsieh, 2010, p. 54) is critical for interdependence management (Fuchs, 2022; Roth et al., 1991) to conclude the global activities, and is directly related to performance. The MNC thus has to differentiate between the different configuration and coordination (Bartlett & Ghoshal, 1998; Benito et al., 2019; Porter, 1986a, 1986b; Yip, 1989) requirements needed to fit the allocated subsidiary roles to ensure a proper fit, that ultimately ensures organisational performance.

The organisational structure in relation to organisational performance will be discussed in the next section.

2.3.2.2 Organisational structure and organisational performance

Organisational structures are of great importance as mediating medium with strategy execution as the structure ensures congruence amongst the environment and strategy, with effectiveness reflected in the performance of the organisation (Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Galbraith, 2013). Organisational structures are the basis for organizing and are constituted of hierarchical levels and domains of responsibility, positions, roles, and integration mechanisms (Ahmady et al., 2016; Galbraith, 1977; Walton, 1986). Organisations further are designed as coordinated activity systems purposefully structured to three design parameters, namely decision-making or the levels to whom decision-making rights have been allocated (defining the hierarchical levels) and that they have the right information (Barron & Stacey, 2020), defining compensation for decision-makers, and operational integration (Chiba, 2019; Curado, 2006). All three design parameters require information to be processed to function as a collective (Galbraith, 1973; Thompson, 1967; Tushman & Nadler, 1978), whilst more information needs to be processed with greater environmental uncertainty (Galbraith, 1974; Moser et al., 2017). Greater environmental uncertainty requires a greater amount of information processing amongst decision-makers to attain a set performance level, with uncertainty limiting the organisations pre-planning and advanced decision-making ability (Galbraith, 1974; Moser et al., 2017). Organisations thus structure themselves in line with their strategies to allow them to increase pre-planning ability, increase flexibility with regards to adaptability around pre-planning inability, and to decrease required operational performance levels to ensure viability (Galbraith, 1974; Moser et al., 2017). Thus, the function of the structure is defined as that of increasing the information processing capacity of the organisation, to be able to deal with environmental uncertainty and internal complexity to attain a set level of performance (Galbraith, 1977; Moser et al., 2017; Tushman & Nadler, 1978). Organisations thus go through various structural design phases as they grow and develop, adapting to their information processing requirements to meet their information processing capabilities to ensure performance, especially MNCs.

Large, complex organisations like MNCs operating in differing environments with the accompanying uncertainty go through different organisational design features to match its information processing needs with its information processing capacity, and that the higher levels in the hierarchy within the organisation is not overloaded (Egelhoff, 1991; Galbraith, 1974; Moser et al., 2017). See figure 2.1. Galbraith (1973) defined the information processing capacities of the various features of the organisational design, in order of increasing capacity of information processing as, “rules and programs, hierarchical referral, goal setting, vertical information systems, and finally lateral relations mechanisms” (Egelhoff, 1991). Lateral relations mechanisms as the last mechanisms to decentralize information processing, when such requirements and uncertainty are both high, include direct contact amongst individuals, task forces, liaison roles, teams, and as last option matrix structured organisational designs (Egelhoff, 199, 2020; Galbraith, 1974; Gómez et al., 2016; Moser et al., 2017). The matrix structuring of the organisation as the apex mechanism for decentralizing information processing is the final organisational design feature that can be applied to an organisational structure to allow for information processing, ultimately affecting the performance of the organisation.

The subsidiary role in relation to performance will be discussed in the following section.

2.3.3 Subsidiary Role

MNC headquarters decide on different strategies in their international businesses around the globe to contend effectively (Lin & Hsieh, 2010), whilst simultaneously needing to allocate widely differing strategic roles to each subsidiary to allow the MNC to effectively execute its corporate strategy (Banerjee et al., 2019; Bartlett & Ghoshal, 1986; Birkinshaw & Morrison, 1995; Ghoshal & Nohria, 1989; Martinez & Jarillo, 1991; Meyer & Su, 2015; Wu et al., 2019). Ghoshal and Nohria (1989) initially found that due to varying contexts in geographies where subsidiaries are situated that MNCs do not treat subsidiaries homogeneously in terms of strategy, determining that each subsidiary would have a different headquarters subsidiary relation. Headquarters Subsidiary (HQS) relations are of pivotal importance for the overall operation and functioning of multinational companies and can be defined as the manner in which MNCs control and coordinate their globally spread value-adding subsidiaries (Kostova et al., 2016), whilst coordination can be defined as the linking or integration of different organisational parts (Claggett & Karahanna, 2018; Harrison et al., 2022; Van de Ven, 1976). The relation between the MNC subsidiary and HQ can be viewed as a dyadic exchange relationship, embedded within a structured context, constituted by a series of resource transactions (e.g. information exchanges) (Ghoshal & Nohria, 1989; Grøgaard & Colman, 2016), effected through the mechanisms of centralization, formalization and socialization (Martinez & Jarillo, 1991; Palmié et al., 2016). The structured context of the HQS relationship is captured in a formal structure or architecture

like the matrix organisational structure for MNCs to engage, manage, and exploit the potential of the different subsidiaries in their global network (Ahmady et al., 2016; Bolman & Deal, 2017; Egelhoff, 2020; Egelhoff et al., 2013).

The subsidiary in a MNC is thus an integral part of the organisation, which can be differentiated or distinguished within the organisational structure as units with different goals, each having their own outside network of stakeholders (Bartlett & Ghoshal, 1990), fulfilling a role in the global network (Bolman & Deal, 2017). Bouquet and Birkinshaw (2008), Bartlett and Ghoshal (1990), Roth and Nigh (1992) and Rugman et al., (2011) described the role of the subsidiary as an operational instrument, devoid of symmetry, which is commonly used as an organizing form or key building block within MNCs. The subsidiaries within the global network each have a role to fulfill within the MNCs global network, with Martinez and Jarillo (1991) and expanded by Meyer and Su (2015) suitably delineating the types of subsidiaries (e.g. active, autonomous, and receptive) in the context of the MNC subsidiary network (Wu et al., 2019). Differentiated and interdependent subsidiaries are permitted through this role, with the HQ coordinating and controlling the globally dispersed resources whilst the subsidiaries control some resources that are obtainable for redistribution or recombination within the MNC network (Hennart, 2012; Meyer et al., 2020; Rugman et al., 2011). The coordination and recombination thus occur internally within the MNC, with subsidiaries in foreign territories controlling region specific location resources, allowing for bundling of resources and easier integration on a global level when necessary.

Subsidiaries in foreign territories, in addition to being subjected to global integration requirements also have to be responsive to the host market needs, and exploit market imperfections in different nationalities (Collis et al., 2007; Lin & Hsieh, 2010; Wei & Nguyen, 2020). The MNC thus constantly faces the twin pressures of local responsiveness and global integration. Prahalad and Doz (1987) formulated the integration-responsiveness (I-R) framework for understanding strategy in the global context, founded on the pressures for local responsiveness and global integration perceived by, for example the HQ manager, and the subsidiary manager respectively (Williams et al., 2017). The integration of activities performed by various subsidiaries can be delimited as the firm`s response to overall cost reduction pressures and returns maximization through the exploitation of market imperfections inherent at various country locations (Taggart, 1997; Wu et al., 2019). Integration in this context meaning for example one specialized factory in a country is integrated into the organisation, supplying the globe (Ali & Varoğlu, 2022; O'Reilly & Tushman, 2013). The factory is thus integrated into the global system. For MNCs to be globally successful there has to be integration of their different international units into the global organisation. Responsiveness can be delimited as

the firm's response to host country market pressures and regulatory requirements at each subsidiary location necessitating the reduction in standardization and/or coordination where necessary (Taggart, 1997; Williams et al., 2017; Wu et al., 2019). Companies thus have to have a responsiveness to the local market they service, to be able to comprehend the needs of the local market. With the development of the I-R framework the perspective had been changed, with the subsidiary now being seen as an organisation within its own environment (Asakawa, 2001; Bartlett & Ghoshal, 1990; Prahalad & Doz, 1987; Williams et al., 2017; Wu et al., 2019). The subsidiary now perceived as making autonomous decisions and strategizing on the adopted market requirements and HQs configuration contingencies (Birkinshaw et al., 2000; David, 2005; Nohria & Ghoshal, 1997), all within a global integrated web. Martinez and Jarillo (1991) and Taggart (1997) extended the initial I-R framework to the level of the subsidiary, to ultimately provide the most dominant framework to model corporate and subsidiary level international strategy (Banerjee et al., 2019; Meyer & Su, 2015; Wu et al., 2019).

The two topics, integration and responsiveness, are strategically important for an organisation, and the organisational terms / organisational correlates are integration and differentiation. If a company needs to at the same time be more integrated, and more differentiated, it needs to better control, or coordinate the internal networks in the organisation, to be able to implement the organisations strategy. Martinez and Jarillo (1991) through their research showed that there is a link between an organisations strategy and different coordination mechanisms applied, with coordination defined as the integration of activities diffuse across global subsidiaries. Strategy is thus defined as choice of differentiation (responsiveness) and integration levels across organisational units that are dispersed geographically (Banerjee et al., 2019; Martinez & Jarillo, 1991). Thus, to relate coordination mechanisms used with strategy we must shift the focus to the subsidiary strategy being followed, or rather the individual subsidiary role within the organisation`s overall corporate strategy (Ambos et al., 2020; White & Poynter, 1984). From a strategic point of view the HQ decision-makers can choose between the four varying universal model strategies for their corporate strategy as defined by Bartlett (1986) and Bartlett and Ghoshal (1998), namely “the international firm multinational firm, the transnational firm, and the global firm to achieve the integration and responsiveness requirements required by MNC's”. The I-R framework can then be utilized to align the subsidiary role in strategy at each country level.

Martinez and Jarillo (1991) developed the initial I-R framework and it was expanded by Meyer and Su (2015) extended the I-R framework, with detailed examination down to the single subsidiary level by delineating three subsidiary roles as being “receptive, active, and autonomous” respectively,

providing the definitive framework that can be applied to subsidiary level strategy (Banerjee et al., 2019; Wu et al., 2019). This framework can thus be used to match the corporate strategy and subsidiary strategy as required. The receptive subsidiary is highly integrated within their MNC's network but not as responsive to host country milieu, concludes only a few value-chain functions, thus has high integration and low responsiveness. The active subsidiary concludes many of the firm`s activities, which are integrated with identical or distinct activities in disparate parts of the global network through pretty tight networks and close affiliation with the remainder of the firm globally (Bartlett & Ghoshal, 1998; Martinez & Jarillo, 1991; Wu et al., 2019). They are presented with strong mandates from the HQ and thus have high integration and high responsiveness, some activities are highly integrated through the network whilst some other activities adhere to local requirements. The autonomous subsidiary acts relatively independently from other subsidiaries and the HQ, concludes most of the value chain functions whilst having a foci mainly on local requirements, thus has low integration and high responsiveness. The respective subsidiary roles (receptive, active, and autonomous) show different levels of interdependence and as such demand distinctive designs of configuration and coordination within the international strategy.

The HQ decides on the international strategy and defines the varying roles of the subsidiaries in different nationalities to achieve the final strategy, whilst the new framework can be applied to differentiate the corporate strategy and subsidiary strategy (role) (Banerjee et al., 2019; Kostova et al., 2016). Integration on a global level is lead by both economies of scope and scale, whilst concentrating interest on the reduction of costs through standardization of production and distribution on a global level. Local responsiveness on the other hand demands variation in line with local conditions in the market, requiring the MNC subsidiary to operationally adapt to local circumstances (Bartlett & Ghoshal, 1998; Fuchs, 2022; Prahalad & Doz, 1987). Thus, the MNC has to select whether to achieve both integration and responsiveness, or to only attend to one of the two dimensions (Wei & Nguyen, 2020; Williams et al., 2017), affecting the structuring of the organisation. The selection of the dimension of integration and responsiveness also impacts on achieving competitive advantage.

For a MNC to achieve competitive advantage it has to possess the operational capacity to manage the resultant interdependence from resource flows throughout the organisation (Fuchs, 2022; Kogut, 1992), making operational capability for interdependency management crucial (Fuchs, 2022; Roth et al., 1991). To manage the interdependencies of functional activities the MNC needs the capabilities of coordination and configuration (Bartlett & Ghoshal, 1998; Porter, 1986a, 1986b; Schmid et al., 2016; Wu et al., 2019; Yip, 1989). The three subsidiaries as defined by Meyer and Su (2015) display different levels of interdependences, and as such require different configurations and coordination to

contribute to competitive advantage within the MNC (Banerjee et al., 2019; Lin & Hsieh, 2010; Wu et al., 2019). Thus, when the MNC HQ has selected a corporate strategy and aligned the strategy with the best matched structure, the I-R framework can be applied to match the best suited subsidiary role, matching the integration and responsiveness requirements, to contribute to competitive advantage and ultimately performance. Where a MNC has adopted an organisational structure, like the matrix to resolve coordination problems and assist with interdependencies, the subsidiary that most closely matches its designated role would reflect this in its performance, as this would provide the best fit (Lin & Hsieh, 2010; Wu et al., 2019).

The configuration of the multinational organisation will be discussed in the next section.

2.3.4 Configuration

Lin and Hsieh (2010, p. 54) defined configuration as "the arrangement of geographical (country) locations for carrying out the functional activities of each unit of the MNC". Configuration thus purposefully places every functional activity in a specific sovereign (Porter, 1986a) and changes the focus onto the operating asset strategic value in dispersed locations that can be accessed by CSAs; the location then becomes a source of FSA for companies with a global strategy (Fuchs, 2022; Kogut, 1985; Roth et al., 1991; Wei & Nguyen, 2020). Companies have to exploit the comparative advantage among sovereigns and locate functional activities where the factor utilized the most within that activity has the least cost (Bartlett & Ghoshal, 1987). Thus, as an example the organisation should globally locate labor intensive functions where labor is inexpensive to retain competitive advantage. The configuration of the organisation defines the strategic flexibility that can translate change (e.g. of factor endowments, wages, cost of capital) into a competitive advantage as the organisation can reconfigure to adjust within the global MNC to absorb the changes (Fuchs, 2022; Roth et al., 1991). Porter (1986b) suggested that configuration of organisations could range from dispersed, where the total value chain is reproduced in every sovereign, to concentrated where the single-sovereign locations house one specific value chain activity (Benito et al., 2019). Concentrated activities would yield resource flow efficiencies as economies of scale could be leveraged and are better suited to a global strategy, whilst a multinational strategy would best be served with a dispersed configuration (Fuchs, 2022; Roth et al., 1991). The global strategy would determine the level of concentration or dispersion in MNCs.

MNCs have to decide as per their global strategy on the amount of centralization and concentration of activities (home country or in one adopted country), as well as how distant they scatter and

decentralize their activities across nationalities (Benito et al., 2019; Buckley & Hashai, 2005; Porter, 1986a, 1986b; Schmid et al., 2016). This all as part of the international strategy defined, with these locations seen as places of control over value-adding activities (Buckley & Hashai, 2005). Where the configuration is highly dispersed the organisation would duplicate the complete value chain within one country, a configuration whilst that is highly concentrated would have disaggregated single actions of the value chain placed in one sovereign state (Benito et al., 2019; Porter, 1986b). Firms can selectively concentrate some undertakings in the value chain and disperse others, contrary to completely concentrating or dispersing, conditions depending (Benito et al., 2019; Porter, 1986b; Roth & Nigh, 1992). These differences indicate that patterns of resource allocation of subsidiaries of the MNC differ completely, even possibly to extremes. More concentrated configurations would require higher integration, whilst a more dispersed configuration would require a more responsive approach to the value chain (Fuchs, 2022; Roth et al., 1991). Integration in this context meaning for example one specialized factory in a country is integrated into the organisation, supplying the globe (Ali & Varoğlu, 2022; O'Reilly & Tushman, 2013), the factory is thus integrated into the global system. As per the extended I-R framework done by Martinez and Jarillo (1991) and expanded by Meyer and Su (2015) each of the subsidiary types active, autonomous and receptive would "fit" with different configurations (Banerjee et al., 2019; Wu et al., 2019).

The receptive subsidiaries with high integration and low responsiveness would be expected to secure economies of scale by concentrating a few activities to derive benefit from location-specific advantages (Lin & Hsieh, 2010). Meyer and Su (2015) defined Active subsidiaries, with "high integration and high responsiveness, are likely to concentrate some value-chain activities that are in a clear and detailed manner connected with alike or dissimilar activities in other domains of the global network, whilst dispersing some activities because of local differences". This would enhance the responsiveness to host country needs as well as global context integration. Lin and Hsieh (2010) defined Autonomous subsidiaries as "requiring low integration and high responsiveness, are likely to disperse the biggest portion of the value-chain activities in such a manner that they are comparatively independent from the HQ or related subsidiaries, providing for local context responsiveness".

The three subsidiary types, active, autonomous and receptive would each be configured in a different manner, depending on the strategy defined by the HQ whilst also requiring different levels of coordination, with those the closest aligned to their allocated role performing, (Banerjee et al., 2019; Bartlett & Ghoshal, 1998; Martinez & Jarillo, 1991; Wu et al., 2019).

Coordination in the multinational organisation will be discussed in the next section.

2.3.5 Coordination

Coordination can be defined as the level to which a subsidiary coordinates its functional activities allocated with those functional activities performed by other subsidiaries within the global organisation. Van de Ven (1976) defined organisational coordination as the linking or integration of different organisational parts (Claggett & Karahanna, 2018). Coordination, or the concerted action between organisational units or functional activities (Thompson, 1967), is critical for interdependence management (Fuchs, 2022; Roth et al., 1991). Where interdependence is increased on either an organisational level, or global level it requires increased coordination (Bartlett & Ghoshal, 1998; Fuchs, 2022; Kogut, 1989; Prahalad & Doz, 1987; Qiu & Donaldson, 2012; Thompson, 1967).

Martinez and Jarillo (1991) defined coordination across dispersed subsidiaries as the process of integrating activities, with the integration achieved through the use of "organisational mechanisms for coordination and control" (Kim et al., 2003, p. 329). The integration mechanisms used are in general categorized as centralization, socialization and formalization (Nohria & Ghoshal, 1994; Palmié et al., 2016; Zeng et al., 2018). Centralization with the focus on the control exercised by the HQ, or decision-making by way of the hierarchy of the organisation (Kim et al., 2003). Formalization (standardization) with a focus on routines within policies, rules, standard processes and codifying processes utilized within the subsidiaries in the MNC (Ambos & Schlegelmilch, 2007; Zeng et al., 2018). Socialization addresses organisational levers that shape and forge interpersonal relationships, shared values and goals amongst the personnel working within the globally dispersed subsidiaries in the MNC (Cicekli, 2011; Ghoshal & Nohria, 1989; Grøgaard & Colman, 2016; Gupta & Govindarajan, 2000;). Formalization and Centralization are seen as hierarchical or formal structural mechanisms, and socialization mechanisms being regarded as an informal normative mechanism (Lunnan et al., 2019; Martinez & Jarillo, 1991). The three integration mechanisms are critical for building inter functional linkages that aid with integration within organisations.

Organisations constitute linkages amongst functions in various organisational parts through coordination to accomplish collective goals or a global task (Martinez & Jarillo, 1991; Roth et al., 1991; Zeng et al., 2018). Coordination is thus a mechanism that organisations use to execute their global strategy. As coordination requires actions that are planned by mutual agreement within functional activities or subsidiaries within the organisation, coordination is paramount in interdependence management (Roth et al., 1991; Thompson, 1967), and greater coordination is required with escalating interdependence (Bartlett & Ghoshal, 1998; Fuchs, 2022; Kogut, 1992; Prahalad & Doz, 1987). Coordination can further also be explained as "the extent to which the subsidiary coordinates its functional activities with those of other subsidiaries in the worldwide

network of the MNC" (Lin & Hsieh, 2010, p. 54). Essentially management has to ensure that activities are being properly, timeously and appropriately concluded across sovereign borders to contribute to competitive advantage and performance (Benito et al., 2019; Grosche, 2013; Schmid et al., 2016). Coordination can thus be perceived as not being an intervention into subsidiary activities, but instead the activities of the subsidiary being implanted into the context of the larger organisation (Martinez & Jarillo, 1991), in line with the strategy defined.

With the coordination undertaking dependent on the strategy, the dispersed subsidiaries execute different roles within the MNC organisation, thus we can conclude that the coordination effort would vary with each subsidiary (Martinez & Jarillo, 1991). As per the extended I-R framework done by Martinez and Jarillo (1991) and expanded by Meyer and Su (2015) each of the three subsidiary types, active, autonomous and receptive would each have different coordination requirements as depending on the global strategy defined by the HQ (Banerjee et al., 2019). The least amount of coordination is demanded by autonomous subsidiaries, as they are defined by low integration and high responsiveness, reflecting limited interdependence with the other subsidiaries of the MNC. Receptive subsidiaries with high integration and low responsiveness, only link their functional activities with similar functional activities in the global organisational web and would thus show elevated interdependence between some functional activities that are concentrated within the organisation. The active subsidiaries with high integration and high responsiveness, whose activities are connected to both alike and different activities within other parts of the global web, would reflect escalated interdependence in some concentrated activities, and the opposite for activities that are more dispersed (Bartlett & Ghoshal, 1998). Although both the active and receptive subsidiaries would require higher levels of coordination, the active subsidiary with its link to both alike and different activities in the global web would solicit the highest level of interdependence (Bartlett & Ghoshal, 1998). Thus, active subsidiaries would demand the highest level of coordination, followed by receptive subsidiaries with the second-highest requirement, with lastly autonomous subsidiaries. Irrespective of the degree of coordination demand, all three subsidiary types contribute towards competitive advantage.

An intrinsic competitive advantage of MNCs is their ability to integrate functional activities as well as resources across geographical and organisational boundaries (Zeng et al., 2018), as required within its global strategy. Further the MNCs capability to successfully bring about its strategic targets through the overlapping of various structural dimensions, subsidiary role allocation, and effective coordination of these activities back into the organisation in line with the global strategy (Meyer & Su, 2015) is reflected in the organisation`s performance.

2.3.6 Conclusion

The topic of the current literature review was broadly the matrix organisational structure phenomenon and the strategy-structure-environment-fit paradigm, focusing on, subsidiary types (roles), configuration, coordination and how congruence would lead to performance (Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Lin & Hsieh, 2010). The accomplishment of performance is however a function of the operational attributes of configuration, coordination and subsidiary type in combination (Lin & Hsieh, 2010; Nohria & Ghoshal, 1994). The information processing view of the organisation is used as a theoretical lens (Egelhoff, 1991; Egelhoff et al., 2013; Galbraith, 1974), to analyze the fit of the organisations structure with its strategy. The information processing view sees the organisation on a macro level as an information processing system (Egelhoff, 1991; Galbraith, 1973; Moser et al., 2017; Thompson, 1967; Tushman & Nadler, 1978) and is valuable in the comprehension of the manner in which the macro structure of an organisation mediates the information flow from the exterior environment (Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Galbraith, 1974). Good fit amongst the structure and strategy is obtained when a firm's strategy information processing requirements are satisfied by its structure`s information processing capacities, and whilst further contributing to performance (Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Galbraith, 1974; Romelaer & Beddi, 2015). In short, organisations structure themselves, to ensure that information processing is optimised.

Globally expanding organisations require multifaceted strategies to achieve ultimate performance in increasingly complex environments, requiring a multidimensional organisational structure to execute from (Barron et al., 2017; Romelaer & Beddi, 2015). The MNC matrix organisational structure, with a head office serving geographically spread subsidiaries provides the flexibility required with multidimensional strategy execution (Chiba, 2019; Egelhoff et al., 2013; Romelaer & Beddi, 2015). The HQ determines the global strategy and positioning of the subsidiaries, with the option of concentrating or dispersing the units, defining the configuration. The subsidiaries would each be allocated a role, as either active, autonomous or receptive, as per the global strategy defined by the HQ, with the MNC subjected to the dual pressures of local responsiveness and global integration. The HQ having to coordinate the globally dispersed subsidiaries, with each subsidiary having different coordination requirements as defined by the global strategy (Martinez & Jarillo, 1991) has to retain the competencies and control to ensure timeous integration to ensure superior performance. An intrinsic competitive advantage of MNCs is their capability to integrate activities and resources across geographical and organisational boundaries (Zeng et al., 2018), as required within its global strategy. Thus, the manner in which the subsidiaries are configured and coordinated (Martinez & Jarillo, 1991), is critical in global strategy execution (Martinez & Jarillo, 1991), and impacts on

performance, where subsidiaries that closely fit the role, they were allocated as performing better than those that don't (Lin & Hsieh, 2010; Wu et al., 2019).

With the knowledge of the basic facts from the literature, this study contends that the subsidiary within a MNC matrix organisational structure, following a specific role as per the I-R framework, indicating a tight degree of differentiated fit with the coordination and configuration variables, would achieve higher performance.

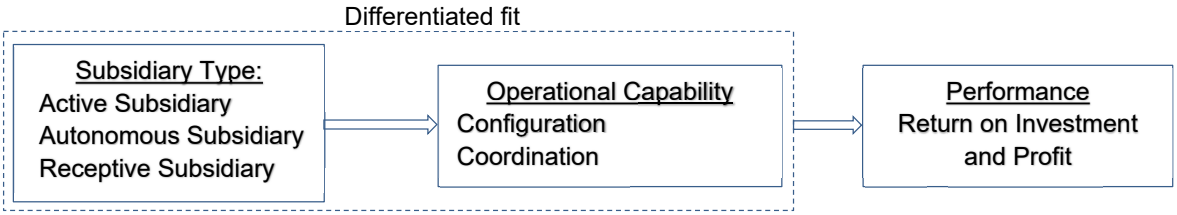

Figure 2.5: Conceptual model of the study (adapted from Lin & Hsieh, 2010)

The overarching research question to resolve: What impact does the subsidiary type have on performance of the subsidiary in the MNC matrix structure organisation?

Chapter 3: Research questions

3.1 Introduction

Following on Chapter Two where the existing literature review was presented, Chapter Three sets forth the research questions derived from the existing research presented, and the research problem as set out in Chapter One. MNCs wanting to execute multidimensional multi-country strategies need to utilize multidimensional structures like the matrix organisational structure however, to achieve financial performance there has to be a good fit between the global strategy and the subsidiary role allocated by the HQ (Barron et al., 2017; Egelhoff et al., 2013; Hamel & Prahalad, 1983; Qiu & Donaldson, 2012; Romelaer & Beddi, 2015). This configuration on the macro structure level is what the current study is researching, and the research questions are posed to gain an understanding of the impact that the subsidiary type has on performance in a MNC matrix organisational structure.

3.2 Research Question 1

Research question 1 (RQ1) was aimed at understanding: What is the relationship between the role of the subsidiary's (receptive, active, autonomy) configuration and performance (ROI, Profit)?

RQ1a: What is the relationship between the autonomous subsidiary's configuration and performance (ROI, Profit)?

RQ1b: What is the relationship between the receptive subsidiary's configuration and performance (ROI, Profit)?

RQ1c: What is the relationship between the active subsidiary's configuration and performance (ROI, Profit)?

This question seeks to understand the configuration of the subsidiaries, as concentration and dispersal patterns differ with the various types of subsidiaries. Autonomous and active subsidiaries will have more dispersed activities within their value chain, opposed to more concentrated activities by a subsidiary that is receptive. As per the extended I-R framework done by Martinez and Jarillo (1991) and expanded by Meyer and Su (2015): “The receptive subsidiaries with high integration and low responsiveness would be expected to secure economies of scale by concentrating a few activities to derive benefit from location-specific advantages. Active subsidiaries, with high integration and high responsiveness are likely to concentrate some value chain activities that are in a clear and

detailed manner connected with alike or dissimilar activities in other domains within the global network, whilst dispersing specific activities because of local differences. Autonomous subsidiaries requiring low integration with high responsiveness, are likely to disperse the biggest portion of the value chain activities in such a manner that they are comparatively independent its HQ or related subsidiaries, providing for local context responsiveness".

3.3 Research Question 2

Research question 2 (RQ2) was aimed at understanding: What is the relationship between the role of the subsidiary's (receptive, active, autonomous) coordination and performance (ROI, Profit)?

RQ2a: What is the relationship between the autonomous subsidiary's coordination and performance (ROI, Profit)?

RQ2b: What is the relationship between the receptive subsidiary`s coordination and performance (ROI, Profit)?

RQ2c: What is the relationship between the active subsidiary`s coordination and performance (ROI, Profit)?

This question seeks to understand the coordination requirements of the different subsidiary types. Subsidiaries with varying strategic roles have differing coordination requirements, with the extent of coordination the highest in active subsidiaries, followed by receptive subsidiaries, finally with the lowest coordination requirement autonomous subsidiaries (Lin & Hsieh, 2010). As per the extended I-R framework done by Martinez and Jarillo (1991) and expanded by Meyer and Su (2015): Receptive subsidiaries with high integration and low responsiveness would show elevated interdependence between some functional activities that are concentrated. The active subsidiaries with high integration and high responsiveness, would reflect escalated interdependence in some concentrated activities, and the opposite for activities that are more dispersed. The least amount of coordination is demanded by autonomous subsidiaries as they are defined by low integration and high responsiveness, reflecting limited interdependence with the balance of the MNC.

3.4 Conclusion

Chapter 3 covered the research questions that the current research study aimed to address. As stated above in the research questions. In line with the research problem, the research questions seek to provide more insights into the impact that the subsidiary-type fit has on performance in the MNC that adopted the matrix structure.

The following chapter will set out the methodology applied with this study.

Chapter 4: Research methodology and design

4.1 Introduction

The primary aim of this research study was to understand the impact that the type of subsidiary has on performance in MNCs that have adopted the matrix organisational structure. The section that follows describes the research philosophy, design and methodology that was pursued to conclude the research with the set objectives. Descriptive research was conducted through a quantitative study, utilizing a self-administered on-line survey to collect primary data, whereafter statistical analysis was used to shed more light on the relationships between the selected constructs.

4.2 Research paradigm and philosophy

Within the context of research, research paradigm correlates with the way in which phenomena of a social nature are examined in detail, whilst the research philosophy correlates with the nature and development of knowledge (Burrell & Morgan, 2017; Holden & Lynch, 2004; Saunders & Lewis, 2018).

4.2.1 Research paradigm

An important differentiator amongst research philosophies relates to the researcher`s ideological and political positioning or perspective, with four paradigms identified for organisational analysis, namely radical structuralist, radical humanist, functionalist and interpretive (Burrell & Morgan, 2017). The current study was conducted under the *regulation perspective*, assuming an underlying cohesiveness of societal structures and systems, with the MNC organisation perceived as a system, and the research attempting to improve organisational affairs (Burrell & Morgan, 2017; Saunders & Lewis, 2018). The research paradigm refers to a way of theorising, or assumptions that are taken for granted, or the assumptions regarding realities you experience in your research with four distinctive paradigms for the analysis of organisations defined (Burrell & Morgan, 2017). The current research was conducted under the functionalist paradigm, focusing on providing rational clarifications (explanations) and developing recommendation sets for existing structures (Burrell & Morgan, 2017; Saunders & Lewis, 2018). The research under this paradigm is mostly conducted under the positivist philosophy, generally known as the 'positivist-functionalist' research, which allows for theory testing to shed more light on the predictive power as well as understanding of a phenomenon under research (Burrell & Morgan, 2017; Saunders & Lewis, 2018). This study focused on the macro level structuring between the subsidiary and the HQ of a MNC that adopted the matrix organisational structure, and the impact this has on performance. Performance at the macro structure organisational level is a product of the subsidiary type, coordination and control between the HQ and the subsidiary.

4.2.2 Research philosophy

The research philosophy refers to the researcher`s beliefs and assumptions about the development of knowledge (Saunders & Lewis, 2018). The positivism philosophy was followed for this research study, where existing theory was used in the research to develop research questions (see Chapter 3) that were tested, must be replicable, observable, measurable, reproducible, and would lead to meaningful and credible data as defined by Crotty (1998) and Bonache (2021). The use of a questionnaire produced observable data (Byrne, 2017). The researcher during the study tried to remain detached from the data, and neutral so as to steer clear from having an effect on the findings (Crotty, 1998). The positivist philosophy was followed to “yield pure data and facts uninfluenced by human interpretation or bias” as explained by Saunders and Lewis (2018, p. 136), with certain assumptions made.

4.3 Research design

4.3.1 Purpose of research design

The research aim was to determine the existence of relationships between the constructs subsidiary type, configuration, coordination and performance, delivering objective and generalizable outcomes (Saunders & Lewis, 2018). The methodological choice was to follow a quantitative research study, that is descriptive in nature. The quantitative method was used as we want to examine relationships between variables related to organisations, which were measured using numerical data, and analysed using a span of statistical methods (Saunders et al., 2016). This method is best suited as normally it is conducted via structured surveys, which allows for the information to be gathered from MNCs outside of the researcher`s home country that could otherwise not be reached, whilst the data obtained is observable (Byrne, 2017).

4.3.2 Approach

Theory development is through the deductive reasoning approach, following from the researcher’s philosophy as being primarily positivism.

Deductive reasoning is used when a logical process is followed, off a set-premise set, and the conclusion established as true only when all the premises have been confirmed (Ketokivi & Mantere, 2010; Saunders & Lewis, 2018). Deduction thus encompasses transitioning from the general towards the particular (specific); initiated from theory developed from the academic literature reviews, deriving

research questions/ hypothesis, ultimately followed by the design of a strategy to test the theory (Woiceshyn & Daellenbach, 2018).

4.3.3 Strategy

The utilisation of an online, self-administered survey strategy was selected to test the research questions/hypothesis, as this is the method mostly associated with deductive theory development and is most frequently used to answer 'What' questions (Saunders et al., 2016). Surveys provide several advantages, with the primary advantage related to a survey being survey flexibility (Granello & Wheaton, 2004), and secondly the confidentiality to respondents is assured, leading to truthful responses, and reducing bias (Muijs, 2004). One disadvantage of survey responses obtained from respondents is that there could be a lack of depth of understanding (Griffis et al., 2003). For the survey research, a questionnaire was constructed through extant written works and distributed to potential respondents, selected based on a chosen population. The respondents, as subsidiary managers would thus share their perceptions and interpretations at a macro level, as the unit of analysis. The strategy, utilizing a self-administered survey allowed the researcher to collect data in a structured manner, reaching a fairly large population (Saunders & Lewis, 2018).

4.3.4 Methodological choice

The (Teddlie & Tashakkori, 2006) research choice was adopted for this study as this would allow for an unbiased method of data collection. The survey allows for customization, as questions are built into the questionnaire allowing for understanding of the constructs in the study (Saunders & Lewis, 2018). In the case of this study the questionnaire was designed to illuminate the constructs integration, responsiveness, subsidiary type, configuration and coordination in relation to performance in MNCs that adopted the matrix organisational structure. Thus, as the constructs integration, responsiveness, subsidiary type, configuration, coordination and performance, were clearly defined or hypothesized in and from the literature (see Chapter 2), and could be measured as per tailored questions built into the survey, the quantitative survey was deemed to suit best.

4.3.5 Time horizon

A single point data collection timeline was used for this survey as we are not testing change implicitly, and as such can conduct sufficient tests using snapshot data (Bono & McNamara, 2011). Thus, a cross- sectional approach was adopted (Zikmund et al., 2012). This was also more appropriate given the time limitation and cost of resources in conducting this study (Saunders et al., 2016).

4.4 Research methodology

The research methodology elucidates the details regarding the population, the unit of analysis, sample size, sample frame, sampling technique, data collection and analysis (Saunders & Lewis, 2018); all are contextualized in the sections that follow.

4.4.1 Population

The study population consisted of subsidiaries of multinational corporations (MNCs) that have adopted the matrix organisational structure, with multinational corporations being established as those companies having sales revenue of greater than 10% of total sales generated outside the borders of their home country (Rugman & Verbeke, 2008). The descriptive nature of the study allowed for a very broad classification covering various sectors, and across a broad classification of industries.

4.4.2 Unit of analysis

The analysis unit for the research study was the MNC subsidiary, evaluated by way of an individual manager in the matrix organisational structure, defined as a matrix manager. Matrix managers are normally found at the interface between the subsidiary and the HQ within MNCs, with the matrix manager defined by Davis and Lawrence (1978) as an individual having lines of reporting with both the headquarters (HQ) as well as within the level of the subsidiary. These managers, also need to be familiar with the HQ-subsidiary relationship and, also need to have knowledge of the strategy and structure of the organisation. Questions adapted from Egelhoff et al. (2013) were included in the questionnaire to guarantee that suitable individuals in the organisations responded, to further ensure quality of data obtained.

4.4.3 Sampling

MNCs that adopted a matrix organisational structure and having sales revenue of greater than 10% of total sales generated outside the borders of their home country were targeted with the survey link sent out by email and social media. Non-probability sampling (or non-random sampling) was used with the researcher`s defined criteria (Etikan et al., 2016) to ensure that companies were selected or participated that fulfilled the requirements as proposed by Rugman and Verbeke (2008), distinctly defined as having the 10% sales generated outside of their home country. The non-probability sampling method applied provided responses, with the HQs from 12 countries, with subsidiaries located in 20 countries, in total representative of the following regions Africa, Asia, Australia, Europe, and North America. The responses were mostly from Africa, dominating with 56.1% of the responses,

followed by Europe with 24% and Asia with 14%. South Africa, dominated with 52.7% of the total responses indicates a disproportionate weight in favor of one geographic region, and limits the generalizability of the study.

4.4.4 Sampling method and size

This section explains the peculiarities of the sample frame utilised in the study, the manner in which the data was collected, as well as the size of the sample achieved.

4.4.4.1 Sampling frame

Non-probability sampling (or non-random sampling) was used, to ensure that companies were selected, or participated that fulfilled the requirements as proposed by Rugman and Verbeke (2008), distinctly defined as MNCs that adopted a matrix organisational structure and having sales revenue of greater than 10% of total sales generated outside the borders of their home country. Purposive sampling from the population was thus selected, to ensure that research questions can be answered (Saunders et al., 2016). Etikan et al. (2016) defined purposive sampling as a technique where the researcher applies his own judgement to select the unit, in a non-arbitrary fashion to ensure research accuracy. A disadvantage of purposive sampling is that it could be prone to researcher bias as it is based on the judgement of the researcher, and it may be difficult to defend the sample representativeness (Sharma, 2017).

The sampling frame gave the researcher a working a statement of the exact meaning of the target population (Hair et al., 2019b). The sample frame for this research project was defined as MNCs that adopted a matrix organisational structure and having sales revenue of greater than 10% of total sales generated outside the borders of their home country as defined by Rugman and Verbeke (2008). Data was gathered by convenience and snowball sampling non-probability techniques. Convenience sampling was employed through organisations in the researcher's MBA class and from his own international and local networks. Snowball sampling was used where the researcher`s networks and classmates distributed the surveys to their networks and organisations. The snowball method allowed for momentum to be built and a substantial variety of respondents did participate (Zikmund et al., 2012). Snowball sampling as a technique can be used to reach members of rare populations by referrals, as there is a high likelihood that people selected may be aware of others that are within a matrix organisational structured MNC and forward the survey (Zikmund et al., 2012).

4.4.4.2 Data collection

Primary data was collected with the use of a self-administered online survey, where closed-ended questions were asked. This method of data collection was selected as it provided for more advantages than disadvantages as described by Evans and Mathur (2018). Advantages include global reach, speed, flexibility, has go-to capabilities, and allows for easy data entry and analysis, set off against negative aspects of junk mail perceptions, privacy issues, vague answering instructions and the impersonal nature. The questions were predominantly measured on a Likert scale, with categorical and quantitative data gathered. The online survey link was shared with potential respondents at subsidiary level executives or senior managers (as per Egelhoff et al., 2013) via email, and the internationally available social media platforms WhatsApp, Telegram, and LinkedIn; whilst respondents were requested to send to possible contacts that fitted the requirements as stipulated. Follow-up emails and social media posts were done to increase the respondent numbers at regular intervals, with the researcher sending out several follow-up emails to respondents that he knew. The nature of the survey distribution is perceived to have an impact on response rates as the survey ended up with individuals that do not know the researcher or have no interest in the topic as reported by (Keusch, 2015). See Appendix C for the questionnaire.

4.4.4.3 Pre-testing

Presser et al. (2004) address the importance of pre-testing the questionnaire to ensure that the questions posed are clear, and that there are no difficulties, with the understanding or answering of the questions. The prescribed pre-testing has also been declared indispensable in the research process (Ikart, 2019). Pre-testing of the questionnaire provided the researcher with an indication of the reliability and validity of the responses provided by respondents, in terms of answering the hypotheses being tested. Three pre-testing methods were described, firstly an expert review of the questionnaire; secondly the forms appraisal, where the researcher is guided by a checklist-based method of potential flaw identification in survey questions; and thirdly cognitive interviews where the survey is tested on volunteers matching the profile desired for respondents (Ikart, 2019; Rothgeb et al., 2007). Two of these methods were applied, as the researcher is currently working in a matrix organisational structure and has access to volunteers that fit the profile of respondents, the questionnaire was also tested against subject matter experts.

a) Pre-test part 1

The first pre-test was a comparison of the questions conducted against previous research on the same topic, where questions developed for operationalized constructs were selected from Auh and

Menguc, 2005; Chiba, 2019; Egelhoff et al., 2013; Gresov, 1989; Kumar and Antony, 2009; Lin and Hsieh, 2010; Spanos and Lioukas, 2001; Van de Ven and Ferry 1980 and Wolf and Egelhoff, 2002. All these researchers were taken as subject matter experts, that developed and then tested measuring scales that are consistent as required by the current study.

b) Pre-test part 2

The questionnaire was distributed to ten individuals, some not in a matrix organisation to test the clarity of the questions, and some currently working in a matrix organisational structure and that match the profile of respondents. The pre-test block was requested to provide the researcher with critical feedback on the clarity, difficulty and composition of the survey, as well as other recommendations for improvement. Feedback received and several amendments were made to ensure clarity and functioning before the survey was sent out.

c) Pre-testing feedback

Feedback was grouped into two general categories, to be specific question design and wording.

i) Design Problems

The following corrections were made related to the design of the questionnaire:

- Questions 7 and 8 were amended to have a dropdown of the 238 countries in the world versus the respondents typing in their home and host countries.
- Questions 9 and 12 were amended to have numeric drop downs in-stead of respondents typing numbers or letters to ensure consistency.
- Some comments were made regarding question 10 and the industry sector with difficulty in matching the respondent`s industry with the list, the drop-down list was however not amended to keep to consistency with previous studies.

ii) Question wording problems

The following corrections were made related to the wording of the questionnaire:

- Question 20. “Which one of the following accurately describes your reporting lines?” was initially split in two questions, but this confused the respondents, so it was re-worded to explain the reporting structure more clearly. Some grammatical errors were corrected.

The results from the pre-tests were excluded from the final analysis, as per Hair et al. (2010).

4.4.4.4 Sample size

The aim of this research was to be able to make generalisations about the target population selected, using the probability samples which are based on statistical probability, then as such the bigger the sample size the smaller the error would be (Saunders et al., 2016). Applying the Rugman and Verbeke (2008) specified population of having sales revenue of greater than 10% of total sales generated outside the borders of their home country, with no database that includes search criteria for matrix organisational structures found, sample size calculation would be inaccurate or impossible. A practical consideration will thus have to be taken given time constraints to calculate an acceptable sample size. Similar studies concluded by Wolf and Egelhoff (2013) and Egelhoff et al. (2013) sample size ranged between 54 on the lower end and 82 on the upper end. For this research proposal the sample size of 55 was adopted as an acceptable benchmark, given the limitations of time, reply-rates, the unpopularity of the structure due to implementation problems, and access to MNCs that have adopted the matrix organisational structure.

4.5 Data Collection

The sampling and sampling frame targeted MNCs that adopted a matrix organisational structure and having sales revenue of greater than 10% of total sales generated outside the borders of their home country (Rugman & Verbeke, 2008). Subsidiary level executives or senior managers were targeted in simulation of the Egelhoff et al., (2013) as well as Wolf and Egelhoff (2013) studies, between September 2022 and February 2023, yielding a total of 104 responses. Of the 104 responses collected, 47 responses were not deemed appropriate for this study`s purpose, leaving 57 useable responses. Reasons for rejection were as follows: a) 23 respondents were junior or middle management level and are not senior enough, and b) 24 hierarchical structure reporting lines and not within a matrix structure. Of the responses received, 5 did not complete the sections H and I but were however still included due to the small sample size (Hair et al., 2019b). This sample size matches that achieved by Egelhoff et al. (2013) on a similar study and the researcher is thus self-assured that the sample size is sufficient to be a good representation of the population.

4.5.1 Data collection tool

The data collection tool utilized for this study to collect primary data was a self-administered on-line survey, with questions configured to clarify the constructs of the study. See appendix C. The data collection was at a single point in time (snapshot). Questions were structured in such a way to ensure that the two research questions as per Chapter 3 were answered; and achieve the study objectives. The questions were designed to shed light on the characteristics of the organisations, and how it

relates to the constructs used. The survey was constituted of nine sections, made up of closed questions, not too complex, with the responses automatically captured in Google Forms (Saunders et al., 2016). The study measured the constructs information flow, integration and responsiveness, subsidiary type, configuration, coordination and financial performance through established scales, with questions adapted from previous research of Auh and Menguc, 2005; Chiba, 2019; Egelhoff et al., 2013; Gresov, 1989; Kumar and Antony, 2009; Lin and Hsieh, 2010; Spanos and Lioukas, 2001; Van de Ven and Ferry, 1980; and Wolf and Egelhoff, 2002.

The survey questionnaire consisting of general demographic questions, and specific questions with established scales as from the researchers listed above to measure the constructs as defined under Chapter 2 and summarized as per Table 4-1 below.

Table 4-1: Constructs, variable types, number of items, data type, references for items measured

Construct	Variable	Type	Number of Items	Data Type	Reference
Demographics & Organisation (Section A & B)	Name, Home country, Host country,	Organisational identifier	10	Categorical	Egelhoff et al., (2013)
	Describe organisational structure	Qualifying question	1	Categorical	Egelhoff et al., (2013)
Respondent in organisation (Section C)	Describe reporting lines	Qualifying question	7	Categorical	Egelhoff et al., (2013)
Information Flow (Section D)		Theory	18	Interval data: Likert Scale	Van de Ven and Ferry (1980); Madangombe, (2017)
Integration (Section E)	Relates to Subsidiary Type (Role)	Independent	5	Interval data: Likert Scale	Lin and Hsieh (2010)
Responsiveness (Section F)	Relates to Subsidiary Type (Role)	Independent	5	Interval data: Likert Scale	Lin and Hsieh (2010)
Performance (Section G)	Subsidiary Type Configuration Coordination	Dependent	12	Interval data: Likert Scale	Auh and Menguc (2005); Lin and Hsieh (2010); Spanos and Lioukas (2001); Chiba (2019)
Coordination (Section H)		Independent	8	Interval data: Likert Scale	Lin and Hsieh (2010)
Configuration (Section I)		Independent	8	Interval data: Likert Scale	Lin and Hsieh (2010)

4.5.2 Matrix Organisational Structure

The study necessitated the respondents to positively identify that they were in a matrix structured organisation, as the current study is based upon MNCs that have adopted the matrix organisational structure. Thus, the respondents had to confirm a qualifying question in Section B:

a) Question 13: Which one of the following best describes your organisational structure?

The respondents were provided with a description and graphical display of a hierarchical organisational structure, and matrix organisational structure, with the reporting lines to the respective managers explained (Egelhoff et al., 2013). See figure 4-1 below.

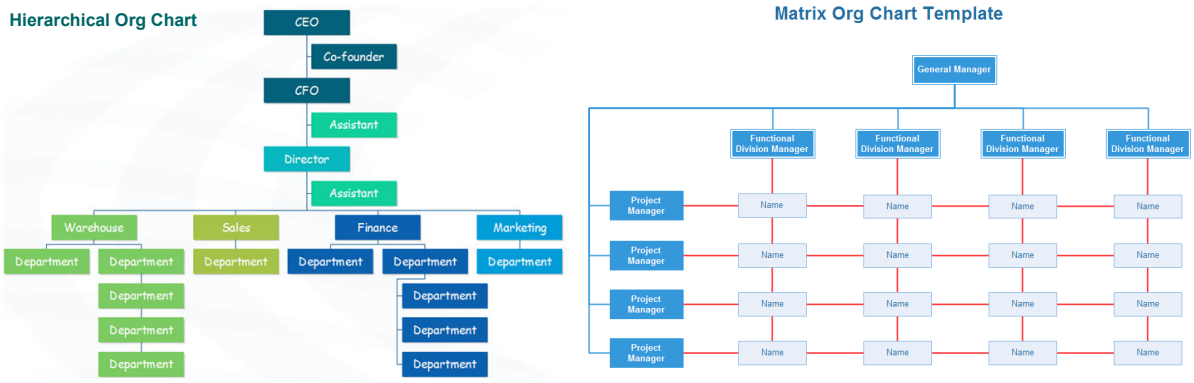

Figure 4.1: Depiction of hierarchical and matrix organisational structures (ORG CHART, 2023)

Two options were provided for answers next to the depictions, if the respondent answered by selecting the hierarchical structure the questionnaire ended. Question 13 thus acted as the primary qualifying question. The manager at subsidiary level within a MNC with reporting functions or relations to the local subsidiary, and the HQ is defined as the "matrix manager" (Davis & Lawrence, 1978; Grubenmann, 2017). Thus, the "matrix manager" within the subsidiary can report to both the subsidiary and HQ (Davis & Lawrence, 1978; Grubenmann, 2017) as per the dual reporting or "two bosses" system in the macro structure (Levinthal & Workiewicz, 2018). To ensure that respondents were indeed matrix managers, that have international reporting functions at subsidiary level (Egelhoff et al., 2013) two additional qualifying questions were added under Section C:

b) Question 19: As a subsidiary manager: You report both at the subsidiary level and headquarters? (Do you report to the regional/product and function/divisional HQ structure?) If the respondent selected "No" or "Unsure" the survey ended.

c) Question 20: Which one of the following accurately describes your reporting lines?
   The following options were provided:
   1. You report directly (solid-line) to headquarters, and indirectly (dotted-line) at the subsidiary level?
   2. You report directly (solid-line) at the subsidiary level, and indirectly (dotted-line) to headquarters?
   3. The third option was Unsure, if the respondent selected this the survey ended.

4.5.3 Information Processing (Flow)

The information processing view of the organisation (Egelhoff, 1991; Egelhoff et al., 2013; Galbraith, 1974; Moser et al., 2017) states that organisations are structured in such a manner that information processing optimisation is ensured. The information processing approach was specifically designed to review the multinational corporation (MNC) structures, requiring "the translation of strategic conditions into information processing requirements, and organisational structure into information processing capacities to measure fit", as defined by Egelhoff et al. (2013). Fit, or the matching of the organisation`s strategy, structure and the exterior environment within which it operates is of cardinal importance for the survival and financial performance of organisations (Ambroise et al., 2017; Wilden et al., 2013). Good fit between the structure and strategy is thus obtained "when the information processing needs of a firm's strategy are satisfied by the information processing capabilities of its structure" as defined by Galbraith (1974), whilst further contributing to performance (Barron et al., 2017; Egelhoff et al., 2013; Romelaer & Beddi, 2015). Thus, when the capacity to process information is insufficient to handle demand, it can lead to coordination and integration difficulties, produce sub-optimal decision making, and amplify the company`s organisational inefficiencies (Bergh, 1998; Tushman & Nadler, 1978), ultimately impacting on performance.

This section of the questionnaire on information processing aimed at getting an understanding of how easy or difficult information processing or flow is both within the organisation and from the environment within which it operates. Eighteen questions were posed to the respondents as amended from Van de Ven and Ferry (1980) and Madangombe (2017). Five questions covered the internal communication frequency between the HQ and subsidiaries, or amongst subsidiaries. Five questions covered the internal ease of accessing information, with three covering external information access. Five questions covered information gathering, conversion and storage. The respondents were requested to apply a 5-point Likert scale ranging from "none" (scoring 1) to "all of other subsidiaries" (scoring 5) (Lin & Hsieh, 2010).

4.5.4 Subsidiary role

MNC headquarters allocate widely differing strategic roles to each globally dispersed subsidiary to allow the MNC to effectively execute its corporate strategy (Bartlett & Ghoshal, 1986; Birkinshaw & Morrison, 1995; Ghoshal & Nohria, 1989; Martinez & Jarillo, 1991; Meyer & Su, 2015; Wu et al., 2019). Each of the three subsidiary roles as identified by Martinez and Jarillo (1991) and expanded by Meyer and Su (2015) in the extended I-R framework, receptive, active, and autonomous respectively have different integration and responsiveness requirements (Wu et al., 2019). The integration of activities performed by various subsidiaries can be defined as the firm`s response to overall cost reduction pressures and returns maximization through the exploitation of market imperfections inherent at various country locations (Taggart, 1997). Responsiveness can be defined as the firm's response to host country market pressures and regulatory requirements at each subsidiary location necessitating the reduction in standardization and/ or coordination where necessary (Taggart, 1997; Wu et al., 2019).

In the current study, integration is operationalized with five items adapted from Lin and Hsieh, (2010), applying a five-point Likert Scale, ranging from “very low” to “very high”. Respondents had to rate the following items: “percentage of production/services of the subsidiary controlled by the HQ, percentage of technologies and product developments of this subsidiary shared by headquarters and other subsidiaries, percentage of production/services from this subsidiary supplied to headquarters and other subsidiaries, percentage of manufacturing/services decisions of subsidiary made with a view to provide international market linkages for the respondent’s subsidiary, and lastly percentage of products/services of this subsidiary exported to the international market network of the whole company”. The items were slightly adjusted from Lin and Hsieh (2010) to include services, and not be limited to manufacturing industries. Responsiveness was operationalised with five decision-making topics to measure the subsidiary`s freedom to make decisions on the control of resources independent from the HQ, in line with customer demands and local competitive demands (Lin & Hsieh, 2010). Respondents were requested to indicate the extent to which they were authorized for independent decision-making on the following business functions: “finance, human resource management, marketing, production, and R&D” as per Lin and Hsieh (2010) and Taggart (1997). The respondents were requested to apply a 5-point Likert scale ranging from “none” (scoring 1) to “all of other subsidiaries” (scoring 5) (Lin & Hsieh, 2010). The integration and responsiveness measure scores were related back to each defined subsidiary role as per the I-R framework, with a two-phased procedure of initially cluster analysis (Punj & Stewart, 1983), followed by a differentiated fit approach to test the subsidiary roles with configuration and coordination (Ghoshal & Nohria, 1989; Roth et al., 1991).

4.5.5 Configuration

Configuration can be defined as the geographic arrangement of the MNC subsidiaries in different country locations, with each subsidiary concluding some functional activity of the overall task of the MNC, the configuration can be highly dispersed, or can be highly concentrated (Lin & Hsieh, 2010). Porter (1986b) explained the configuration of organisations as ranging from dispersed, where the total value chain is reproduced in every sovereign, to concentrated where the single-sovereign locations house one specific value chain activity. Concentrated activities would yield resource flow efficiencies as economies of scale could be leveraged and are better suited to a global strategy, whilst a multinational strategy would best be served with a dispersed configuration (Fuchs, 2022; Roth et al., 1991). The global strategy would determine the level of concentration or dispersion. The configuration over the various subsidiaries, with differing strategic roles would vary, with autonomous and active subsidiaries tending to take on more dispersed value chain activities, whilst receptive subsidiaries would lean towards undertaking more concentrated activities (Martinez & Jarillo, 1991; Meyer & Su, 2015; Taggart, 1997; Wu et al., 2019; Zeng et al., 2018).

The operationalised measures for configuration were adapted from Lin and Hsieh (2010), Roth et al. (1991) and Birkinshaw and Morrison (1995) and were constituted by activities within the value chain, and included: “accounting/legal activities, cash flow control and management, customer services, employee management and development, information systems/data processing, promotion and advertising, raising capital and sales activities” (Roth & Nigh, 1992). Applying a 3-point Likert scale, ranging from “does not perform it” (scored 1), “in host country only” (scored 2) and “in host and other countries” (scored 3), the respondents had to indicate where the operationalised activities were being performed. An elevated average of these eight scores would indicate more dispersed activities within the value chain housed within the subsidiary.

4.5.6 Coordination

Van de Ven (1976) defined organisational coordination as the linking or integration of different organisational parts. Coordination can thus be defined as the level up to which a subsidiary coordinates its functional activities with those functional activities performed by other subsidiaries within the global organisation. Coordination requires concerted action amongst the different organisational subsidiaries to ensure completion of the MNCs global task (Thompson, 1967), requiring that interdependence be properly managed (Fuchs, 2022; Roth et al., 1991). Where interdependence is increased on either an organisational level or global level, it requires increased coordination (Bartlett & Ghoshal, 1998; Fuchs, 2022; Kogut, 1989; Prahalad & Doz, 1987; Thompson, 1967).

The operationalised measures for coordination were adapted, similar as for configuration, from Lin and Hsieh (2010), Roth et al. (1991) and Birkinshaw and Morrison (1995) and were constituted by value chain activities, and included: “accounting/legal activities, cash flow control and management, customer services, employee management and development, information systems/data processing, promotion and advertising, raising capital and sales activities” (Roth & Nigh, 1992). Applying a 5-point Likert scale, indicating whether the subsidiary activities are coordinated with other subsidiaries in the group. The coordinated activity of the subsidiary was rated from “coordinates with none” (scored 1), “less than a half” (scored 2), and “about a half” (scored 3), “more than a half” (scored 4), or “all of other subsidiaries” (scored 5) from Lin and Hsieh (2010). The highest average score of these eight scores would imply a higher level of coordination required.

4.5.7 Performance

Where organisations regard strategic considerations, select structures and achieve fit between strategy, structure and the environment (Donaldson & Joffe, 2014; Egelhoff et al., 2013; Miles et al., 1978), it is mirrored in the performance of the organisation (Defee & Stank, 2005; Jennings & Seaman, 1994; Miles, et al., 1978; Wasserman, 2008; Wilden et al., 2013). The environment-strategy-structure paradigm in organisational theory allows for an understanding of corporate performance differences (Ambroise et al., 2017; Amitabh & Gupta, 2010), with the structure of an organisation fulfilling an important mediating role between the environment and organisational strategy (Rugman et al., 2011). Thus, ultimate performance is born out of a superior fit between organisational strategy and structure, as well as between strategy at corporate level and environmental demands.

The current study adopted self-reported subjective measures, with two indicators of performance that were assessed on a 5-point Likert scale (Lin & Hsieh, 2010). Respondents were requested to indicate subsidiary net profit and return on investment (ROI) for the three preceding years. The subsidiary performance was rated on the following scales: “much lower than expected” (scored 1), “lower than expected” (scored 2), “as expected” (scored 3), “higher than expected” (scored 4), and “much higher than expected” (scored 5). The highest average was determined to indicate the best performance.

4.6 Data Analysis

Prior to analysis the three stages of error checking as defined by Field (2018) were conducted, namely data editing, data coding and data entry. Data analysis initiated with the testing for validity and reliability. Reliability concerns the question of whether results from the research are repeatable or provides a measure of internal consistency (Bell et al., 2018), whilst validity is concerned with whether the questionnaire fulfills its function by measuring the fundamental constructs, which it was designed for (Zikmund et al., 2012).

4.6.1 Data editing

With data editing the raw data was extracted out of Google Forms and transferred to a Microsoft Excel file, where it was checked for completeness and consistency, and then loaded into IBM ® SPSS version 28 (Hair et al., 2019b). With the questionnaire collecting quantitative data, omissions were prevented with forced answering of all questions in Google Forms, thus no missing responses were found in the data set. The data set was reviewed to identify invalid responses as per the two screening questions in sections B and C, these responses were removed from the dataset that was used for analysis.

4.6.2 Data coding

Edited data in the word format that was extracted from the questionnaire was coded numerically with assigned numeric values for use. Coding was carefully conducted as per the codebook, to ensure that non-respondent errors were not made by the researcher (Zikmund et al., 2012), with worded responses coded to numerical values. The use of the codebook in addition to assignment of numeric values, it also allowed for definition provision and labelling of items. The codebook is included in appendix D for reference.

4.6.3 Validity

Although we can determine that measures used are reliable, it does not mean that they are valid, as reliability is not a sufficient condition for validity (Bell et al., 2018; Zikmund et al., 2012). Validity or measurement validity concerns whether a measure of a construct really measures that construct that it was designed to measure (Bell et al., 2018). This study tested construct validity. Defined to exist by Zikmund et al. (2012, p. 308) “when a measure reliably measures and truthfully represents a

unique concept". Validity testing was conducted per construct, utilizing bivariate correlation. Item total scores were calculated per respondent and significant relationships were checked against each question and the total item scores (Field, 2018; Hair et al., 2010). Pearson's correlation co-efficient (r) should be significant ($p<0.05$), to establish validity, as defined by Zikmund et al. (2012). All of the questions used showed significant relationships with the total item scores as in table 4-2 below and are thus valid.

Table 4-2: *Validity utilizing bivariate correlation* (Zikmund et al., 2012).

Construct	Pearson's correlation range over questions	Classification
Integration	Range 0.72 to 0.77 for five questions.	Significant
Responsiveness	Range 0.54 to 0.76 for five questions.	Significant
Performance	Range 0.92 to 0.93 for two questions.	Significant
Configuration	Range 0.69 to 0.85 for eight questions.	Significant
Coordination	Range 0.62 to 0.83 for eight questions.	Significant

4.6.4 Reliability

Zikmund et al. (2012) defined reliability as the measure of the internal consistency of a measurement scale. Reliability provides an indication of the consistency of results of a specific construct, over a period, that had been tested through various iterations and has provided a representation of the population that is deemed as suitable (Santos, 1999). Reliability would indicate whether the results of a study would be reproduceable. Cronbach's alpha was applied to check reliability of the constructs (Field, 2018; Santos, 1999), whilst a lower limit of 0.60 was deemed acceptable. Zikmund et al. (2012, p. 306) defined reliability scales as follows "Generally speaking, scales with a coefficient between 0.80 and 0.95 are considered to have very good reliability. Scales with a coefficient between 0.70 and 0.80 are considered to have good reliability, and a value between 0.60 and 0.70 indicates fair reliability. When the coefficient is below 0.6, the scale has poor reliability". All the constructs tested showed acceptable reliability as set out in table 4-3 below.

Table 4-3: Cronbach's alpha with internal consistency descriptor (Zikmund et al., 2012)

Construct	Cronbach's alpha	Classification
Integration	0.797	Good
Responsiveness	0.730	Good
Performance	0.827	Very good
Coordination	0.889	Very Good
Configuration	0.886	Very good

4.6.5 Factor analysis

Factor analysis as a statistical method is employed where multiple-indicator measures are used to determine to which extent there is an inherent structure to the high number of items, creating form factors, effectively reducing the quantity of variables which the researcher has to deal with (Bell et al., 2018; Field, 2018; Howard & Henderson, 2023; Lin & Hsieh, 2010). Yong and Pearce (2013, p. 1) described the purpose of factor analysis as "to summarize data so that relationships and patterns can be easily interpreted and understood." Factor analysis is mostly done in survey research where multiple questions are asked as indicators for specific constructs. The two methods of factor analysis utilized are confirmatory factor analysis (CFA) and exploratory factor analysis (EFA), with the type of analysis dependent on the end goal and the perspective applied. With an exploratory perspective the researcher searches for structure, or complex patterns, whilst testing predictions in the set of variables as a data reduction method (Child, 2006; Hair et al., 2019b; Howard & Henderson, 2023). EFA allows for the underlying structure formed by the correlations and covariances to be identified, without hypothesizing on the relationships (Field, 2018; Podsakoff, & Organ, 1986), and does not apply any constraints for the determination of the number of extracted components (Hair et al., 2019b). EFA is mostly used where no prior research exists. Where prior research is available and a preconception of the structure of the data exists, the confirmatory approach, or CFA may be applied (Hair et al., 2019a). CFA thus attempts to confirm hypotheses on the relationship between the latent construct and variables (Hurley et al., 1997; Prebensen & Xie, 2017), whilst EFA attempts to uncover complicated patterns through dataset exploration and prediction testing (Yong & Pearce, 2013, p. 79). This study utilized EFA for construct validity determination as existing measurement scales were utilized and as the factors did not extract ideally, CFA had to be done to confirm the extracted factors load correctly; irrespective of the study sample size being below the suggested rule of thumb sample size of 200 (Kyriazos, 2018).

Different measures of sampling adequacy testing were used that were reviewed for EFA. Within the questions (variables) evaluated within the correlation matrix it must first be confirmed that at least one correlation is above 0,3. The Kaiser–Meyer–Olkin (KMO) (Field, 2018), and Bartlett's Test of Sphericity was then conducted. For the KMO measure the closer the value is to 1, it indicates that factor analysis would provide reliable and distinct factors (Field, 2018; Kaiser, 1974). Bartlett's Test of Sphericity will indicate whether the correlation matrix and identity matrix are significantly different, with a p-value of less than your significance level of 0.05 applied (Field, 2018; Howard & Henderson, 2023). The Eigenvalues rule of 1 was applied. This study presented five constructs which were factorized. Smaller factors of the existing variables (questions) were extracted with a Principal Component Analysis (PCA) (Hair et al., 2019b), utilizing Varimax in conjunction with the Kaizer

normalisation rotation method (Abdi & Williams, 2010). See table 4-4 below for the summary table, refer to Appendix E1 for extracted SPSS data.

Table 4-4: ***Constructs, KMO & Bartlett's test, factors extracted, % variance*** **(Field, 2018)**

Construct	KMO	Bartlett's test	Factors extracted	Representing % Variance
Integration	0.808	0.000 (p< 0.05)	1	57,28%
Responsiveness	0.671	0.000 (p< 0.05)	1	47,49%
Performance	0.500	0.000 (p< 0.05)	1	85,29%
Coordination	0.764	0.000 (p< 0.05)	2	70,25%
Configuration	0.829	0.000 (p< 0.05)	2	70,29%

With these tests a reduced view of each construct could be extracted, and because two dimensions were coming across CFA was done to validate the latent constructs for the variables of coordination and configuration which each initially presented two factors. Kyriazos (2018) and Almatrooshi et al. (2016) suggested as a rule of thumb CFA only for sample sizes bigger than 200, as smaller sample sizes "do not provide enough power for statistical analysis". Despite this rule of thumb CFA was conducted to ensure that the latent variables load correctly. The CFA was conducted in the IBM® SPSS add-on AMOS. Refer to Appendix E2 for the extracted details. To prove model fit four model-fit indices had to be confirmed. The following indices were applied: i) Chi-square, where non-significance is signified where p-value less than 0,05, thus should be > 0.05; ii) Comparative fit index (CFI) should be ≥ 0.90, with >0.80 sometimes acceptable (Hu & Bentler, 1999; McDonald & Ho, 2002); iii) Root Mean Square Error of Approximation (RMSEA) must be < 0,08 (Hu & Bentler, 1999); iv) Standardized Root Mean Square (SRMR) must be < 0,08. From the model fit one factor each was confirmed for the variables of coordination and configuration. The factors Operational Coordination and Operational Configuration were defined, where the financial variables were removed. Table 4-5 lists the model-fit indices that were confirmed.

Table 4-5: ***Factors confirmed from Constructs with CFA***

Factor	Chi-square	CFI	RMSEA	SRMR
Operational coordination	69.57	0.863	0.137*	0.093
Operational configuration				

* - impacted by sample size.

The following factor reduction was concluded:

- Integration produced only one factor termed, Services integration.
- Responsiveness produced one factor termed, Marketing responsiveness.
- Performance produced one factor termed, Return on Investment
- Coordination produced one factor termed Operational coordination.
- Configuration produced two factors termed, Operational configuration.

Table 4-6: ***Descriptive statistics for the Construct factors – after factor analysis***

Construct		Average	Std. Deviation
Integration:	Services integration	2.23	1.18
Responsiveness:	Marketing responsiveness	3.33	0.99
Performance:	Return on Investment	3.23	0.89
Coordination:	Operational coordination	2.44	0.84
Configuration:	Operational configuration	2.27	0.51

With the factor analysis concluded the next step of the process, the cluster analysis was concluded.

4.6.6 Normal distribution

Tests were conducted to comprehend the basic distribution within the data sample, to determine whether a normal distribution was achieved. Field (2018) indicated that deviations from normality would impact on accuracy of the statistical tests conducted, as the underlying assumption in most statistical tests is that a normal distribution is present. The Shapiro-Wilk test was applied to test for normality on the constructs in this study, with normality determined through a significance of $p<0,05$. Thus, with a p-value bigger than 0,05 we thus assume normality in the data (Field, 2018; Yap & Sim, 2011). The test for normality found all factors in all constructs to be not normally distributed, but were however confirmed with Skewness and Kurtosis figures, skewness ranges of plus or minus 2 is acceptable (George & Mallery, 2018). See table 4-7 below.

Table 4-7: ***Construct Skewness and Kurtosis figures to check for normality***

Construct		Statistic	Std. Error
Integration	Skewness	0.330	4.40
	Kurtosis	0.650	0.45
Responsiveness	Skewness	0.330	2.72
	Kurtosis	0.650	0.27
Performance	Skewness	0.330	3.30
	Kurtosis	0.650	0.84
Operational Coordination	Skewness	0.330	3.05
	Kurtosis	0.650	0.30
Operational Configuration	Skewness	0.330	2.28
	Kurtosis	0.650	0.29

4.6.7 Cluster analysis

Cluster analysis (CA), as a multivariate technique is utilized to group objects that are in some respect similar, based on the characteristics they each possess (Zikmund et al., 2012). Hair et al. (2019a, p. 437) defined cluster analysis as “combining objects into groups so that objects in each of the groups are similar to one another and different from objects in all other groups”. CA as the appropriate multivariate technique for interval data as gathered with his study, where the “researcher is examining questions that do not distinguish between independent and dependent variables” (Zikmund et al., 2012, p. 597). The purpose of CA is, to ascertain how many groups exists within a dataset and to define their composition, ensuring likeness within groups whilst having as much as possible difference amongst groups. CA has been used by Katz et al. (2021) for clustering or to define the sample underlying group structure and used in similar studies in relation to integration and responsiveness constructs to define clusters by Taggart (1997), Roth and Morrison (1990), Lin and Hsieh (2010). After clusters had been ascertained, the members of the clusters can be profiled or characterized by examining the group member makeup for further analysis. The use of CA is appropriate for this study as interval data was gathered and similar questions were adapted from the Lin and Hsieh (2010) study to operationalize the constructs, with a similar analysis approach applied.

CA was conducted on the 57 useable responses utilizing a two-stage process of analysis to determine the underlying group structure (Lin & Hsieh, 2010; Punj & Stewart, 1983). The average score of each dimension for Integration and Responsiveness was calculated and this became the overall score for each. With the continuous variables Integration and Responsiveness, the number of clusters to be formed were specified as three, the number this study is looking for, with a Euclidean distancing and Akaike`s Information Criterion (AIC). The CA partitioned the subsidiaries in the sample

into different clusters with the Integration and Responsiveness variables (Lin & Hsieh, 2010). Refer to figure 4.2 below. Three clusters were identified, and a comparison was made between the theoretical taxonomy for the integration and responsiveness of defined subsidiary types, as defined by Martinez and Jarillo (1991) and Taggart (1997) and the achieved values. Cluster 1 (n = 48), labeled the “autonomous cluster” with low integration and high responsiveness, Cluster 2 (n = 5), labeled the “active cluster” with high integration and high responsiveness and Cluster 3 (n = 4), labeled the “receptive cluster” with low integration and low responsiveness.

Clusters

Input (Predictor) Importance

1.0 0.8 0.6 0.4 0.2 0.0

Cluster	Label	Description	Size	Inputs	
1	Autonomous	Low Integration High Responsiveness	84.2% (48)	Integration 2.31	Responsiveness 3.30
2	Active	High Integration High Responsiveness	8.8% (5)	Integration 4.40	Responsiveness 2.72
3	Receptive	High Integration Low responsiveness	7.0% (4)	Integration 3.75	Responsiveness 4.50

Figure 4.2: Clusters formed with the cluster analysis with descriptors in SPSS

A One-way-Anova with Scheffé’s test was done over all the construct means and cluster means, to see how the means and standard deviations vary per cluster. Refer to table 4-7 below (Appendix E3). The ANOVA results were compared with the theoretical ideal profiles as defined by Martinez and Jarillo (1991) and Taggart (1997) to determine whether the results support the ideal relationships in relation to Integration and Responsiveness. The cluster analysis scores were thus further verified with the ANOVA test, confirming that the clusters were correct as per the variables Integration and Responsiveness. Multiple comparisons of means between the different clusters were tested using Scheffé’s test, to identify significant differences between the means of the clusters. The F-statistic for Operational coordination was significant F (4.185) $p < 0.05$, and that for Operational configuration F (0.055). The variance across Operational coordination indicates that this variable differs significantly across clusters

Table 4-8: ***Cluster scores per subsidiary type factor or construct from ANOVA test***

Cluster		"Autonomous"	"Receptive"	"Active"
Integration	Average	2.308	4.400	3.750
	Std. Deviation	0.685	0.447	0.574
Responsiveness	Average	3.300	2.720	4.500
	Std. Deviation	0.745	0.268	0.258
Performance	Average	3.115	3.300	3.750
	Std. Deviation	0.787	0.837	1.041
Operational Coordination	Average	2.473	3.050	3.800
	Std. Deviation	0.920	0.300	1.395
Operational Configuration	Average	2.270	2.283	2.358
	Std. Deviation	0.514	0.285	0.527

The mean scores for the top three performing subsidiary types were extracted from the data for the variables Operational coordination and Operational configuration as per table 4-9 below, to compare with the ANOVA results from table 4-8 above. The comparison was to determine whether the subsidiary-type configuration and coordination variables means aligned with the defined ideals. In terms of coordination the Active subsidiary has to have the highest mean, followed by Receptive and then Autonomous. In terms of configuration the Autonomous subsidiary should have the highest mean, followed by Active and Receptive (Martinez & Jarillo, 1991; Taggart, 1997; Wu et al., 2019).

Table 4-9: ***Cluster scores per subsidiary type for top 3 profiles***

Cluster		"Autonomous"	"Receptive"	"Active"
Operational Coordination	Average	3.133	3.200	4.133
Operational Configuration	Average	2.476	2.142	2.286

4.6.8 Multiple Regression analysis

Regression is a measuring technique used to determine linear relationships between at least two or more variables (Hair et al., 2019b). With multiple regression analysis several independent variables are applied to predict a single dependent variable, and a regression coefficient is calculated for every independent variable. This regression coefficient describes the relationship (correlation) between the dependent variable and each independent variable in relation to assumed linearity (Hair et al., 2019b). The linearity optimum positioning must be checked with the analysis, allowing for the regression coefficients to be derived when certain assumptions must be satisfied. Multiple regression is based on the following assumptions that have to be checked first: i) linearity in the relationship

between the two variables, checked with the least squares method, with $R^{2,}$ and an F test to test statistical significance (<0,05), ii) that the two variables are in fact dependent and independent with one causing the other`s behavior, assessed through correlation factors (regression coefficients and their t- statistics) for each independent variable, to determine significant relationships, iii) that the variables come from normal populations and measurement scales are the same where a beta coefficient is used to determine relative importance and the impact on the dependent variable, iv) independent and normally distributed error terms (Hair et al., 2019b).

The multiple regression consisted of the factors, Operational-coordination-fit and Operational-configuration-fit, performance and the subsidiary types coded as dummy variables. A goodness-of-fit score was determined after the cluster analysis, with a Euclidean weighted distance metric, through recording the deviations from the empirically derived ideal profile means of the variables, Operational coordination and Operational configuration (see table 4-9 above) and each cluster`s sample means. The Operational-coordination-fit and Operational-configuration-fit variables were thus created that were used in the multiple regression. The regression was done between the independent variables subsidiary type represented by dummy variables to accommodate each subsidiary type (Autonomous, Receptive and Active), Operational-coordination-fit, Operational-configuration-fit and the dependent variable Performance to assess the relationships. Consideration for upward bias was accounted for by removing the top three performers per cluster from the analysis (Roth et al., 1991). The regression tested the relationships as follows to answer the research questions:

Independent Variable + Independent Variable = Dependent Variable

RQ1:

- Cluster_Autonomous + Operational-configuration-fit = Performance
- Cluster_Receptive + Operational-configuration-fit = Performance
- Cluster_Active + Operational-configuration-fit = Performance

RQ2:

- Cluster_Autonomous + Operational-coordination-fit = Performance
- Cluster_Receptive + Operational-coordination-fit = Performance
- Cluster_Active + Operational-coordination-fit = Performance

The regression produced coefficients for each independent variable describing its individual relationship with the dependent variable.

Table 4-10 below provides the Anova and model results for the linearity test, whilst table 4-11 provides the multiple regression coefficient results per independent variable for the assumption tests.

Table 4-10: ***Multiple regression Anova and model results for linearity test***

Construct	Anova		Model
Configuration	**squares**	**F test**	**R^2**
Cluster_Autonomous	0.168	0.137	0.872
Operational-configuration-fit			
Cluster_Receptive	0.005	0.004	0.996
Operational-configuration-fit			
Cluster_Active	0.311	0.255	0.776
Operational-configuration-fit			
Coordination			
Cluster_Autonomous	0.179	0.147	0.864
Operational-coordination-fit			
Cluster_Receptive	0.077	0.063	0.939
Operational-coordination-fit			
Cluster_Active	0.325	0.267	0.767
Operational-coordination-fit			

Table 4-11: ***Multiple regression coefficient results per subsidiary type for assumption tests***

Construct	Coefficients			
Configuration	**B**	**Beta**	**p-value**	**t stat**
Cluster_Autonomous	0.270	0.086	0.604	0.522
Operational-configuration-fit	0.038	0.043	0.793	0.264
Cluster_Receptive	-0.048	-0.013	0.938	-0.079
Operational-configuration-fit	0.010	0.011	0.946	0.068
Cluster_Active	-0.575	-0.108	0.479	-0.713
Operational-configuration-fit	0.026	0.029	0.848	0.192
Coordination	**B**	**Beta**	**p-value**	**t stat**
Cluster_Autonomous	0.193	0.062	0.683	0.411
Operational-coordination-fit	0.043	0.044	0.768	0.297
Cluster_Receptive	-0.025	-0.007	0.965	-0.044
Operational-coordination-fit	0.050	0.052	0.728	0.350
Cluster_Active	-0.511	-0.096	0.526	-0.640
Operational-coordination-fit	0.035	0.037	0.807	0.245

4.7 Data Storage

Data is stored on a private cloud-based drive to ensure secure data storage. This also allows for data preservation and prevents unauthorized access. The data will be retained on a safe server that is encrypted and cannot be accessed without two-factor authentication, where the researcher is the only person having access.

4.8 Quality controls

The research quality is primarily dependent on the received data, thus we have to ensure that we collect the exact data that we require to reach the study objectives, and solve the research question (Saunders et al., 2016). This would imply that the quality and clarity of the questions is important. In addition to this it is of primary importance that the constructs are clearly and comprehensively defined, and the theoretical frameworks used clearly communicated (Köhler et al., 2017). Zikmund et al. (2012) described several errors that could occur within the research process that will have to be guarded against, random sampling errors, respondent errors where the respondents do not answer truthfully, non-response errors where respondents do not reply, response biases from respondents where they falsify or misrepresent information, and administrative errors. The care taken with the questionnaire would have negated most of these problems.

Questionnaire errors were reduced by proper design in terms of using closed questions, following questionnaire design guidelines, designing an attractive questionnaire, and doing a pre-test prior to initiation of the study (Zikmund et al., 2012).

4.9 Limitations

Limitations of the study would be mainly associated with the design of the research, as well as the methodology with which the research was conducted. Sánchez-Fernández et al. (2012) reported that reply-rates to surveys have declined below 50% due to survey fatigue experienced by respondents, which could negative impact the research in the limited timeframe. The use of a questionnaire survey could lead to non-response biases and ultimately not receiving enough responses (Zikmund et al., 2012). A further drawback of using the questionnaire survey is that the questions utilized are not open ended, and as such the responses may not be detailed enough for complete clarity (Saunders & Lewis, 2018).

This study has several limitations. Firstly, the responses from subsidiaries received were geographically concentrated in South Africa, with 52.7% of total responses, limiting the ability to generalize the study findings of the study. Secondly, common method variance may be present as the study utilizes questionnaires that were self-reported, and that were answered by single respondents. Thirdly, the responses are mostly from the Testing, Inspection and Certification industry and can thus not be generalized to all industries (industry specific). Fourth, the study indicated that the reliability and validity of the construct "responsiveness" was good, this conclusion is founded on an assumption that decision-making freedom is a suitable way of operationalizing the construct, Taggart (1997, p. 678) identified this as a necessary condition, whilst whether this suffices as a condition has not been confirmed (Lin & Hsieh, 2010). Fifth, the definition of clusters in CA, without clear established guidelines or rules is problematic as the researcher will end up with clusters with no assurance that these clusters are in fact useful and meaningful (Punj & Stewart, 1983; Wierzchoń & Kłopotek, 2018).

4.10 Conclusion

The preceding chapter outlined the research philosophy, design and methodology used to answer the two research questions. The quantitative research study used a self-administered on-line survey to collect 104 responses at the subsidiary level within MNC matrix structured organisations, leading to 57 useable responses for analysis with IBM® SPSS version 28. The survey covered the constructs integration, responsiveness, subsidiary type, configuration and coordination to gather an understanding of its impact on financial performance.

The results of the statistical analysis in answering the research questions will follow in Chapter 5.

Chapter 5: Findings/Results

5.1 Introduction

This chapter introduces the statistical test results from the analysis of the data gathered, to answer the research questions raised in Chapter 3, as per the methodology described in the previous chapter utilizing an online self-administered survey on Google Forms. The data gathered from the useable responses was edited and coded for analysis, whereafter the validity as per table 4-2, and reliability of the constructs were tested as per table 4-3. Factor analysis was conducted to reduce the five constructs into less variables as per table 4-4, with CFA confirming two factors as per table 4.5. The descriptive statistics for the new factors provided in table 4-6. Normal distribution was checked with construct Skewness and Kurtosis figures as per table 4-10. CA was done to determine the underlying structure of the groups that exists within a dataset, and to determine the ideal profiles for three clusters as per table 4-8, as well as to determine the cluster scores per subsidiary type for the top 3 profiles as per table 4-9. Goodness-of-fit scores were determined before multiple regression was used to determine a differentiated fit correlation with performance for each subsidiary type as per table 4-11. Analysis was done at a 95% confidence interval. The identified sample demographics and construct descriptive statistics is set forth in this chapter.

5.2 Descriptive Statistics

Descriptive statistics were used to measure the spread, and central tendencies of the sample. With categorical variables the summary of the data was tabulated, with the percentage frequency and frequency indicated.

5.2.1 Response rate and industry representation

The use of convenience and snowball-sampling allowed for 104 responses to be collected, of which 57 responses were valid. The respondents represented 14 industries, with 40.35% gathered from the Testing, Inspection and Certification industry, followed by 10.53% from the Energy, 8.77% from Financial Services and 7.02% from the Mining and quarrying industry. The top four industry classifications thus constituted 66,7% of all respondents. The various industry constituents for the responses are shown in table 5.1 below.

Table 5-1: Industry classification of respondents

Industry	**Response %**	Response Count
Automotive and transportation	5.26%	3
Chemical	1.75%	1
Construction	3.51%	2
Energy	10.53%	6
Financial services	8.77%	5
Lift and Escalator Industry	1.75%	1
Machinery	1.75%	1
Machinery	1.75%	1
Manufacturing	3.51%	2
Mechanical	3.51%	2
Mining and quarrying	7.02%	4
NDT and DT in all industry sectors	1.75%	1
Pharmaceuticals	1.75%	1
Real Estate	1.75%	1
Reliability engineering	1.75%	1
Services	1.75%	1
Testing, Inspection, Certification & Training	40.35%	23
Total for section	100%	57

5.2.2 Biographic information

The questionnaire contained four variables on the demographics of the respondents as represented in table 5.2 below. The majority of the responses were from the age group 45 to 54 years (38.60%), with the age groups 35 to 44 and 55 to 64 delivering the exact same quantity of responses at 29.82%. One response was received from the age group 65+ (1.75%). No responses were recorded for the age group 16 to 24 and 25 to 34. The bulk of the respondents were male (84.21%), with females making up the difference. The tenure of the respondents for the majority of respondents was 11 years or more (54.39%), followed by 9 to 11 years (14.04%) and 6 to 8 years (14.04%) respectively. Only four respondents had a tenure of less than 2 years (7,02%). The seniority level of respondents show that the majority (59.65%) are at senior management level, with the balance at executive level. No respondents were recorded for junior and lower management levels as expected as the structuring within the subsidiaries are expected to be hierarchical, excluding these levels (Egelhoff et al., 2013).

Table 5-2: Demographic data of respondents

Demographic		Percentage	Frequency
Age	35-44	29.82%	17
	45-54	38.60%	22
	55-64	29.82%	17
	65+	1.75%	1
	Total for section	100%	57
Gender	Male	84.21%	48
	Female	15.79%	9
	Total for section	100%	57
Tenure	less than 2 years	7.02%	4
	3 - 5 years	10.53%	6
	6 - 8 years	14.04%	8
	9 - 11 years	14.04%	8
	11 or more years	54.39%	31
	Total for section	100%	57
Seniority	Senior management	59.65%	34
	Executive management	40.35%	23
	Total for section	100%	57

5.2.3 Respondent`s organisational geographic positioning

The following two tables indicate the geographic location of the organisation`s HQ, thus home country positioning (Table 5-3), followed by the global positioning of the subsidiary, or host country (Table 5-4).

Table 5-3: Respondent`s organisations HQ geographic positioning (Home country)

Country	**Percentage**	**Frequency**
Australia	5.26%	3
Austria	1.75%	1
China	1.75%	1
France	3.51%	2
Germany	61.40%	35
India	1.75%	1
Japan	3.51%	2
Saudi Arabia	1.75%	1
South Africa	3.51%	2
Spain	1.75%	1
United Kingdom	7.02%	4
United States	7.02%	4
Total for section	100%	57

The responses indicate that 61.40% of the HQs are situated in Germany, whilst 52.63% of the subsidiaries are situated in South Africa. This concentration may be attributed to the researcher`s context. The responses geographic global coverage only excluded South America, where no responses were received from for either the HQ or the subsidiary locations.

Table 5-4: Respondent`s subsidiary geographic positioning (Host country)

Country	Percentage	Frequency
Australia	1.75%	1
Austria	3.51%	2
Belgium	1.75%	1
Canada	1.75%	1
China	0.00%	0
Czech Republic	1.75%	1
Germany	3.51%	2
Ghana	1.75%	1
Hong Kong	1.75%	1
India	5.26%	3
Italy	1.75%	1
Malaysia	1.75%	1
Namibia	1.75%	1
Netherlands	1.75%	1
Philippines	1.75%	1
Singapore	3.51%	2
South Africa	52.63%	30
Spain	8.77%	5
Switzerland	1.75%	1
United States	1.75%	1
Total for section	100%	57

The MNC organisations represented by the respondents are all present in multiple countries, with 24.56% present in up to 20 countries, followed by 17.54% of companies present in between 61 to 80 countries. The bulk of the responses at 61.40% had subsidiaries in between 21 to 100 countries, with 14.36% with subsidiaries between 101 and 160 countries. Refer to figure 5.1 below.

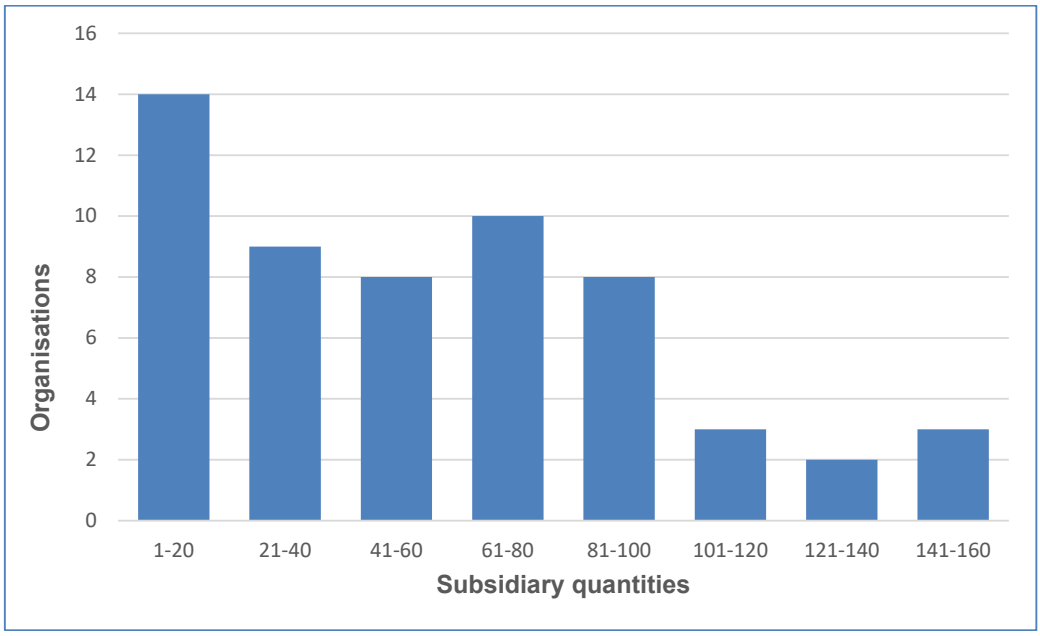

Figure 5.1: Respondent`s organisation global subsidiary count

Respondents further reported their headcount at the global and subsidiary level for their MNCs, indicating that the bulk of the organisations had between 1000 to 4 999 employees (54.4%), followed by 5 000 to 29 999 employees (21.1%). Further 50,1% of the subsidiary companies had between 1 and 499 employees. One organisation had 60 000+ employees. No subsidiaries were recorded having more than 29 999 employees. Refer to table 5.5 below.

Table 5-5: Employee headcount global and subsidiary level

Headcount	Global		Subsidiary	
	Percentage	Frequency	Percentage	Frequency
Up to 99 employees	1.8%	1	22.8%	13
100 - 499 employees	1.8%	1	28.1%	16
500 - 999 employees	10.5%	6	12.3%	7
1 000 - 4999 employees	54.4%	31	29.8%	17
5 000 - 29 999 employees	21.1%	12	7.0%	4
30 000 - 59 999 employees	10.5%	6	0	0
60 000^{+} employees	1.8%	1	0	0
Total for section	100%	57	100%	57

5.2.4 Respondent`s reporting time to HQ and reporting lines

The respondents' time spent reporting to their HQ was the highest at 11 to 20% (n = 18), followed by less than 10% (n =15), and 21% to 30% (n = 14). See table 5-5 below. These three groups represent 82,46% of respondents. Two respondents (3.51%) indicated that they spent between 71 to 80% of their time reporting to HQ. The overwhelming majority (77.19%) of respondents report directly (solid-line) at the subsidiary level, and indirectly (dotted-line) to their headquarters.

Table 5-6: Demographic data of respondents on time spent reporting to HQ and reporting lines.

Construct		Percentage	Frequency
Time % spent reporting to HQ	Less than 10%	26.32%	15
	11%-20%	31.58%	18
	21%-30%	24.56%	14
	31%-40%	3.51%	2
	41%-50%	5.26%	3
	51%-60%	5.26%	3
	61%-70%	0.00%	0
	71%-80%	3.51%	2
	81%-90%	0.00%	0
	More than 90%	0.00%	0
	Total for section	100%	57
Reporting lines	Reports directly (solid-line) to headquarters, and indirectly (dotted-line) at the subsidiary level.	22.81%	13
	Reports directly (solid-line) at the subsidiary level, and indirectly (dotted-line) to headquarters.	77.19%	44
	Total for section	100%	57

Within the section on the organisation, a qualifying question differentiated between the organisational structures, where the questionnaire ended if a respondent selected the hierarchical structure. Thus, for any respondents that did not indicate that they were in a matrix organisational structure the questionnaire would end, ensuring valid responses on further questions. The above data on the respondents, the geographic spread of the organisation`s HQ and subsidiaries and the reporting lines, with time spent on reporting provides us with an understanding of both the respondents and the organisations that were considered in the final sample for analysis.

The descriptive statistics for the constructs are provided in table 5-7 below.

Table 5-7: ***Descriptive statistics for the constructs of the study***

Construct / latent variable	Average	Std. Deviation	Minimum	Maximum
Integration	2.47	0.89	1.00	4.60
Responsiveness	3.38	0.79	1.60	5.00
Performance	3.18	0.81	1.00	5.00
Operational coordination	2.69	1.05	1.00	5.00
Operational configuration	2.25	0.50	1.00	3.00

5.3 Validity

Validity testing was conducted per construct, utilizing bivariate correlation with the total item scores as in table 5-8 below. Pearson's correlation co-efficient (r) were all significant ($p<0.05$), thus validity for all constructs was established. All of the questions used in the questionnaire showed significant relationships and are thus valid.

Table 5-8: ***Validity utilizing bivariate correlation*** **(Zikmund et al., 2012).**

Construct	Pearson's correlation range over questions	Classification
Integration	Range 0.72 to 0.77 for five questions.	Significant
Responsiveness	Range 0.54 to 0.76 for five questions.	Significant
Performance	Range 0.92 to 0.93 for two questions.	Significant
Configuration	Range 0.69 to 0.85 for eight questions.	Significant
Coordination	Range 0.62 to 0.83 for eight questions.	Significant

5.4 Reliability

Cronbach's alpha was applied to check reliability of the constructs, with a lower limit of 0.60 deemed as acceptable. All the constructs tested showed acceptable reliability as set out in table 5-9 below, with only Good and Very Good reliability recorded.

Table 5-9: Cronbach's alpha with internal consistency descriptor (Zikmund et al., 2012)

Construct	Cronbach's alpha	Classification
Integration	0.797	Good
Responsiveness	0.730	Good
Performance	0.827	Very good
Coordination	0.889	Very Good
Configuration	0.886	Very good

5.5 Factor Analysis

This study utilized EFA for construct validity determination as existing measurement scales were utilized, and where the factors did not extract ideally, CFA was done to confirm the extracted factors loaded correctly (Hair et al., 2019a). Four methods of sampling adequacy testing were used for the EFA. First within the correlation matrix it was confirmed that at least one correlation was above 0,3 within the questions (variables) evaluated. The Kaiser–Meyer–Olkin (KMO) (Field, 2018), and Bartlett's Test of Sphericity were then conducted, and were found to be acceptable. The data is thus confirmed as acceptable for factor analysis. The factors were extracted with the Principal Component Analysis method (Hair et al., 2019b), with the Varimax rotation where needed and Kaiser Normalization (Abdi & Williams, 2010). The Eigenvalues rule of 1 was applied, to the five constructs which were factorized (Field, 2018; Kaiser, 1974), producing three constructs with one factor each, and two constructs with two factors each. These factors all thus had Eigenvalues greater than 1.0, and representative of the total variance explained by each of the factors. Refer to table 5-10 below.

Table 5-10: *Constructs, KMO & Bartlett's test, factors extracted, % variance* (Field, 2018)

Construct	KMO	Bartlett's test	Factors extracted	Representing % Variance
Integration	0.808	0.000 (p< 0.05)	1	57.28%
Responsiveness	0.671	0.000 (p< 0.05)	1	47.49%
Performance	0.500	0.000 (p< 0.05)	1	85.29%
Coordination	0.764	0.000 (p< 0.05)	2	70.25%
Configuration	0.829	0.000 (p< 0.05)	2	70.29%

CFA was conducted in the IBM® SPSS version 28 software with the AMOS add-on with the preliminary EFA analysis data, confirming the factors for Operational coordination and Operational configuration in the structural model as per figure 5.2. As per the structural model all the factor loadings, as a statistical representation of the latent variable effect on the construct, were above 0.63 and are acceptable.

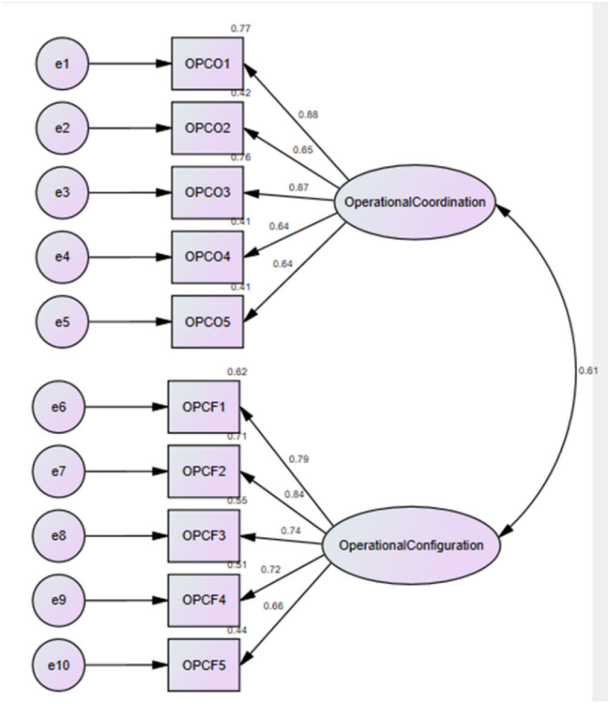

Figure 5.2: CFA path model for factor confirmation

Four model-fit indices were confirmed and found acceptable, and the CFA thus confirmed the EFA. The factors Operational coordination and Operational configuration were defined once the financial variables were removed. Refer to Appendix E.1 for the pattern matrix with reduction. Table 5-11 lists the model-fit indices that were confirmed and explained thereafter.

Table 5-11: ***Factors confirmed from Constructs with CFA***

Fit indices	Calculated value	Threshold	Classification
Chi-square	69.57	< 3 good; < 5 sometimes acceptable	Good
CFI	0.863		Acceptable
RMSEA	0.137	<0.05 good; 0.05 to 0.1 moderate; >0.1 bad	Fair*
SRMR	0.093		Good

* - impacted by sample size. Adapted from (Hair et al., 2010)

The measurement model Chi-square was 69.57, with 34 degrees of freedom a p-value of 0.000 and thus found acceptable. The CFI should normally be ≥ 0.90, with >0.80 sometimes acceptable (Hu & Bentler, 1999; McDonald & Ho, 2002), accepted for this study due to the sample size being below the rule of thumb of 200 (Almatrooshi et al., 2016; Kyriazos, 2018). The Root Mean Square Error of Approximation (RMSEA) achieved was 0.137 must be < 0.08 (Hu & Bentler, 1999) but was accepted.

The Standardized Root Mean Square (SRMR) must be < 0.08, however was accepted. Because of the sample size which is only 57, the two fit indices would never be able to reach a good or acceptably defined level, and as such were accepted for the study.

The factor reduction was concluded, with the following confirmed per construct:

- Integration produced only one factor termed, Services integration.
- Responsiveness produced one factor termed, Marketing responsiveness.
- Performance produced one factor termed, Return on Investment
- Coordination produced one factor termed Operational coordination.
- Configuration produced two factors termed, Operational configuration.

With the FA concluded, the next step of the process - the cluster analysis - was concluded.

5.6 Normal distribution

The Shapiro-Wilk test was applied to test for normality on the constructs in this study, with normality determined through significance of p<0,05. Thus, with a p-value bigger than 0,05 we assume normality in the data. The test for normality found all factors in all constructs to be not normally distributed, but were however confirmed with Skewness and Kurtosis figures, skewness ranges of plus or minus 2 are acceptable, thus all constructs were accepted as normally distributed. See table 5-12 below.

Table 5-12: ***Construct Skewness and Kurtosis figures to check for normality***

Construct		Statistic	Std. Error	Classification
Integration	Skewness	0.330	4.40	Acceptable
	Kurtosis	0.650	0.45	Acceptable
Responsiveness	Skewness	0.330	2.72	Acceptable
	Kurtosis	0.650	0.27	Acceptable
Performance	Skewness	0.330	3.30	Acceptable
	Kurtosis	0.650	0.84	Acceptable
Operational Coordination	Skewness	0.330	3.05	Acceptable
	Kurtosis	0.650	0.30	Acceptable
Operational Configuration	Skewness	0.330	2.28	Acceptable
	Kurtosis	0.650	0.29	Acceptable

5.7 Cluster Analysis

CA, utilizing a two-stage process of analysis, was conducted on the 57 useable responses of the sample to determine the underlying group structure (Lin & Hsieh, 2010). The Integration and Responsiveness variable means overall scores were used to partition the sample into three clusters with Euclidean distancing and Akaike`s Information Criterion (AIC). Three clusters were identified, and a comparison was made between the theoretical taxonomy for the integration and responsiveness of subsidiary types, as defined by Martinez and Jarillo (1991) and Taggart (1997), and the obtained values. Cluster 1 (n = 48) was labeled the “autonomous cluster” with low integration and high responsiveness, Cluster 2 (n = 5), was labeled the “receptive cluster” with high integration and high responsiveness and Cluster 3 (n = 4), was labeled the “active cluster” with low integration and low responsiveness. The cluster representation was split 84.2% to the Autonomous cluster, 8.8% to the Active cluster and 7.0% to the Receptive cluster as represented in figure 5.3 below. The predictor of the clusters was most importantly the Integration with a factor of 1, followed by Responsiveness at 0.34 and Coordination at a factor of 0.09. Performance and Configuration had limited to almost no impact as predictors of the clusters. Refer to figure 5.3 below.

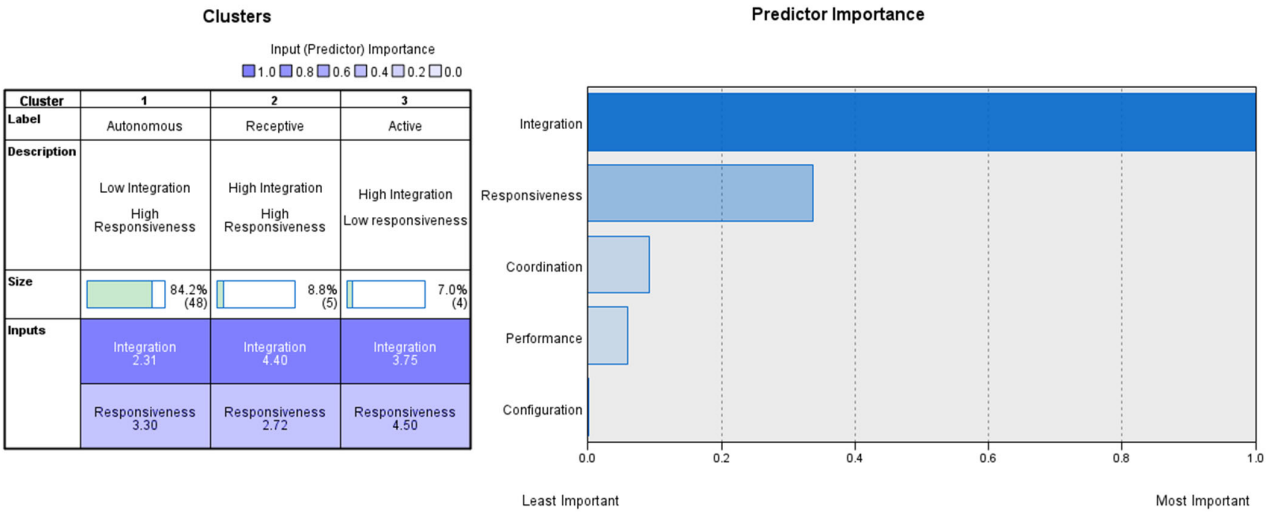

Figure 5.3: Clusters formed and predictor importance representation from CA in SPSS

Following from the CA, a One-way-Anova with Scheffé’s test were done over all the construct means and cluster means, to determine the means and standard deviations per cluster. Refer to table 5-13 below (Appendix E3) for the descriptive statistics, and Appendix E4 for the Scheffé’s tests results.

The ANOVA results were compared with the theoretical ideal profiles as defined by Martinez and Jarillo (1991) and Taggart (1997) as per table 5-14 below to determine whether the results support the ideal relationships in relation to Integration and Responsiveness. The cluster analysis scores were thus further verified with the ANOVA test, confirming that the clusters were correct as per the variables Integration and Responsiveness. Multiple comparisons of means between the different clusters were tested using Scheffé's test, to identify significant differences between the means of the clusters (see Appendix E3).

The mean scores for the top three performing subsidiary types were extracted from the data for the variables Operational coordination and Operational configuration, as per table 5-15 below, to compare with the ANOVA results from table 5-13 below. The comparison was to determine whether the subsidiary-type configuration and coordination variables means aligned with the defined ideals. In terms of coordination the Active subsidiary in the defined ideals has to have the highest mean, followed by Receptive and then Autonomous. In terms of configuration the Autonomous subsidiary should have the highest mean, followed by Active and Receptive (Martinez & Jarillo, 1991; Taggart, 1997; Wu et al., 2019). The means as extracted in table 5-15 match the defined ideals, whilst the means extracted through the ANOVA in table 5-13 did not match for all subsidiaries.

Table 5-13: ***Cluster scores per subsidiary type factor or construct from the ANOVA test***

Cluster		"Autonomous"	"Receptive"	"Active"
Integration	Average	2.308	4.400	3.750
	Std. Deviation	0.685	0.447	0.574
Responsiveness	Average	3.300	2.720	4.500
	Std. Deviation	0.745	0.268	0.258
Performance	Average	3.115	3.300	3.750
	Std. Deviation	0.787	0.837	1.041
Operational Coordination	Average	2.473	3.050	3.800
	Std. Deviation	0.920	0.300	1.395
Operational Configuration	Average	2.270	2.283	2.358
	Std. Deviation	0.514	0.285	0.527

Green indicates = alignment with theoretical ideal profile, orange not aligned.

Table 5-14: ***Cluster ideal scores per subsidiary as defined by Martinez and Jarillo (1991), Taggart (1997) and Lin and Hsieh (2010)***

Cluster	Autonomous	Receptive	Active
Coordination	Low	Next High	High
Configuration	High	Low	Next High

Table 5-15: ***Cluster mean scores per subsidiary type for top 3 profiles***

Cluster		"Autonomous"	"Receptive"	"Active"
Performance	Mean	4.167	3.500	4.167
Operational Coordination	Mean	3.133	3.200	4.133
Operational Configuration	Mean	2.476	2.142	2.286

Green indicates = alignment with theoretical ideal profile sequence.

5.8 Multiple Regression

The multiple regression was conducted with the independent variables, subsidiary type represented by the cluster names (Autonomous, Receptive and Active), Operational-configuration-fit, Operational-coordination-fit, and the dependent variable Performance. The variables measured are from normal populations as per table 5-12 above, with the same measurement scales (refer to table 4-1). The ordinary least squares (OLS) method, as an error minimizer in the prediction of the dependent variable from the independent variable, results were reviewed and found to be acceptable.

The p-values of the ANOVA were reviewed as per table 5.16, and none were found to be significant, thus R^2 cannot be significantly bigger than 0, and the independent variables cannot make such a significant impact on, the dependent variable. The regression table was thus not significant, with F values ranging from 0.004 to 0.267, and all p> 0.05, with R^2 at a maximum 0.012. The multiple coefficient of determination, R^2 defines the proportion of the variable within the dependent variable Performance that is explained by the independent variables in the model, thus a very small percentage.

Table 5-16: ***Multiple regression assumption checks for linearity in the relationship per subsidiary type***

Variable	Anova			Model	Classification
Configuration	**Least squares**	**F test**	**p-value**	**R^2**	
Cluster_Autonomous Operational-configuration-fit	0.168	0.137	0.872	0.006	Acceptable
Cluster_Receptive Operational-configuration-fit	0.005	0.004	0.996	0.000	Acceptable
Cluster_Active Operational-configuration-fit	0.311	0.255	0.776	0.011	Acceptable
Coordination					
Cluster_Autonomous Operational-coordination-fit	0.179	0.147	0.864	0.007	Acceptable
Cluster_Receptive Operational-coordination-fit	0.077	0.063	0.939	0.003	Acceptable
Cluster_Active Operational-coordination-fit	0.325	0.267	0.767	0.012	Acceptable

The coefficients were reviewed, as per table 5-17, and indicate that none of the p-values are less than 0.05, and as such none of the variables are a significant predictor of performance. None of the independent variables, subsidiary cluster (Autonomous, Receptive and Active), Operational-coordination-fit or Operational-configuration-fit thus offer a significant amount of unique variance in explaining the dependent variable Performance.

Table 5-17: ***Multiple regression assumption checks for correlation factors per subsidiary type***

Variable	**Coefficients**			
Configuration	**B**	**Beta**	**p-value**	**t stat**
Cluster_Autonomous	0.270	0.086	0.604	0.522
Operational-configuration-fit	0.038	0.043	0.793	0.264
Cluster_Receptive	-0.048	-0.013	0.938	-0.079
Operational-configuration-fit	0.010	0.011	0.946	0.068
Cluster_Active	-0.575	-0.108	0.479	-0.713
Operational-configuration-fit	0.026	0.029	0.848	0.192
Coordination	**B**	**Beta**	**p-value**	**t stat**
Cluster_Autonomous	0.193	0.062	0.683	0.411
Operational-coordination-fit	0.043	0.044	0.768	0.297
Cluster_Receptive	-0.025	-0.007	0.965	-0.044
Operational-coordination-fit	0.050	0.052	0.728	0.350
Cluster_Active	-0.511	-0.096	0.526	-0.640
Operational-coordination-fit	0.035	0.037	0.807	0.245

The t-statistics gives us an indication whether the regression coefficient is dissimilar enough to 0 to allow it to be statistically significant. As the p-values are not significant the t-statistic values are not significant and are all in the range of -0.71 to 0.522. The typical critical region for the t-statistic to be significant at the 95% confidence level is ±1.96, therefore all the variable Beta coefficients are non-significant.

The Beta coefficients, ranging between -1.00 and 1.00 allows for direct comparisons between the independent variables, subsidiary cluster (Autonomous, Receptive and Active), Operational-coordination-fit and Operational-configuration-fit to determine their level of influence on the dependent variable Performance (Hair et al., 2019b). Thus, it can be determined which independent variable has the most influence on Performance and the bigger the value of the standardized beta coefficient (Beta), the higher its relative impact on the dependent variable (Hair et al., 2019b).

5.8.1 Research Question 1

Research question 1 (RQ1) consisted of three sub-questions. RQ1a: Wants to determine the relationship between the autonomous subsidiary's configuration and performance. RQ1b: Wants to determine the relationship between the receptive subsidiary's configuration and performance. RQ1c: Wants to determine the relationship between the active subsidiary's configuration and performance.

Table 5-18: ***Multiple regression assumption checks for linearity in the relationship per subsidiary type for configuration***

Variable	Anova			Model	Classification
Configuration	**Least squares**	**F test**	**p-value**	**R^2**	
Cluster_Autonomous	0.168	0.137	0.872	0.006	Acceptable
Operational-configuration-fit					
Cluster_Receptive	0.005	0.004	0.996	0.000	Acceptable
Operational-configuration-fit					
Cluster_Active	0.311	0.255	0.776	0.011	Acceptable
Operational-configuration-fit					

Table 5-19: ***Multiple regression assumption checks for correlation factors per subsidiary type for configuration***

Variable	Coefficients			
Configuration	**B**	**Beta**	**p-value**	**t stat**
Cluster_Autonomous	0.270	0.086	0.604	0.522
Operational-configuration-fit	0.038	0.043	0.793	0.264
Cluster_Receptive	-0.048	-0.013	0.938	-0.079
Operational-configuration-fit	0.010	0.011	0.946	0.068
Cluster_Active	-0.575	-0.108	0.479	-0.713
Operational-configuration-fit	0.026	0.029	0.848	0.192

RQ1a: The overall regression model was not significant, F (2,45) = 0.137, p > 0.05, R^2 = 0.006. The Cluster_Autonomous coefficient Beta = 0.086, p = 0.604, B = 0.270, t stat = 0.522, with Operational-configuration-fit Beta 0.043, t stat = 0.264, B = 0.793. Although the Cluster_Autonomous coefficient Beta at 0.086 is the biggest, it`s p-value at 0.604 is still non-significant.

RQ1b: The overall regression model was not significant, F (2,45) = 0.004, p > 0.05, R^2 = 0.000. The Cluster_Receptive coefficient Beta = -0.013, p = 0.938, B = -0.048, t stat = -0.079, with Operational-configuration-fit Beta 0.011, t stat = 0.068, B = 0.010., Although the

Operational-configuration-fit Beta at 0.011 is the biggest it`s p-value at 0.946 is still non-significant.

RQ1c: The overall regression model was not significant, F (2,45) = 0.255, p > 0.05, R^2 = 0.011. The Cluster_Active coefficient Beta = -0.108, p = 0.479, B = -0.575, t stat = -0.713, with Operational-configuration-fit Beta 0.029, t stat = 0.192, B = 0.026. Although the Cluster_Active coefficient Beta = -0.108 is the biggest it`s p-value at 0.848 is still non-significant.

5.8.2 Research Question 2

Research question 2 (RQ2) consisted of three sub-questions. RQ2a: Wants to determine the relationship between the autonomous subsidiary's coordination and performance. RQ2b: Wants to determine the relationship between the receptive subsidiary`s coordination and performance. RQ2c: Wants to determine the relationship between the active subsidiary`s coordination and performance.

Table 5-20: ***Multiple regression assumption checks for linearity in the relationship per subsidiary type for configuration***

Variable	Anova			Model	Classification
Coordination	**Least squares**	**F test**	**p-value**	**R2**	
Cluster_Autonomous	0.181	0.148	0.863	0.007	Acceptable
Operational-coordination-fit					
Cluster_Receptive	0.077	0.063	0.939	0.003	Acceptable
Operational-coordination-fit					
Cluster_Active	0.325	0.267	0.767	0.012	Acceptable
Operational-coordination-fit					

Table 5-21: ***Multiple regression assumption checks for correlation factors per subsidiary type for configuration***

Variable	Coefficients			
Coordination	**B**	**Beta**	**p-value**	**t stat**
Cluster_Autonomous	0.193	0.062	0.683	0.411
Operational-coordination-fit	0.035	0.045	0.765	0.300
Cluster_Receptive	-0.025	-0.007	0.965	-0.044
Operational-coordination-fit	0.050	0.052	0.728	0.350
Cluster_Active	-0.511	-0.096	0.526	-0.640
Operational-coordination-fit	0.035	0.037	0.807	0.245

RQ2a: The overall regression model was not significant, F (2,45) = 0.148, p > 0.05, R^2 = 0.007. The Cluster_Autonomous coefficient Beta = 0.062, p = 0.683, B = 0.193, t stat = 0.411, with Operational-coordination-fit Beta 0.045, t stat = 0.300, B = 0.035. Although the Cluster_Autonomous coefficient Beta at 0.062 is the biggest it`s p-value at 0.683 is still non-significant.

RQ2b: The overall regression model was not significant, F (2,45) = 0.63, p > 0.05, R^2 = 0.003. The Cluster_Receptive coefficient Beta = -0.007, p = 0.965, B = -0.025, t stat = -0.044, with Operational- coordination-fit Beta 0.052, t stat = 0.350, B = 0.050. Although the Operational-coordination-fit coefficient Beta at 0.052 is the biggest it`s p-value at 0.728 is still non-significant.

RQ2c: The overall regression model was not significant, F (2,45) = 0.267, p > 0.05, R^2 = 0.012. The Cluster_Active coefficient Beta = -0.096, p = 0.526, B = -0.511, t stat = -0.640, with Operational-coordination-fit Beta 0.037, t stat = 0.245, B = 0.035. Although the Operational-coordination-fit coefficient Beta at 0.037 is the biggest it`s p-value at 0.245 is still non-significant.

5.9 Overall summary of findings

None of the independent variables, subsidiary cluster (Autonomous, Receptive and Active), Operational-coordination-fit or Operational-configuration-fit thus offer a significant amount of unique variance in explaining the dependent variable Performance. Summaries as set out in tables 5-22 and 5-23.

Table 5-22: ***Summary of RQ1***

RQ No.	Question	Construct	Reliable / Valid	Significance
RQ1a	Wants to determine the relationship between the autonomous subsidiary's configuration and performance.	Configuration Autonomous subsidiary	Yes	No, the results of the multiple regression the independent variables, Cluster_Autonomous and Operational-configuration-fit cannot make a significant impact on, the dependent variable Performance. Overall regression model was not significant, $p > 0.05$, $R^2 = 0.006$. Cluster_Autonomous coefficient Beta at 0.086 the biggest, however its p-value at 0.604 is thus still non-significant.
RQ1b	Wants to determine the relationship between the receptive subsidiary's configuration and performance.	Configuration Receptive subsidiary	Yes	No, the results of the multiple regression the independent variables, Cluster_Receptive and Operational-configuration-fit cannot make a significant impact on, the dependent variable Performance. Overall regression model was not significant, $p > 0.05$, $R^2 = 0.000$. Operational-configuration-fit Beta at 0.011 the biggest, however its p-value at 0.946 is still non-significant.
RQ1c	Wants to determine the relationship between the active subsidiary's configuration and performance.	Configuration Active subsidiary	Yes	No, the results of the multiple regression the independent variables, Cluster_Active and Operational-configuration-fit cannot make a significant impact on, the dependent variable Performance. Overall regression model was not significant, $p > 0.05$, $R^2 = 0.011$. Operational-configuration-fit Beta at 0.029 the biggest, however its p-value at 0.848 is still non-significant.

Table 5-23: ***Summary of RQ2***

RQ No.	Question	Construct	Reliable / Valid	Significance
RQ2a	Wants to determine the relationship between the autonomous subsidiary's coordination and performance.	Coordination Autonomous subsidiary	Yes	No, the results of the multiple regression the independent variables, Cluster_Autonomous and Operational-coordination-fit cannot make a significant impact on, the dependent variable Performance. Overall regression model was not significant, $p > 0.05$, $R^2 = 0.007$. Cluster_Autonomous coefficient Beta at 0.062 is the biggest, however its p-value at 0.683 is still non-significant.
RQ2b	Wants to determine the relationship between the receptive subsidiary's coordination and performance.	Coordination Receptive subsidiary	Yes	No, the results of the multiple regression the independent variables, Cluster_Receptive and Operational-coordination-fit cannot make a significant impact on, the dependent variable Performance. Overall regression model was not significant, $p > 0.05$, $R^2 = 0.003$. Operational-configuration-fit Beta at 0.052 the biggest, however its p-value at 0.728 is still non-significant.
RQ2c	Wants to determine the relationship between the active subsidiary's coordination and performance.	Coordination Active subsidiary	Yes	No, the results of the multiple regression the independent variables, Cluster_Active and Operational-coordination-fit cannot make a significant impact on, the dependent variable Performance. Overall regression model was not significant, $p > 0.05$, $R^2 = 0.012$. Operational-configuration-fit Beta at 0.037 the biggest, however its p-value at 0.245 is still non-significant.

5.10 Conclusion

The results and findings of the statistical analysis in answering the research questions and findings from the research questionnaire were outlined in the preceding chapter. The data analysis was conducted as set out in the methodology, whilst guided by the research objectives and research questions. The results from the multiple regression showed that not one of the independent variables, subsidiary cluster (Autonomous, Receptive and Active), Operational-coordination-fit or Operational-configuration-fit offered a significant amount of unique variance in explaining the dependent variable Performance. New findings and insights were unfolded during this process that could contribute towards an understanding of the impact of the subsidiary type, in matrix structured MNCs, on financial performance.

The results of the research and findings will be discussed in detail in Chapter 6 that follows.

Chapter 6: Discussion of Results

6.1 Introduction

This chapter provides a detailed discussion on the results obtained from the statistical analysis conducted within the contextual background of the literature review as presented in Chapter 2. Chapter 6 thus discusses the overall research objective of determining to what extent the subsidiary type impacts on the financial performance of multinational companies that have adopted the matrix organisational structure. The discussion is structured around the dual research questions and aligned with the research objectives, and collates the findings with the literature review, as set out in Chapter 2 as basis, within the context of the study.

This study contributes to the stalled research on matrix organisational structures and more specifically organisational performance, where the overarching research theme was to comprehend the impact that the subsidiary type has on the financial performance of multinational companies that have opted for the matrix structure. Despite MNC matrix structured organisations being some of the most successful, and most prevalent organisational forms, the research on this structure remains nascent.

This chapter concludes with a summary of the discussion of the results.

6.2 Research Question 1

Research question 1 (RQ1) was aimed at understanding: What is the relationship between the role of the subsidiary's (receptive, active, autonomy) configuration and performance (ROI, Profit)?

- RQ1a: What is the relationship between the autonomous subsidiary's configuration and performance (ROI, Profit)?

- RQ1b: What is the relationship between the receptive subsidiary's configuration and performance (ROI, Profit)?

- RQ1c: What is the relationship between the active subsidiary's configuration and performance (ROI, Profit)?

6.2.1 Autonomous subsidiary configuration and performance

RQ1a: What is the relationship between the autonomous subsidiary's configuration and performance (ROI, Profit)?

Table 5-19 results indicated that there was no significant relationship between the autonomous subsidiary type, configuration and performance (Beta = 0.086; p-value > 0.05)

Firstly, the Autonomous cluster as grouped by the CA is matching the ideal profile fit as compared with the theoretical ideal profiles as defined by Martinez and Jarillo (1991) and Taggart (1997) and expanded by Meyer and Su (2015). The theoretical ideal profile characteristics of the Autonomous subsidiary with Low Integration, High Responsiveness with a Dispersed Configuration was achieved (Fuchs, 2022; Meyer & Su, 2015). Refer to table 6-1 for the means achieved in the ANOVA test, and figure 6.1 for a graphic representation of the characteristics, where the ideal fit is indicated with an arrow. The One-way-Anova with Scheffé's test was done over all the construct means and cluster means, confirming the Integration and Responsiveness values. In terms of configuration the Autonomous subsidiary should have the highest mean, followed by Active and Receptive (Martinez & Jarillo, 1991; Taggart, 1997; Wu et al., 2019). The Configuration mean was not as high as expected at 2.270, and was not the highest in the three clusters, however with the top 3 performers mean at 2.476 it was as expected the highest for all three clusters. The configuration mean for the top performers for the three clusters is the highest, consistent with the Autonomous subsidiary having a dispersed configuration, contributing to performance as evidenced by their high mean.

Table 6-1: ***Summary ideal fit versus cluster achieved means for Autonomous subsidiary***

Autonomous cluster	Achieved mean	Ideal Fit mean
Integration	2.308	Low
Responsiveness	3.300	High
Performance	3.115	High
Operational Configuration	2.270	High

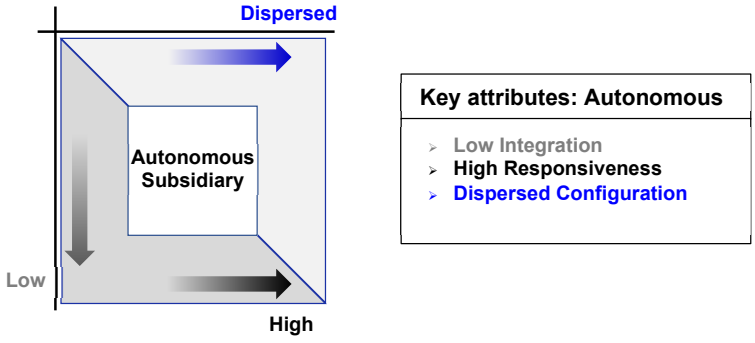

Figure 6.1: Key attributes for ideal fit for Autonomous subsidiary and configuration

The configuration of the various subsidiaries within a MNC varies with differing strategic roles, with autonomous subsidiaries tending to take on more dispersed value chain activities (Martinez & Jarillo, 1991; Meyer & Su, 2015; Taggart, 1997; Wu et al., 2019; Zeng et al., 2018). Autonomous subsidiaries requiring low integration and high responsiveness, are likely to disperse the biggest portion of their value chain activities in such a manner that they are comparatively independent of its HQ or related subsidiaries, providing for local context responsiveness with a dispersed configuration (Fuchs, 2022; Lin & Hsieh, 2010; Porter, 1986b; Roth et al., 1991). Organisational structures ensure congruence amongst the environment and strategy where a fit between the strategy and structure is reflected in the performance of the organisation (Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Galbraith, 2013), with the configuration being part of the structure it contributes to effectiveness of the fit, and thus performance. Where the organisational strategy defined structure (read configuration) is a misfit, it leads to disorganisation and ultimately lower performance (Burton, 2020; Donaldson & Joffe, 2014; Schlevogt, 2002). Thus, the Autonomous subsidiary due to its alignment with the ideal profile performs better than other subsidiaries. The results for the cluster means are in contradiction with the theory, where the top 3 performers do align with the ideal clusters and would lead to performance. The nature of the Autonomous clusters would require more isolated functional activities that are not linked to the HQ, making it probable that these subsidiaries could indeed perform on their own without the integration support from the HQ.

Secondly when assessing whether the performance of the autonomous subsidiary differs from the other subsidiary types, no significant differences were found. (Beta = 0.09; p-value > 0.05). The choice of subsidiary type thus does not have a significant impact on financial performance. The regression figures do not match the expected relationships but should be seen in light of the limitations of the method. This can be attributed to the small sample size of 48, or the fact that the sample obtained was predominantly (66,7%) from four industries that are services orientated.

Thus, I conclude that where the Autonomous subsidiary matches their ideal theoretical “fit” of Low Integration, High Responsiveness with a Dispersed Configuration it would contribute to performance.

6.2.2 Receptive subsidiary configuration and performance

RQ1b: What is the relationship between the receptive subsidiary's configuration and performance (ROI, Profit)?

Table 5-19 results indicated that there was no significant relationship between the receptive subsidiary type, configuration and performance (Beta = -0.013; p-value > 0.05)

Firstly, the Receptive cluster as grouped by the CA is matching the ideal profile fit as compared with the theoretical ideal profiles as defined by Martinez and Jarillo (1991) and Taggart (1997) and expanded by Meyer and Su (2015). The theoretical ideal profile characteristics of the Receptive subsidiary with High Integration, Low Responsiveness with a Concentrated Configuration was achieved as evident from the CA (Fuchs, 2022; Meyer & Su, 2015). Refer to table 6-2 for the means achieved in the ANOVA test, and figure 6.2 for a graphic representation of the characteristics, where the ideal fit is indicated with an arrow. The One-way-Anova with Scheffé's test was done over all the construct means and cluster means, confirming the Integration and Responsiveness values, whilst the Configuration mean matched a dispersed configuration. In terms of configuration the Autonomous subsidiary should have the highest mean, followed by Active and Receptive (Martinez & Jarillo, 1991; Taggart, 1997; Wu et al., 2019). The dispersed configuration is denoted by a lower mean, which is not confirmed by the mean value of the cluster at 2.283 but is confirmed at 2.142 for the top 3 performing thus the cluster with the lowest mean. The Receptive subsidiary clustering thus did not fit the ideal profile, the top 3 means did however which would indicate that they contribute to performance.

Table 6-2: ***Summary ideal fit versus cluster achieved means for Receptive subsidiary***

Receptive cluster	Achieved mean	Ideal Fit mean
Integration	4.400	High
Responsiveness	2.720	Low
Performance	3.300	High
Operational Configuration	2.283	Low

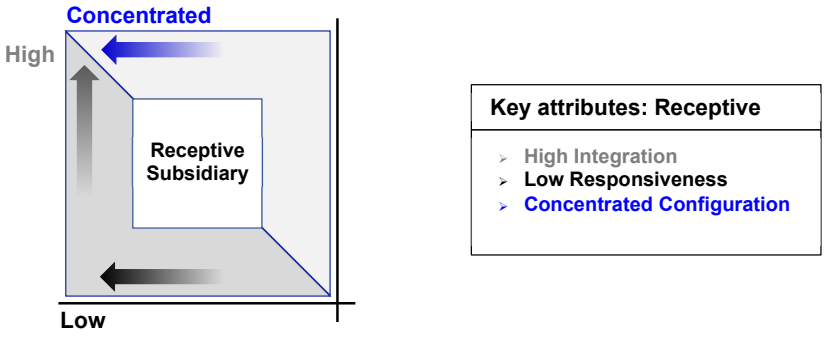

Figure 6.2: Key attributes for ideal fit for Receptive subsidiary and configuration

The configuration over the various subsidiaries, with differing strategic roles would vary, with receptive subsidiaries leaning towards undertaking more concentrated activities (Martinez & Jarillo, 1991; Meyer & Su, 2015; Taggart, 1997; Wu et al., 2019; Zeng et al., 2018).) Where the configuration is highly concentrated the organisation would have disaggregated single actions of the value chain placed in one sovereign state (Benito et al., 2019; Porter, 1986b). More concentrated configurations would require higher integration, confirmed by the achieved cluster mean of 4.400 (Fuchs, 2022; Roth et al., 1991). This would imply that these subsidiaries are dependent on the correct strategy and thus configuration to perform.

Secondly when assessing whether the performance of the autonomous subsidiary differs from the other subsidiary types, no significant differences were found. (Beta = -0.013; p-value > 0.05). The choice of subsidiary type thus does not have a significant impact on financial performance. The regression figures do not match the expected relationships but should be seen in light of the limitations of the method. This can be attributed to the small sample size of 5, or the fact that the sample obtained was predominantly (66,7%) from four industries that are services orientated.

Thus, I conclude that where the Receptive subsidiary matches their ideal theoretical “fit” of High Integration, Low Responsiveness with a Concentrated Configuration it would contribute to performance.

6.2.3 Active subsidiary configuration and performance

RQ1c: What is the relationship between the active subsidiary's configuration and performance (ROI, Profit)?

Table 5-19 results indicated that there was no significant relationship between the active subsidiary type, configuration and performance (Beta = -0.108; p-value > 0.05)

Firstly, the Active cluster as grouped by the CA is matching the ideal profile fit as compared with the theoretical ideal profiles as defined by Martinez and Jarillo (1991) and Taggart (1997) and expanded by Meyer and Su (2015). The theoretical ideal profile characteristics of the Active subsidiary with High Integration, High Responsiveness with a Dispersed Configuration was achieved as evident from the CA (Fuchs, 2022; Meyer & Su, 2015). Refer to table 6-3 for the means achieved in the ANOVA test, and figure 6.3 for a graphic representation of the characteristics, where the ideal fit is indicated with an arrow. The One-way-Anova with Scheffé’s test was done over all the construct means and cluster means, confirming the Integration and Responsiveness values as high. In terms of

configuration the Autonomous subsidiary should have the highest mean, then followed by Active subsidiary (Martinez & Jarillo, 1991; Taggart, 1997; Wu et al., 2019). The Configuration mean for the cluster at 2.358 did not fully match a next high value but was the next highest as expected for the top three performers at 2.286 and more in line as expected. The Active subsidiary clustering thus did fit the ideal profile, where the next high mean for the top performers confirms a dispersed configuration, which would contribute to performance.

Table 6-3: ***Summary ideal fit versus cluster achieved means for Active subsidiary***

Active cluster	Achieved mean	Ideal Fit mean
Integration	3.750	High
Responsiveness	4.500	High
Performance	3.750	High
Operational Configuration	2.358	High

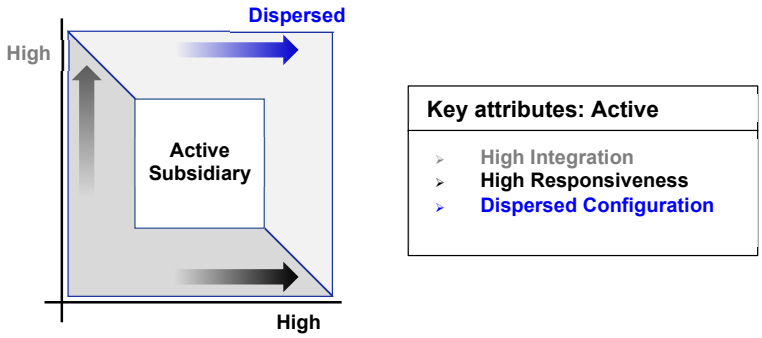

Figure 6.3: Key attributes for ideal fit for Active subsidiary and configuration

The configuration over the various subsidiaries, with differing strategic roles would vary, with active subsidiaries tending to undertake more dispersed value chain activities (Martinez & Jarillo, 1991; Meyer & Su, 2015; Taggart, 1997; Wu et al., 2019; Zeng et al., 2018). Porter (1986b) explained the configuration of organisations as dispersed, where the total value chain is reproduced in every sovereign, requiring a more responsive approach to the organisations value chain (Fuchs, 2022; Roth et al., 1991). Active subsidiaries, with High Integration and High Responsiveness, are likely to concentrate some activities within the value-chain that are in a clear and detailed manner linked with alike or dissimilar activities in other domains of the global network, whilst dispersing selected activities because of local differences (Fuchs, 2022; Lin & Hsieh, 2010). As with the Autonomous subsidiary the Active subsidiary is dispersed and would not be that dependent on the HQ and other subsidiaries and would thus be able to still perform if the correct configuration was selected from the strategy.

Secondly when assessing whether the performance of the autonomous subsidiary differs from the other subsidiary types, no significant differences were found. (Beta = -0.108; p-value > 0.05). The choice of subsidiary type thus does not have a significant impact on financial performance. The regression figures do not match the expected relationships but should be seen in light of the limitations of the method. This can be attributed to the small sample size of 4, or the fact that the sample obtained was predominantly (66,7%) from four industries that are services orientated.

Thus, I conclude that where the Active subsidiary matches their ideal theoretical “fit” of High Integration, High Responsiveness with a Dispersed Configuration it would contribute to performance.

6.3 Research Question 2

Research question 2 (RQ2) was aimed at understanding: What is the relationship between the role of the subsidiary's (receptive, active, autonomous) coordination and performance (ROI, Profit)?

- RQ2a: What is the relationship between the autonomous subsidiary's coordination and performance (ROI, Profit)?

- RQ2b: What is the relationship between the receptive subsidiary`s coordination and performance (ROI, Profit)?

- RQ2c: What is the relationship between the active subsidiary`s coordination and performance (ROI, Profit)?

6.3.1 Autonomous subsidiary coordination and performance

RQ2a: What is the relationship between the autonomous subsidiary's coordination and performance (ROI, Profit)?

Table 5-20 results indicated that there was no significant relationship between the autonomous subsidiary type, coordination and performance (Beta = 0.052; p-value > 0.05)

Firstly, the Autonomous cluster as grouped by the CA is matching the ideal profile fit as compared with the theoretical ideal profiles as defined by Martinez and Jarillo (1991) and Taggart (1997) and expanded by Meyer and Su (2015). The theoretical ideal profile characteristics of the Autonomous subsidiary with Low Integration, High Responsiveness with Low Coordination was achieved (Fuchs, 2022; Meyer & Su, 2015). Refer to table 6-4 for the means achieved in the ANOVA test, and figure

6.4 for a graphic representation of the ideal characteristics, where the ideal fit is indicated with an arrow. The least amount of coordination is demanded by autonomous subsidiaries, as they are defined by Low Integration and High Responsiveness, reflecting limited interdependence with the other subsidiaries of the MNC. This was confirmed from the CA with the Autonomous subsidiary with an achieved mean for the cluster at 2.473 with a sample size of 48. The Autonomous cluster thus did match the ideal fit required for coordination to perform, and as confirmed by the results needs very little coordination within the network.

Table 6-4: ***Summary ideal fit versus cluster achieved means for Autonomous subsidiary***

Autonomous cluster	Achieved mean	Ideal Fit mean
Integration	2.308	Low
Responsiveness	3.300	High
Performance	3.115	High
Operational Coordination	2.473	Low

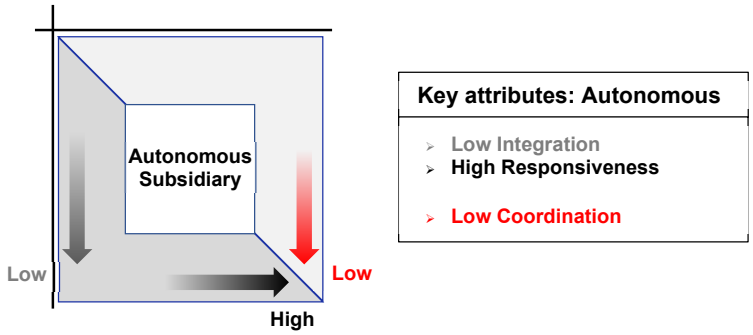

Figure 6.4: Key attributes for ideal fit for Autonomous subsidiary and coordination

With the coordination undertaking dependent on the strategy, the dispersed subsidiaries execute different roles within the MNC organisation, thus the coordination effort would vary with each subsidiary (Martinez & Jarillo, 1991). As per the extended I-R framework done by Martinez and Jarillo (1991) and expanded by Meyer and Su (2015) each of the three subsidiary types, active, autonomous and receptive would each have different coordination requirements as depending on the global strategy defined by the HQ (Banerjee et al., 2019). Coordination, or "the extent to which the subsidiary coordinates its functional activities with those of other subsidiaries in the worldwide network of the MNC" (Lin & Hsieh, 2010, p. 54) is critical for interdependence management (Fuchs, 2022; Roth et al., 1991) to conclude the global activities, and is directly related to performance. In addition to this more mechanisms for coordination and control increase in complexity, they inevitably become more costly due to resources, time, energy and managerial control (Galbraith, 1973; Saberi et al., 2019), directly impacting on organisational design, and performance. The Autonomous

subsidiary, with low integration and high responsiveness thus requires less mechanisms for coordination, is less complex, and is thus less expensive to manage and should be able to financially perform better than other subsidiary types. The Autonomous cluster top three performer mean is 3.133, where the remaining cluster mean is 2.473 confirming where these subsidiaries focus on achieving optimum coordination, they perform the best. The theory explains that the Autonomous subsidiary is dispersed in configuration and as such performance would be directly dependent on the coordination exercised. Where optimum coordination is exercised, it would directly lead to performance.

Secondly when assessing whether the performance of the autonomous subsidiary differs from the other subsidiary types, no significant differences were found. (Beta = -0.108; p-value > 0.05). The choice of subsidiary type thus does not have a significant impact on financial performance. The regression figures do not match the expected relationships but should be seen in light of the limitations of the method. This can be attributed to the small sample size of 48, or the fact that the sample obtained was predominantly (66,7%) from four industries that are services orientated.

Thus, I conclude that where the Autonomous subsidiary matches their ideal theoretical “fit” of with Low Integration, High Responsiveness with Low Coordination. The results show that where the Autonomous subsidiaries manage to get the best configuration it would lead to better performance.

6.3.2 Receptive subsidiary coordination and performance

RQ2b: What is the relationship between the receptive subsidiary`s coordination and performance (ROI, Profit)?

Table 5-20 results indicated that there was no significant relationship between the receptive subsidiary type, coordination and performance (Beta = 0.062; p-value > 0.05)

Firstly, the Receptive cluster as grouped by the CA is matching the ideal profile fit as compared with the theoretical ideal profiles as defined by Martinez and Jarillo (1991) and Taggart (1997) and expanded by Meyer and Su (2015). The theoretical ideal profile characteristics of the Receptive subsidiary with High Integration, Low Responsiveness with Next High Coordination was achieved (Fuchs, 2022; Meyer & Su, 2015). Refer to table 6-5 for the means achieved in the ANOVA test, and figure 6.5 for a graphic representation of the ideal characteristics, where the ideal fit is indicated with an arrow. Receptive subsidiaries with high integration and low responsiveness, only link their activities with alike activities within the global organisational web and would thus show elevated

interdependence between some functional activities that are concentrated within the organisation. The Receptive cluster did require the next highest level of coordination as confirmed by the CA with a mean of 3.050; this was also confirmed within the top 3 performers at a mean of 3.200. The Receptive cluster thus did match the ideal fit required to perform for coordination, and as confirmed by the results needs the next highest coordination within the network.

Table 6-5: ***Summary ideal fit versus cluster achieved means for Receptive subsidiary***

Receptive cluster	Achieved mean	Ideal Fit mean
Integration	4.400	High
Responsiveness	2.720	Low
Performance	3.300	High
Operational Coordination	3.050	Next High

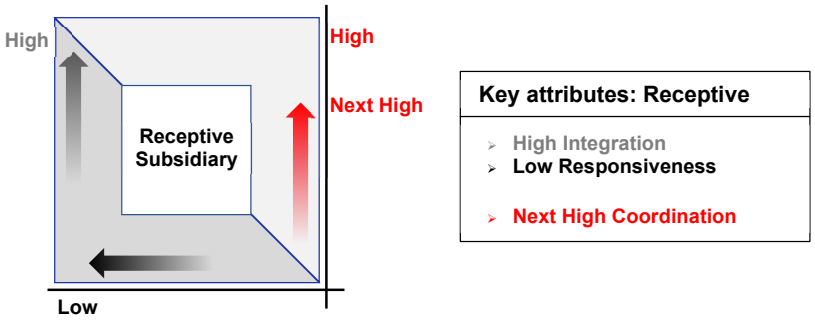

Figure 6.5: Key attributes for ideal fit for Receptive subsidiary and coordination

The Receptive subsidiary by virtue of its concentrated configuration would require more mechanisms for coordination and control increasing in complexity, inevitably becoming more costly due to resources, time, energy and managerial control needed (Galbraith, 1973; Saberi et al., 2019) This directly impacts on organisational performance. Where the level of coordination required is aligned with the ideal it would contribute to performance.

Secondly when assessing whether the performance of the autonomous subsidiary differs from the other subsidiary types, no significant differences were found. (Beta = 0.062; p-value > 0.05). The choice of subsidiary type thus does not have a significant impact on financial performance. The regression figures do not match the expected relationships but should be seen in light of the limitations of the method. This can be attributed to the small sample size of 5, or the fact that the sample obtained was predominantly (66,7%) from four industries that are services orientated.

Thus, I conclude that where the Receptive subsidiary matches their ideal theoretical “fit” of with High Integration, Low Responsiveness with Next High Coordination it would contribute to performance.

6.3.3 Active subsidiary coordination and performance

RQ2c: What is the relationship between the active subsidiary`s coordination and performance (ROI, Profit)?

Table 5-20 results indicated that there was no significant relationship between the active subsidiary type, coordination and performance (Beta = 0.037; p-value > 0.05)

Firstly, the Active cluster as grouped by the CA is matching the ideal profile fit as compared with the theoretical ideal profiles as defined by Martinez and Jarillo (1991) and Taggart (1997) and expanded by Meyer and Su (2015). The theoretical ideal profile characteristics of the Active subsidiary with High Integration, High Responsiveness with Low Coordination was achieved (Fuchs, 2022; Meyer & Su, 2015). Refer to table 6-6 for the means achieved in the ANOVA test, and figure 6.6 for a graphic representation of the ideal characteristics, where the ideal fit is indicated with an arrow. The active subsidiaries with high integration and high responsiveness, whose activities are connected to both alike and different activities within other parts of the global web, would reflect escalated interdependence in some concentrated activities, and the opposite for activities that are more dispersed (Bartlett & Ghoshal, 1998). Although both the active and receptive subsidiaries would require higher levels of coordination, the active subsidiary with its link to both alike and different activities in the global web would solicit the highest level of interdependence (Bartlett & Ghoshal, 1998). Thus, active subsidiaries would demand the highest level of coordination within the network, which was confirmed with the CA, with a mean of 3.800. This was also confirmed by the top three performers at a 4.133 mean, at the highest coordination of all three cluster top performers. The Active cluster thus did match the ideal fit required to perform for coordination.

Table 6-6: ***Summary ideal fit versus cluster achieved means for Active subsidiary***

Active cluster	Achieved mean	Ideal Fit mean
Integration	3.750	High
Responsiveness	4.500	High
Performance	3.750	High
Operational Coordination	3.800	High

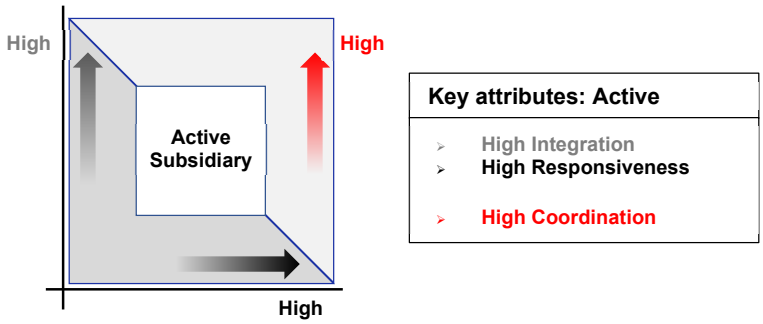

Figure 6.6: Key attributes for ideal fit Active subsidiary and coordination

The Active subsidiary requiring the highest coordination due to its dispersed configuration would solicit the highest mechanisms for coordination and control increasing in complexity, inevitably becoming more costly due to resources, time, energy and managerial control needed (Galbraith, 1973; Saberi et al., 2019), directly impacting on organisational performance. Where these subsidiaires align with he required level of coordination would lead to performance.

Secondly when assessing whether the performance of the autonomous subsidiary differs from the other subsidiary types, no significant differences were found. (Beta = 0.062; p-value > 0.05). The choice of subsidiary type thus does not have a significant impact on financial performance. The regression figures do not match the expected relationships but should be seen in light of the limitations of the method. This can be attributed to the small sample size of 4, or the fact that the sample obtained was predominantly (66,7%) from four industries that are services orientated.

Thus, I conclude that where the Active subsidiary matches their ideal theoretical “fit” of with High Integration, High Responsiveness with Low Coordination it would contribute to performance.

6.4 Overarching research question

The overarching research question was: What impact does the subsidiary type have on financial performance in the MNC matrix structured organisation? This study analyzed five constructs namely, Integration, Responsiveness, Subsidiary type, Configuration and Coordination to gather an understanding of its impact on financial performance. The study drew a comparison between the ideal subsidiary types as defined by the constructs Integration, Responsiveness, Configuration and Coordination to determine the impact on performance, when considered independently with Configuration and Coordination differentiated fit. The study was aided through the development of

the 2 x 2 x 2 matrix for Integration, Responsiveness, Configuration and Coordination. The “IRCC matrix” that specifically aids in evaluating the organisation, as depicted in figure 6.7, assists with understanding and depicting the various construct parameters.

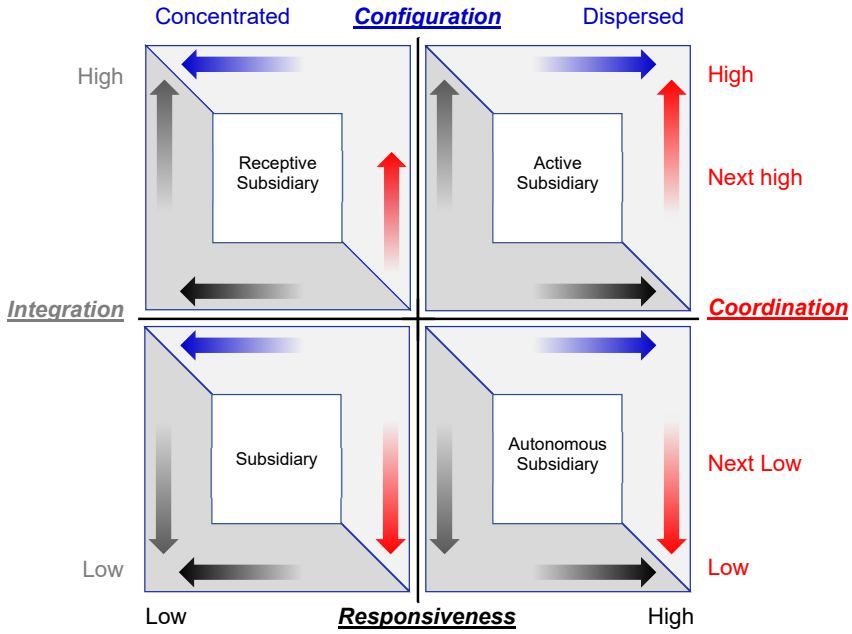

Figure 6.7: The “IRCC matrix” used to evaluate subsidiary alignment to ideal profile

The findings of the study confirmed the subsidiary types as per previously determined taxonomy by Martinez and Jarillo (1991) and Taggart (1997) and expanded by Meyer and Su (2015), where coherent groups of subsidiaries were located in the respective quadrants, differentiating the subsidiary roles.

The study however did not find any significant relationship between the subsidiary type and performance. The study thus found that no significant differences exist between the three subsidiary types in relation to performance. The findings were that the configuration for all three clusters were low, with the top 3 performing entities matching the ideal sequence, albeit being lower than expected. This can be due to the industry type that is a services industry.

6.5 Conclusion

The discussion chapter elaborated and discussed the statistical tests that were conducted, with reference to existing literature as explained in Chapter 2, as per the conceptual model identified. The results indicate that there is no significant relationship between the organisational capabilities configuration and coordination and the subsidiary type and performance. Thus, the conclusion was that the subsidiary type has no impact on performance within a MNC that adopted a matrix organisational structure.

The next chapter will consist of the conclusions and recommendations from this study.

Chapter 7: Conclusion and Recommendations

7.1 Introduction

In this final chapter the “MNC performance fit framework” model is discussed as presented at the end of the literature review in Chapter 2. From this model and the findings and discussion in Chapter 6 recommendations are made for managerial levels, theoretical implications are discussed, and recommendations are made for future research. The main objective of the study will briefly be discussed.

The main objective of this study was to understand what impact the subsidiary type has on financial performance in the MNC matrix structured organisation. The constructs integration, responsiveness, subsidiary type, configuration and coordination were reviewed in relation to financial performance of the organisation, with the Information Processing View applied as the theoretical lens (Burton, 2020; Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Lin & Hsieh, 2010; Wu et al., 2019). The information processing view interprets the organisation as an information processing structure, with the focus distinctly on how organisational characteristics influence information processing allowing for an understanding of how an organisation should structure (Egelhoff, 1991; Egelhoff et al., 2013; Galbraith, 1974; Moser et al., 2017). MNCs allocate a different role to each subsidiary within the network, and the organisation`s overall global strategy (Ambos et al., 2020; White & Poynter, 1984), due to the global strategy and varying contexts in geographies where subsidiaries are situated (Ghoshal & Nohria, 1989; Grøgaard & Colman, 2016). The role allocated would determine the activity that the subsidiary would perform, as part of the global task that needs to be linked back into the organisation. The subsidiary would at the same time also experience local responsiveness pressures, whilst still needing to be integrated into the global system (Demir et al., 2021; Martinez & Jarillo, 1991; Meyer & Su, 2015; Wu et al., 2019; Zeng et al., 2018).

For MNCs to be successful globally there has to be integration of their different international units into the global organisation, with the configuration of the organisation impacting on this, where the configuration can be highly dispersed where subsidiaries are scattered globally or concentrated, where subsidiaries are bundled together in a region (Buckley & Hashai, 2005; Porter, 1986a, 1986b; Schmid et al., 2016) with each of the subsidiaries having a different configuration and fulfilling different activities of the global task (Martinez & Jarillo, 1991; Meyer & Su, 2015). More concentrated configurations with individual value chain activities separated and placed in single sovereign locations would require higher integration, whilst a more dispersed configuration with the complete value chain

replicated in every country would require a more responsive approach to the value chain (Fuchs, 2022; Roth et al., 1991), both requiring different approaches to coordination within the organisation to manage interdependence. Organisational coordination, defined as the linking or integration of different organisational parts (Claggett & Karahanna, 2018; Harrison et al., 2022; Van de Ven, 1976), is executed through various mechanisms that effectively coordinate or link these subsidiary activities back into the organisation in line with the global strategy. Successful organisations will reflect this in their performance. Organisational performance is thus a fit between the strategy, structure and environment represented in this study by the operational constructs subsidiary type, configuration, coordination, integration and responsiveness.

The limited prior studies on MNC matrix organisational studies have focused on the design, management of internal and external environmental complexities, with only limited research relating to the structural alignment and performance (Kostova et al., 2016). A multitude of the research found that the matrix structure contained problems, leading to companies abandoning the implementation, with only a few being successful, and little research conducted on the subsidiary-type impact on performance (Egelhoff & Wolf, 2017; Egelhoff et al., 2013; Piskorski & Spadini, 2007; Pitts & Daniels, 1984; Qiu & Donaldson, 2012). More research is thus required on the MNC matrix organisational structures, specifically the impact that the subsidiary type has on financial performance as previous studies in this nascent field have not addressed this. Thus, there is a gap in the understanding of the impact of the subsidiary type on financial performance in the MNC that has adopted the matrix organisational structure which the current study addresses.

7.2 Principal findings

The aim of this study was to understand what impact the subsidiary type has on financial performance in the MNC matrix structured organisation? The constructs Integration, Responsiveness, Subsidiary type, Configuration and Coordination were reviewed in relation to financial performance of the organisation, with the Information Processing View applied as the theoretical lens.

Findings from the current research:

- The findings of the study confirmed the subsidiary types as per previously determined taxonomy by Martinez and Jarillo (1991) and Taggart (1997) and expanded by Meyer and Su (2015), where coherent groups of subsidiaries were located in the respective quadrants, differentiating the subsidiary roles. The Autonomous subsidiary thus has to be in a dispersed configuration with Low Integration and High Responsiveness requiring Low Coordination. The Receptive subsidiary with High Integration, Low Responsiveness with a Concentrated

Configuration has Next Highest Coordination requirement. The Active subsidiary with High Integration, High Responsiveness with a Dispersed Configuration with Low Coordination.

- The study did not find any significant relationship between the subsidiary type and performance. Although the results show no significant relationships the sample size limitation needs to be considered.
- The study found that with Autonomous subsidiaries increased financial performance was achieved where the subsidiary improved the coordination within the organisation. The sample size of the Autonomous subsidiary at 48 is sufficient to fully support this finding.

7.3 Research Question 1 findings

Research question 1 (RQ1) was aimed at understanding: What is the relationship between the role of the subsidiary's (receptive, active, autonomy) configuration and performance (ROI, Profit)?

7.3.1 RQ1a: What is the relationship between the autonomous subsidiary's configuration and performance (ROI, Profit)?

- The relationship is basically that if the autonomous subsidiary aligns with the ideal fit for configuration, and achieves the best fit for configuration, then the subsidiaries would achieve better performance.
- This is vital for head office to ensure that they are properly evaluating their subsidiaries and making sure that configuration is closely managed to achieve the highest possible levels of performance.
- Therefore, this research question has been adequately addressed.

7.3.2 RQ1b: What is the relationship between the receptive subsidiary's configuration and performance (ROI, Profit)?

- The relationship is basically that if the receptive subsidiary aligns with the ideal fit for configuration, and achieves the best fit for configuration, then the subsidiary would achieve better performance.
- This is vital for head office to ensure that they are properly evaluating their subsidiaries and making sure that configuration is closely managed to achieve the highest possible levels of performance.
- Therefore, this research question has been adequately addressed.

7.3.3 RQ1c: What is the relationship between the active subsidiary's configuration and performance (ROI, Profit)?

- The relationship is basically that if the active subsidiary aligns with the ideal fit for configuration, and achieves the best fit for configuration, then the subsidiaries would achieve better performance.
- This is vital for head office to ensure that they are properly evaluating their subsidiaries and making sure that configuration is closely managed to achieve the highest possible levels of performance.
- Therefore, the first research question has been adequately addressed.

7.4 Research Question 2 findings

Research question 2 (RQ2) was aimed at understanding: What is the relationship between the role of the subsidiary's (receptive, active, autonomous) coordination and performance (ROI, Profit)?

7.4.1 RQ2a: What is the relationship between the autonomous subsidiary's coordination and performance (ROI, Profit)?

- The relationship is basically that if the autonomous subsidiary aligns with the ideal fit for coordination, and achieve the best fit for coordination, then the subsidiaries would achieve better performance.
- This is vital for head office to ensure that they are properly evaluating their subsidiaries and making sure that coordination is closely managed to achieve the highest possible levels of performance.
- Therefore, this research question has been adequately addressed.

7.4.2 RQ2b: What is the relationship between the receptive subsidiary`s coordination and performance (ROI, Profit)?

- The relationship is basically that if the receptive subsidiary aligns with the ideal fit for coordination, and achieve the best fit for coordination, then the subsidiaries would achieve better performance.
- This is vital for head office to ensure that they are properly evaluating their subsidiaries and making sure that coordination is closely managed to achieve the highest possible levels of performance.
- Therefore, this research question has been adequately addressed.

7.4.3 RQ2c: What is the relationship between the active subsidiary`s coordination and performance (ROI, Profit)?

- The relationship is basically that if the active subsidiary aligns with the ideal fit for coordination, and achieve the best fit for coordination, then the subsidiaries would achieve better performance.
- This is vital for head office to ensure that they are properly evaluating their subsidiaries and making sure that coordination is closely managed to achieve the highest possible levels of performance.
- Therefore, this research question has been adequately addressed.

7.5 Theoretical contribution

The study empirically confirmed the work of Martinez and Jarillo (1991), Taggart (1997) and Meyer and Su (2015) by verifying the ideal fit for the Autonomous, Receptive and Active subsidiaries.

The study worked with “MNC performance fit framework” as per figure 7.1 and the “IRCC matrix” as per figure 7.2 to establish the best differentiated fit for the three subsidiary types as identified by Martinez and Jarillo (1991) and Taggart (1997) and expanded by Meyer and Su (2015). The “MNC performance fit framework” defines and differentiated fit that needs to be achieved between each subsidiary type within a MNC to achieve performance. This differentiated fit is evaluated against the 2x2x2 “IRCC matrix”. Thus, when evaluating the differentiated fit for any subsidiary within a MNC the evaluator can use the “IRCC matrix” to evaluate the Integration and Responsiveness on one 2x2 matrix on the left and bottom axis, whilst the Configuration and Coordination can be evaluated against the top and right axis. With this combination the evaluator thus has the ability to evaluate each subsidiary individually against configuration and coordination against the ideal fit within a study to align for the best performance. The “IRCC matrix” can also be used by managers in both the HQ and subsidiary for structuring or to check alignment.

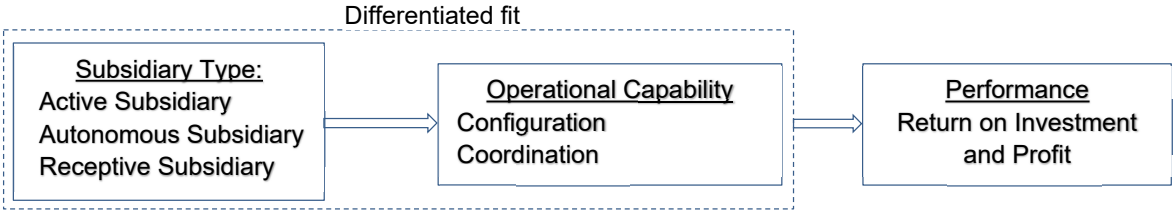

Figure 7.1: The “MNC performance fit framework”

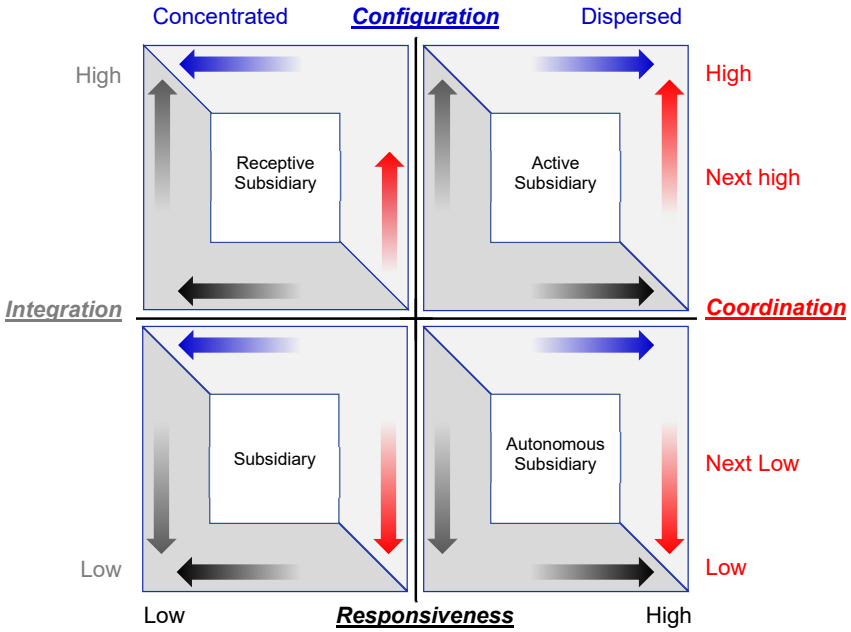

Figure 7.2: The "IRCC matrix" used to evaluate subsidiary alignment to ideal profile

7.6 Implications for management and other relevant stakeholders

The study results have led to some theoretical and practical contributions. During the study, whilst attempting to determine what impact the subsidiary type has on financial performance of the MNC that has adopted the matrix organisational structure, some knowledge was gained that could assist researchers conducting further studies on this subject. With the pace of globalization MNCs have to define precise strategies for their internationalization in the most effective manner, allowing them to sustain their competitive advantage. The current study, through the empirical data gathered, can contribute to this goal by providing relevant information applicable to the subsidiary level.

- The importance of alignment or differentiation of the subsidiary level strategy in terms of the integration and responsiveness per sovereign is critical. The "IRCC matrix" as depicted can be a useful tool in differentiating the MNC matrix organisational subsidiaries for both HQ and subsidiary managers, where the taxonomy is applied to designate autonomous, active, receptive and quiescent subsidiaries.
- The "IRCC matrix" must be used as follows with the means of the relevant question sections as processed: Identify the correct quadrant positioning for the subsidiary under review in relation to Integration and Responsiveness and mark the corresponding square in the 2x2 left bottom triangular section. Review the configuration of the subsidiary in terms of the mean and

mark the relevant quadrant top right-hand triangular section. Review the coordination mean of the subsidiary in terms of the mean and mark the relevant quadrant top right-hand triangular section as applicable. This review would provide an ideal fit alignment for the subsidiary as per the relevant quadrant.

- The research confirmed that where the matrix structured organisations configured the subsidiaries in the optimum manner to benefit optimally from information flows and CSA`s and coordinated these differentiated subsidiaries effectively the subsidiaries would contribute towards performance. Thus, MNC has to align or differentiate the configuration and coordination of the subsidiaries with the identified subsidiary types active, autonomous and receptive as these perform better.
- The study confirmed that specifically for Autonomous subsidiaries that where the subsidiaries work on achieving the best coordination the performance of the subsidiary will perform better. Managers thus need to ensure that their subsidiaries achieve the best possible coordination.
- The “IRCC matrix” in conjunction with the “MNC performance fit framework” is providing management of MNCs with a clear picture of all subsidiary types.
- Provides management with a clearly defined classification system for subsidiaries over time, as the fit and alignment is perceived to be changing.
- The suggested users of the “IRCC matrix” in conjunction with the “MNC performance fit framework” are executives defining corporate strategy at HQ, senior managers at HQ, subsidiary managers, and regional managers actively working within MNCs with a close knowledge of the strategy and structure.

7.7 Limitations of the research

Limitations of the current study are mainly related to the design of the research and the methodology applied to the research.

- Sánchez-Fernández et al. (2012) reported that reply-rates to surveys have declined below 50% due to survey fatigue experienced by respondents, which could have negative impact the research in the limited timeframe provided the low quantity of responses received.
- The use of a questionnaire survey could lead to non-response biases and ultimately not receiving enough responses (Zikmund et al., 2012).
- The responses from subsidiaries received were geographically concentrated in South Africa, with 52.7% of total responses, limiting the ability to generalize the study findings of the study.
- Common method variance may be present as the study utilizes self-reported questionnaires that are answered by a single respondent.

- The responses are mostly from the services industry and can thus not be generalized to all industries (industry specific).
- Even though the results and alpha coefficients of the FA showed that the reliability and validity of the construct “responsiveness” was good, the conclusion is founded on the assumption that decision-making freedom is an appropriate way of operationalizing the construct, Taggart (1997, p. 678) identified this as a “necessary condition”, whilst whether this suffices as a condition has not been confirmed.
- The definition of clusters in CA, without clear established guidelines or rules is problematic as the researcher will end up with clusters with no assurance that these clusters are in fact useful and meaningful.

7.8 Suggestions for future research

The following recommendations can be made by the researcher from the limitations and findings of the current study and the literature reviewed. The recommendations are related to the measurement instrument, the research design and constructs.

- The sample population should consist of more geographically spread respondents, and more outside of the borders of South Africa, providing a global perspective.
- A large proportion of the studies conducted on matrix organisational structures are within the manufacturing industry, more research is needed in other industries like the services industry that constitute a large portion of MNC matrix structures.
- The current study focused on MNC matrix organisational structures, looking at the impact that the subsidiary type has on financial performance in general, and did not differentiate between the establishment conditions of the subsidiaries. The conditions of establishment, or entry into the MNC matrix structure is important as greenfield subsidiaries that were set up as a consequence of strategy would differ from subsidiaries incorporated through merger and acquisition.
- The current study was conducted with the exclusion of the Quiescent subsidiary due to perceived difficulty in really identifying such subsidiaries in practice. Future research should include this subsidiary type.

7.9 Conclusion

The business environment has become increasingly more competitive with globalization and it is critical that MNCs achieve and sustain a competitive advantage in all countries that they operate to achieve financial performance and remain sustainable (Egelhoff, 2020; Egelhoff et al., 2013; Galbraith, 2014; Geng et al., 2017). To achieve the competitive advantage MNCs have to achieve a fit between the environment within which they operate, strategy and structure, more so for MNCs that require multidimensional strategies and flexibility between the HQ and subsidiaries (Barron et al., 2017; Qiu & Donaldson, 2012; Romelaer & Beddi, 2015). The MNC matrix organisational structuring, with a head office serving geographically spread subsidiaries provides the flexibility required with multidimensional strategy execution and is more sensitive to a mismatch or misfit between the subsidiary and the HQ (Egelhoff et al., 2013; Romelaer & Beddi, 2015). Thus, it is especially critical for MNCs that have adopted the matrix organisational structure that the management teams at both the HQ and subsidiaries are aligned in terms of strategy and structure, ensuring information flow, and contributing to financial performance. These objectives can only be achieved where the responsible managers are provided with the appropriate frameworks and theories to test alignment and fit.

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Appendix A: Preamble Accompanying the questionnaire

Dear Participant,

In an effort to better understand the impact that the subsidiary type relations have on performance in multinational corporations, you have been selected to participate in a survey. The survey will be used to determine “The impact of headquarter subsidiary type relations on performance, in multinational companies, when adopting a matrix organisational structure”

Your completion of this survey is voluntary, and you may withdraw from the process at any time.

Your responses and participation is however valuable to us, and we would appreciate your assistance. The collated results of the study are for my Masters research currently being undertaken at the University of Pretoria's Gordon Institute of Business Science. While the collated results of the study will be published as part of the thesis, your individual responses will be kept confidential at all times.

The questionnaire has been divided into nine different sections. Please complete all the sections. The questionnaire should take approximately 30 minutes to complete.

Thank you in advance for your time and contribution to this research study, and the understanding of matrix organisational structures in general. Please do not hesitate to address any enquiries about the questionnaire or the research study to:

Researcher:	Or	**Supervisor:**
Leon Nel		Professor Manoj Chiba
21818526@mygibs.co.za		ChibaA@gibs.co.za
(+27) 82 576 5246		(+27)11 771 4000

Appendix B: Example of email sent to potential participants

Dear John Doe,

RE: Invitation to partake in study on matrix organisational macro structure impact on performance

As part of my Masters, which I am completing at the University of Pretoria's Gordon Institute of Business Science (GIBS), I am trying to understand the impact the type of subsidiary has on the multinational corporation's performance.

I have identified your role and organisation as a potential respondent to the questionnaire. Ethical clearance has been obtained to conduct the research, and I believe your responses will be invaluable.

The questionnaire should take no longer than 10 minutes of your time, and all responses will be treated with the strictest of confidentiality.

Please find attached the link to the questionnaire, which is being hosted through Google Forms.

Should you have any queries please do not hesitate to contact me. My supervisors' details are also provided on the consent statement.

Thanking you in advance for all your assistance in this regard.

Regards,

Leon Nel

Contact Details:

Researcher:	or	**Supervisor:**
Leon Nel		Professor Manoj Chiba
21818526@mygibs.co.za		ChibaA@gibs.co.za
(+27) 82 576 5246		(+27)11 771 4000

Appendix C: Questionnaire

Section A: Demographics (About you)

Question number	Question	Response	Reference, adapted from
1	Age	Drop-down options 1. 16-24 2. 25-34 3. 35-44 4. 45-54 5. 55-64 6. 65+	Chiba (2019)
2	Gender	Drop-down options 1. Male 2. Female	Chiba (2019)
3	How long have you been employed with your current organisation?	Drop-down options: 1. less than 2 years 2. 3 - 5 years 3. 6 - 8 years 4. 9 - 11 years 5. 11 or more years	Egelhoff et al., (2013); Chiba (2019)
4	Which **one** of the following best describes your job title	Drop-down options: 1. Junior management 2. Middle management 3. Senior management 4. Executive management 5. Other: Please state	Chiba (2019)

Section B: About your organisation:

NOTE: Your organisation refers to the subsidiary level at which you are located. (Chiba, 2019)

Question number	Question	Response	Reference, adapted from
5.	Name of organisation. **NOTE: Only used for Standard Industry Classification and to ensure no duplication of respondents from single organisations.**	Respondent input	Egelhoff et al., (2013); Wolf & Egelhoff (2002); Chiba (2019)

6.	6a. How long has the head office organisation been in existence? History of the organisation in years.	Drop-down options: 1. 0 -20, 2. 21- 50, 3. 51-100, 4. over 100	Van de Ven and Ferry (1980)
	6b. How long has your organisation been in existence? History of the subsidiary in years.	Drop-down options: 1. 0 -2, 2. 3 - 5, 3. 6 -10, 4. 11-20, 5. 21-50	Van de Ven and Ferry (1980)
7.	Home Country? Home country refers to where your organisation's head-office is located. In which country (name for example Germany) is your organisation's head-office located?	Drop-down options: 238 countries of the world were listed alphabetically.	Egelhoff et al., (2013); Chiba (2019)
8.	Host Country? Host country refers to where your organisation's subsidiary is located. In which country are you located (name for example South Africa).	Drop-down options: 238 countries of the world were listed alphabetically.	Egelhoff et al., (2013); Chiba (2019)
9.	Total Host Countries subsidiaries? Host country refers to the country/ies that your organisation has subsidiary/ies. In how many (for example 3) countries does your organisation have subsidiaries?	Drop-down options: 1 to 150.	Egelhoff et al., (2013); Chiba (2019)
10.	Which one of the following best describes the industry in which your organisation operates in?	Drop-down options: 1. Chemical 2. Steel and non-ferrous metals 3. Machinery 4. Automotive & transportation 5. Electrical equipment 6. Textile 7. Food products 8. Aerospace 9. Pharmaceuticals 10. Printing/Paper 11. Mechanical 12. Financial services 13. Energy 14. Media 15. Agriculture 16. Mining 17. Mining and quarry 18. Manufacturing 19. Electricity	Wolf & Egelhoff (2002); Kumar & Antony (2009); Chiba (2019)

		20. Gas and Water supply 21. Construction 22. Wholesale and Retail 23. Information technology 24. Communication 25. Other: Please state	
11.	What is the number of Product/Service subsidiaries or units in the organisation? (If applicable)	Drop-down options: 1- 1, 2- 2 to 4, 3- 5 or more	Wolf & Egelhoff (2002); Kumar & Antony (2009); Chiba (2019)
12.	In how many industries do you believe your organisation operates in?	Drop-down options: 1 - 30	Wolf and Egelhoff (2002); Kumar & Antony (2009); Chiba (2019)
13.	Which one of the following best describes your organisational structure? **Note: This is a qualifying question. Should the respondent`s organisational structure be hierarchical, the questionnaire will end.**	Options: 1. Hierarchical: Description: You have one clear supervisor with a single clear reporting line. Employee only reports to one manager. **Note: Image presented here in the electronic version** 2. Matrix: Description: You have more than one manager to report to (commonly referred to as solid line and dotted line reporting). **Note: Image presented here in the electronic version**	Egelhoff et al., (2013); Chiba (2019)

Section C: About you in your organisation:

NOTE: Your organisation refers to the subsidiary level at which you are located. (Chiba, 2019)

14.	What is the total number of employees globally by headcount in your organisation?	Drop-down options: 1. Up to 99 employees 2. 100 - 499 employees 3. 500 - 999 employees 4. 1 000 - 4 999 employees 5. 5 000 - 29 999 employees 6. 30 000 - 59 999 employees 7. 60 000 + employees	Wolf & Egelhoff (2002); Kumar & Antony (2009); Chiba (2019)
15.	What is the total number of employees at your subsidiary by headcount?	Drop-down options: 1. Up to 99 employees 2. 100 - 499 employees 3. 500 - 999 employees	Wolf & Egelhoff (2002); Kumar & Antony (2009); Chiba (2019)

		4. 1 000 - 4999 employees 5. 5 000 - 29 999 employees 6. 30 000 - 59 999 employees 7. 60 000 + employees	
16.	Which of the following best describes your organisations global sales amount in US dollars ($)	Drop-down options: 1. Less than $ 1 000 000 2. Between $1 000 000 and $ 10 000 000 3. Between $ 10 000 001 and $ 20 000 000 4. Between $20 000 001 and $ 30 000 000 5. Between $30 000 001 and $50 000 000 6. Over $50 000 001	Wolf & Egelhoff (2002); Chiba (2019)
17.	Which of the following best describes your organisations total assets in US dollars globally ($)	Drop-down options: 1. Less than $ 1 000 000 2. Between $1 000 000 3. Between $ 10 000 001 and $ 20 000 000 4. Between $20 000 001 and $ 30 000 000 5. Between $30 000 001 and $50 000 000 6. Over $50 000 001	Wolf & Egelhoff (2002); Chiba (2019)
18.	Thinking about your reporting to head office, on average what percentage of your time is allocated to head office? Then indicate the indicative time (%)	Drop-down options: 1. Less than 10% 2. 11%-20% 3. 21%-30% 4. 31%-40% 5. 41%-50% 6. 51%-60% 7. 61%-70% 8. 71%-80% 9. 81%-90% 10. More than 90%	Chiba (2019)
19.	As a subsidiary manager: You report both at the subsidiary level and headquarters? (Do you report to the regional/product and function/divisional HQ structure?)	Drop-down options: 1. Yes 2. No 3. Unsure	Egelhoff et al., (2013); Chiba (2019)

20.	Which one of the following accurately describes your reporting lines?	Drop-down options: 1. You report directly (solid-line) to headquarters, and indirectly (dotted-line) at the subsidiary level? 2. You report directly (solid-line) at the subsidiary level, and indirectly (dotted-line) to headquarters? 3. Unsure	Egelhoff et al., (2013); Chiba (2019)

Section D: Information Flow (How easy/difficult is it to transfer information within or outside of the organisation

NOTE: Your organisation refers to the subsidiary level at which you are located. (Madangombe, 2017)

Question number	Question	Response	Reference, adapted from
21.	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, 3- somewhat, 4 - quite familiar, 5 - very well familiar	Van de Ven and Ferry (1980); Madangombe, (2017)
22.	How well informed are you about the specific goals and services of the other departments/business units in the organisation?	Likert Scale (1-5): 1- not at all informed, 2 - little informed, 3 - somewhat informed, 4 - quite informed, 5 - very well informed	Van de Ven and Ferry (1980); Madangombe, (2017)
23.	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); Madangombe, (2017)
24.	When you want to communicate with individuals in another department /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 of difficulty	Van de Ven and Ferry (1980); Madangombe, (2017)
25.	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 of difficulty	Van de Ven and Ferry (1980); Madangombe, (2017)

26.	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); Madangombe, (2017)
27.	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); Madangombe, (2017)
28.	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	Madangombe, (2017)
29.	How well informed are you about the specific goals and services of your competitors in the industry?	Likert Scale (1-5): 1- don't know, 2- no extent, 3-little extent, 4-some extent, 5- considerable extent	Madangombe, (2017)
30.	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	Madangombe, (2017)
31.	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); Madangombe, (2017)
32.	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); Madangombe, (2017)
33.	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); Madangombe, (2017)
34.	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); Madangombe, (2017)

35.	To what extent did individuals in the other departments/business units hinder your department/ business unit in performing functions during the last 3 months? (This is a duplicate question in error during set-up.)	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); Madangombe, (2017)
36.	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	Van de Ven and Ferry (1980); Madangombe, (2017)
37.	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	Van de Ven and Ferry (1980); Madangombe, (2017)
38.	To what extent is your organisation efficient and effective in transforming this data into relevant and useable information?	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); Madangombe, (2017)
39.	To what extent is information storage in your organisation 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	Van de Ven and Ferry (1980); Madangombe, (2017)

Section E: Integration

NOTE: Integration refers to “rationalization that may entail standardization of product or services, centralization of technological development, or the vertical or horizontal integration of manufacturing and services” (Kobrin, 1991). Your organisation refers to the subsidiary level at which you are located.

Question number	Question	Response	Reference, adapted from
40.	What percentage of production/services of this subsidiary is managed by headquarters?	Likert Scale (1-5): 1- very low, 2- low, 3- medium, 4- high, 5- very high	Lin and Hsieh (2010)
41.	What percentage of technologies and product developments of this subsidiary are shared by headquarters and other	Likert Scale (1-5): 1- very low, 2- low, 3-medium, 4- high, 5- very high	Lin and Hsieh (2010)

	subsidiaries?		
42.	What percentage of production/services from this subsidiary is supplied to headquarters and other subsidiaries?	Likert Scale (1-5): 1- very low, 2- low, 3-medium, 4- high, 5- very high	Lin and Hsieh (2010)
43.	What percentage of manufacturing/services decisions of this subsidiary is made with a view to provide international market linkages for this subsidiary?	Likert Scale (1-5): 1- very low, 2- low, 3-medium, 4- high, 5- very high	Lin and Hsieh (2010)
44.	What percentage of products/services of this subsidiary are exported to the international market network of the whole company?	Likert Scale (1-5): 1- very low, 2- low, 3-medium, 4- high, 5- very high	Lin and Hsieh (2010)

Section F: Responsiveness

NOTE: How much freedom does your organisation have to make decisions regarding the following topics. Your organisation refers to the subsidiary level at which you are located.

Question number	Question number	Response	Reference, adapted from
45.	Marketing activities: such as, change in prices, change in product design, choice of advising agencies and sales channels.	Likert Scale (1-5): 1- none, 2- less than a half, 3- about a half, 4- more than a half, 5- all of other subsidiaries	Lin and Hsieh (2010)
46.	Human resource activities: such as, hiring and firing of top and middle managers, distribution of bonus, and training program.	Likert Scale (1-5): 1- none, 2- less than a half, 3- about a half, 4- more than a half, 5- all of other subsidiaries	Lin and Hsieh (2010)
47.	Production activities: such as, approval of quarterly production schedules and plans, renewal of machines or facilities, modification of manufacturing process, purchase of materials and components, and decisions regarding quality of control.	Likert Scale (1-5): 1- none, 2- less than a half, 3- about a half, 4- more than a half, 5- all of other subsidiaries	Lin and Hsieh (2010)
48.	Financial activities: such as, customer credit, choice of public accountants, short term investment, and borrowing short term loan from local banks.	Likert Scale (1-5): 1- none, 2- less than a half, 3- about a half, 4- more than a half, 5- all of other subsidiaries	Lin and Hsieh (2010)

49.	R&D activities: such as, selection of R&D projects, R&D budgets, and direction of R&D.	Likert Scale (1-5): 1- none, 2- less than a half, 3- about a half, 4- more than a half, 5- all of other subsidiaries	Lin and Hsieh (2010)

Section G: Performance

NOTE: Your organisation refers to the subsidiary level at which you are located.

Question number	Question number	Response	Reference, adapted from
50.	ROI -Return on Investment - average subsidiary performance over the last three years was.	Likert Scale (1-5): 1- much lower than expected, 2- lower than expected, 3- as expected, 4- higher than expected, 5- much higher than expected	Lin and Hsieh (2010);
51.	Profit % - average subsidiary performance over the last three years is.	Likert Scale (1-5): 1- much lower than expected, 2- lower than expected, 3- as expected, 4- higher than expected, 5- much higher than expected	Lin and Hsieh (2010)
52.	Our organisation is very profitable.	Likert Scale: 1- Strongly Disagree, 2- Disagree, 3- Neither agree or disagree, 4- Agree, 5-Agree Strongly Agree	Auh and Menguc (2005); Spanos and Lioukas (2001); Chiba (2019)
53.	Our competitors can be jealous of our performance	Likert Scale: 1 - Strongly Disagree, 2 - Disagree, 3 - Neither agree or disagree, 4 - Agree, 5- Agree Strongly Agree	Auh and Menguc (2005); Spanos and Lioukas (2001); Chiba (2019)
54.	Our organisation's sales volume relative to competitors for the last three years is	Likert Scale: 1 - Strongly Disagree, 2 - Disagree, 3 - Neither agree or disagree, 4 - Agree, 5- Agree Strongly Agree	Auh and Menguc (2005); Spanos and Lioukas (2001); Chiba (2019)
55.	Our organisation's growth in sales volume relative to competitors for the last three years is	Likert Scale: 1- Much below the average, 2- Below the average, 3- The same as the average, 4- Above the average, 5- Much	Auh and Menguc (2005); Spanos and Lioukas (2001);

		above the average	Chiba (2019)
56.	Our organisation's market share relative to competitors for the last three years is	Likert Scale: 1- Much below the average, 2- Below the average, 3- The same as the average, 4- Above the average, 5- Much above the average	Auh and Menguc (2005); Spanos and Lioukas (2001); Chiba (2019)
57.	Our organisation's growth in market share relative to competitors for the last three years is	Likert Scale: 1- Much below the average, 2- Below the average, 3- The same as the average, 4- Above the average, 5- Much above the average	Auh and Menguc (2005); Spanos and Lioukas (2001); Chiba (2019)
58.	Our organisation's profit margin in comparison to competitors for the last three years is	Likert Scale: 1- Much below the average, 2- Below the average, 3- The same as the average, 4- Above the average, 5- Much above the average	Auh and Menguc (2005); Spanos and Lioukas (2001); Chiba (2019)
59.	Our organisation's return on own capital in comparison to competitors for the last three years is	Likert Scale: 1- Much below the average, 2- Below the average, 3- The same as the average, 4- Above the average, 5- Much above the average	Auh and Menguc (2005); Spanos and Lioukas (2001); Chiba (2019)
60.	Our organisation's net profit in comparison to competitors for the last three years is	Likert Scale: 1- Much below the average, 2- Below the average, 3- The same as the average, 4- Above the average, 5- Much above the average	Auh and Menguc (2005); Spanos and Lioukas (2001); Chiba (2019)
61.	Our organisation's growth in market share relative to competitors for the last three years is	Likert Scale: 1- Much below the average, 2- Below the average, 3- The same as the average, 4- Above the average, 5- Much above the average	Auh and Menguc (2005); Spanos and Lioukas (2001); Chiba (2019)

Section H: Coordination

Indicate the extent to which your legal entity coordinates the following functions with other subsidiaries?

NOTE: Your organisation refers to the subsidiary level at which you are located.

Question number	Question number	Response	Reference, adapted from

62.	Accounting/legal activities	Likert Scale: 1- None, 2- Less than a half, 3- About a half, 4- More than a half, 5- All of other subsidiaries	Lin and Hsieh (2010)
63.	Customer service	Likert Scale: 1- None, 2- Less than a half, 3- About a half, 4- More than a half, 5- All of other subsidiaries	Lin and Hsieh (2010)
64.	Promotion and advertising	Likert Scale: 1- None, 2- Less than a half, 3- About a half, 4- More than a half, 5- All of other subsidiaries	Lin and Hsieh (2010)
65.	Sales activities	Likert Scale: 1- None, 2- Less than a half, 3- About a half, 4- More than a half, 5- All of other subsidiaries	Lin and Hsieh (2010)
66.	Cash flow control and management	Likert Scale: 1- None, 2- Less than a half, 3- About a half, 4- More than a half, 5- All of other subsidiaries	Lin and Hsieh (2010)
67.	Raising capital	Likert Scale: 1- None, 2- Less than a half, 3- About a half, 4- More than a half, 5- All of other subsidiaries	Lin and Hsieh (2010)
68.	Employee management and development	Likert Scale: 1- None, 2- Less than a half, 3- About a half, 4- More than a half, 5- All of other subsidiaries	Lin and Hsieh (2010)
69.	Information systems/data processing	Likert Scale: 1- None, 2- Less than a half, 3- About a half, 4- More than a half, 5- All of other subsidiaries	Lin and Hsieh (2010)

Section I: Configuration

Indicate the extent to which the following functions are performed in your subsidiary unit in your host country?

NOTE: Your organisation refers to the subsidiary level at which you are located.

Question number	Question number	Response	Reference, adapted from
70.	Accounting/legal activities	Likert Scale: 1- Does not perform it, 2- In host country only, 3 - In host and other countries	Lin and Hsieh (2010)
71.	Customer service	Likert Scale: 1- Does not perform it, 2- In host country only, 3 - In host and other countries	Lin and Hsieh (2010)
72.	Promotion and advertising	Likert Scale: 1- Does not perform it, 2- In host country only, 3 - In host and other countries	Lin and Hsieh (2010)
73.	Sales activities	Likert Scale: 1- Does not perform it, 2- In host country only, 3 - In host and other countries	Lin and Hsieh (2010)
74.	Cash flow control and management	Likert Scale: 1- Does not perform it, 2- In host country only, 3 - In host and other countries	Lin and Hsieh (2010)
75.	Raising capital	Likert Scale: 1- Does not perform it, 2- In host country only, 3 - In host and other countries	Lin and Hsieh (2010)
76.	Employee management and development	Likert Scale: 1- Does not perform it, 2- In host country only, 3 - In host and other countries	Lin and Hsieh (2010)
77.	Information systems/data processing	Likert Scale: 1- Does not perform it, 2- In host country only, 3 - In host and other countries	Lin and Hsieh (2010)

Appendix D: Codebook

Section A: Demographics

Question number	Question	Coding
1	Age	16-24 = 1 25-34 = 2 35-44 = 3 45-54 = 4 55-64 = 5 65+ = 6
2	Gender	Male = 1 Female = 2
3	How long have you been employed with your current organisation?	less than 2 years = 1 3 - 5 years = 2 6 - 8 years = 3 9 - 11 years = 4 11 or more years = 5
4	Which **one** of the following best describes your job title	Junior management = 1 Middle management = 2 Senior management = 3 Executive management = 4 Other: Please state = 5

Section B: About your organisation:

Question number	Question	Coding
5.	Name of organisation.	
6.	6a. How long has the head office organisation been in existence? History of the organisation in years.	0 - 20 = 1 21- 50 = 2 51-100 = 3 over 100 = 4
	6b. How long has your organisation been in existence? History of the subsidiary in years.	0 - 2 = 1 3 - 5 = 2 6 -10 = 3 11- 20 = 4 21- 50 = 5
7.	Home Country?	1 - 13
8.	Host Country?	1 - 25
9.	Total Host Countries subsidiaries?	1 - 150

10.	Which one of the following best describes the industry in which your organisation operates in?	Chemical = 1 Steel & non-ferrous metals = 2 Machinery = 3 Automotive & transportation = 4 Electrical equipment = 5 Textile = 6 Food products = 7 Aerospace = 8 Pharmaceuticals = 9 Printing/Paper = 10 Mechanical = 11 Financial services = 12 Energy = 13 Media = 14 Agriculture = 15 Mining = 16 Mining and quarry = 17 Manufacturing = 18 Electricity = 19 Gas and Water supply = 20 Construction = 21 Wholesale and Retail = 22 Information technology = 23 Communication = 24 Other: Please state = 25
11.	What is the number of Product/Service subsidiaries or units in the organisation? (If applicable)	1= 1 2 to 4 = 2 5 or more = 3
12.	In how many industries do you believe your organisation operates in?	Drop-down options: 1 - 30
13.	Which one of the following best describes your organisational structure? **Note: This is a qualifying question. Should the respondent`s organisational structure be hierarchical, the questionnaire will end.**	Options: 3. Hierarchical: Description: You have one clear supervisor with a single clear reporting line. Employee only reports to one manager. 4. Matrix: Description: You have more than one manager to report to (commonly referred to as solid line and dotted line reporting).

Section C: About you in your organisation:

14.	What is the total number of employees globally by headcount in your organisation?	Up to 99 employees = 1 100 - 499 employees = 2 500 - 999 employees = 3 1 000 - 4 999 employees = 4 5 000 - 29 999 employees = 5 30 000 - 59 999 employees = 6 60 000 + employees = 7
15.	What is the total number of employees at your subsidiary by headcount?	

16.	Which of the following best describes your organisations global sales amount in US dollars ($)	Less than $ 1 000 000 = 1 Between $1 000 000 and $ 10 000 000 = 2 Between $ 10 000 001 and $ 20 000 000 = 3 Between $20 000 001 and $ 30 000 000 = 4 Between $30 000 001 and $50 000 000 = 5 Over $50 000 001 = 6
17.	Which of the following best describes your organisations total assets in US dollars globally ($)	
18.	Thinking about your reporting to head office, on average what percentage of your time is allocated to head office? Then indicate the indicative time (%)	Less than 10% = 1 11%-20% = 2 21%-30% = 3 31%-40% = 4 41%-50% = 5 51%-60% = 6 61%-70% = 7 71%-80% = 8 81%-90% = 9 More than 90% = 10
19.	As a subsidiary manager: You report both at the subsidiary level and headquarters? (Do you report to the regional/product and function/divisional HQ structure?) **Note: This is a qualifying question.**	4. Yes 5. No 6. Unsure
20.	Which one of the following accurately describes your reporting lines? Note: This is a qualifying question. Should the respondents answer be No or Unsure, the questionnaire will end at this section.	4. You report directly (solid-line) to headquarters, and indirectly (dotted-line) at the subsidiary level? 5. You report directly (solid-line) at the subsidiary level, and indirectly (dotted-line) to headquarters? 6. Unsure

Section D: Information Flow

Question number	Question	Coding
21.	How well are you personally familiar with the people from other departments/business units that you work closely with?	not all familiar = 1 a little familiar = 2

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

34.	During the past 3 months, how often did you receive or send written reports or memos from or to other organisations or agencies?	
35.	To what extent did individuals in the other departments/business units hinder your department/ business unit in performing functions during the last 3 months?	don't know = 1 no extent = 2 little extent = 3 some extent = 4 considerable extent = 5
36.	To what extent is the level of technology intensity in your organisation (including IT and ICT networks)?	
37.	To what extent is the organisation efficient and effective in gathering data?	
38.	To what extent is your organisation efficient and effective in transforming this data into relevant and useable information?	
39.	To what extent is information storage in your organisation efficient in terms of accessibility, quality and size of storage facilities?	

Section E: Integration

Question number	Question	Coding
40.	What percentage of production/services of this subsidiary is managed by headquarters?	very low = 1 low = 2 medium= 3 high = 4 very high = 5
41.	What percentage of technologies and product developments of this subsidiary are shared by headquarters and other subsidiaries?	
42.	What percentage of production/services from this subsidiary is supplied to headquarters and other subsidiaries?	
43.	What percentage of manufacturing/services decisions of this subsidiary is made with a view to provide international market linkages for this subsidiary?	
44.	What percentage of products/services of this subsidiary are exported to the international market network of the whole company?	

Section F: Responsiveness

Question number	Question number	Coding

45.	Marketing activities: such as, change in prices, change in product design, choice of advising agencies and sales channels.	None = 1 less than a half = 2 about a half = 3 more than a half = 4 all of other subsidiaries = 5
46.	Human resource activities: such as, hiring and firing of top and middle managers, distribution of bonus, and training program.	
47.	Production activities: such as, approval of quarterly production schedules and plans, renewal of machines or facilities, modification of manufacturing process, purchase of materials and components, and decisions regarding quality of control.	
48.	Financial activities: such as, customer credit, choice of public accountants, short term investment, and borrowing short term loan from local banks.	
49.	R&D activities: such as, selection of R&D projects, R&D budgets, and direction of R&D.	

Section G: Performance

Question number	Question number	Coding
50.	ROI -Return on Investment - average subsidiary performance over the last three years was.	much lower than expected = 1 lower than expected = 2 as expected = 3 higher than expected = 4 much higher than expected = 5
51.	Profit % - average subsidiary performance over the last three years is.	
52.	Our organisation is very profitable.	Strongly = 1 Disagree = 2 Disagree = 3 Neither agree or disagree = 4 Agree Strongly Agree = 5
53.	Our competitors can be jealous of our performance	
54.	Our organisation's sales volume relative to competitors for the last three years is	
55.	Our organisation's growth in sales volume relative to competitors for the last three years is	
56.	Our organisation's market share relative to competitors for the last three years is	
57.	Our organisation's growth in market share relative to competitors for the last three years is	
58.	Our organisation's profit margin in comparison to competitors for the last three years is	

59.	Our organisation's return on own capital in comparison to competitors for the last three years is	
60.	Our organisation's net profit in comparison to competitors for the last three years is	
61.	Our organisation's growth in market share relative to competitors for the last three years is	

Section H: Coordination

Question number	Question number	Coding
62.	Accounting/legal activities	None = 1 Less than a half = 2 About a half = 3 More than a half = 4 All of other subsidiaries = 5
63.	Customer service	
64.	Promotion and advertising	
65.	Sales activities	
66.	Cash flow control and management	
67.	Raising capital	
68.	Employee management and development	
69.	Information systems/data processing	

Section I: Configuration

Question number	Question number	Coding
70.	Accounting/legal activities	Does not perform it = 1 In host country only = 2 In host and other countries = 3
71.	Customer service	
72.	Promotion and advertising	
73.	Sales activities	
74.	Cash flow control and management	
75.	Raising capital	
76.	Employee management and development	
77.	Information systems/data processing	

Appendix E: Results related

E1: Factor analysis details of five constructs

Factor Analysis - Integration

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.808
Bartlett's Test of Sphericity	Approx. Chi-	84.198
	df	10
	Sig.	0.000

Component Matrix[a]

	Component 1
40. What percentage of production/services of this subsidiary is managed by headquarters?	0.752
41. What percentage of technologies and product developments of this subsidiary are shared by headquarters and other subsidiaries?	0.740
42. What percentage of production/services from this subsidiary is supplied to headquarters and other subsidiaries?	0.770
43. What percentage of manufacturing/services decisions of this subsidiary is made with a view to provide international market linkages for this subsidiary?	0.790
44. What percentage of products/services of this subsidiary are exported to the international market network of the whole company?	0.731

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Factor Analysis Responsiveness

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.671
Bartlett's Test of Sphericity	Approx. Chi-	57.743
	df	10
	Sig.	0.000

Component Matrix[a]

	Component 1
45. Marketing activities: such as change in prices change in product design choice of advising agencies and sales channels.	0.477
46. Human resource activities: such as hiring and firing of top and middle managers distribution of bonus and training program.	0.691
47. Production activities: such as approval of quarterly production schedules and plans renewal of machines or facilities modification of manufacturing process purchase of materials and components and decisions regarding quality of control.	0.800
48. Financial activities: such as customer credit choice of public accountants short term investment and borrowing short term loan from local banks.	0.676
49. R&D activities: such as, selection of R&D projects, R&D budgets, and direction of R&D.	0.756

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Factor Analysis Performance

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.500
Bartlett's Test of Sphericity	Approx. Chi-	37.574
	df	1
	Sig.	0.000

Component Matrix[a]

	Component 1
50. ROI -Return on Investment - average subsidiary performance over the last three years was	0.924
51. Profit % - average subsidiary performance over the last three years was	0.924

Extraction Method: Principal Component Analysis.

Factor Analysis Coordination

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.764
Bartlett's Test of Sphericity	Approx. Chi-Square	229.897
	df	28
	Sig.	0.000

Component Matrix[a]

	Component 1	2
62. Accounting/legal activities	0.623	0.399
63. Customer service	0.727	-0.566
64. Promotion and advertising	0.744	-0.096
65. Sales activities	0.746	-0.486
66. Cash flow control and management	0.803	0.435
67. Raising capital	0.655	0.623
68. Employee management and development	0.743	-0.153
69. Information systems/data processing	0.799	-0.058

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Rotated Component Matrix[a]

	Component 1	2
62. Accounting/legal activities	0.207	0.711
63. Customer service	0.920	0.052
64. Promotion and advertising	0.624	0.417
65. Sales activities	0.882	0.124
66. Cash flow control and management	0.319	0.855
67. Raising capital	0.084	0.900
68. Employee management and development	0.661	0.373
69. Information systems/data processing	0.640	0.481

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

Component Transformation Matrix

Component	1	2
1	0.754	0.657
2	-0.657	0.754

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Factor Analysis Configuration

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.829
Bartlett's Test of Sphericity	Approx. Chi-	226.931
	df	28
	Sig.	0.000

Component Matrix[a]

	Component	
	1	2
70. Accounting/legal activities	0.779	0.337
71. Customer service	0.850	-0.012
72. Promotion and advertising	0.799	-0.310
73. Sales activities	0.741	-0.199
74. Cash flow control and management	0.835	0.271
75. Raising capital	0.572	0.639
76. Employee management and development	0.679	-0.558
77. Information systems/data processing	0.756	-0.092

Extraction Method: Principal Component Analysis.
a. 2 components extracted.

Rotated Component Matrix[a]

	Component	
	1	2
70. Accounting/legal activities	0.379	0.759
71. Customer service	0.657	0.538
72. Promotion and advertising	0.811	0.277
73. Sales activities	0.695	0.325
74. Cash flow control and management	0.464	0.745
75. Raising capital	0.026	0.857
76. Employee management and development	0.879	0.010
77. Information systems/data processing	0.638	0.416

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

Component Transformation Matrix

Component	1	2
1	0.765	0.644
2	-0.644	0.765

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

E2: CFA pattern matrix for Configuration and Coordination

Pattern Matrix[a]

	Factor 1	2	3	4
62. Accounting/legal activities			0.531	
63. Customer service		0.867		
64. Promotion and advertising		0.607	0.410	0.320
65. Sales activities		0.823		
66. Cash flow control and management			0.858	
67. Raising capital			0.863	
68. Employee management and development		0.525		-0.379
69. Information systems/data processing		0.496	0.365	-0.303
70. Accounting/legal activities	0.855	-0.306		
71. Customer service	0.795			
72. Promotion and advertising	0.661	0.329		
73. Sales activities	0.493	0.414		0.309
74. Cash flow control and management	0.880			
75. Raising capital	0.380			0.607
76. Employee management and development	0.493	0.454		
77. Information systems/data processing	0.568			

Extraction Method: Principal Axis Factoring.
a. Rotation converged in 9 iterations.

Pattern Matrix[a]

	Factor 1	2
63. Customer service		0.710
64. Promotion and advertising		0.631
65. Sales activities		0.709
68. Employee management and development		0.836
69. Information systems/data processing		0.811
71. Customer service	0.818	
72. Promotion and advertising	0.824	
73. Sales activities	0.848	
76. Employee management and development	0.560	
77. Information systems/data processing	0.693	

Extraction Method: Principal Axis Factoring.
a. Rotation converged in 3 iterations.

E3: One-way-ANOVA results for descriptive statistics

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Operational_Coordination	Autonomous	44	2.4727	0.92015	0.13872	2.1930	2.7525	1.00	4.60
	Receptive	4	3.0500	0.30000	0.15000	2.5726	3.5274	2.60	3.20
	Active	4	3.8000	1.39523	0.69761	1.5799	6.0201	2.40	5.00
	Total	52	2.6192	0.98797	0.13701	2.3442	2.8943	1.00	5.00
Operational_Configuration	Autonomous	44	2.2705	0.51378	0.07746	2.1143	2.4267	1.00	3.00
	Receptive	4	2.2825	0.28500	0.14250	1.8290	2.7360	2.14	2.71
	Active	4	2.3575	0.52703	0.26351	1.5189	3.1961	1.86	3.00
	Total	52	2.2781	0.49419	0.06853	2.1405	2.4157	1.00	3.00
Integration	Autonomous	48	2.3083	0.68536	0.09892	2.1093	2.5073	1.00	3.40
	Receptive	5	4.4000	0.44721	0.20000	3.8447	4.9553	3.60	4.60
	Active	4	3.7500	0.57446	0.28723	2.8359	4.6641	3.40	4.60
	Total	57	2.5930	0.93958	0.12445	2.3437	2.8423	1.00	4.60
Responsiveness	Autonomous	48	3.3000	0.74491	0.10752	3.0837	3.5163	1.60	5.00
	Receptive	5	2.7200	0.26833	0.12000	2.3868	3.0532	2.60	3.20
	Active	4	4.5000	0.25820	0.12910	4.0891	4.9109	4.20	4.80
	Total	57	3.3333	0.77858	0.10313	3.1267	3.5399	1.60	5.00
Performance	Autonomous	48	3.1146	0.78713	0.11361	2.8860	3.3431	1.00	4.50
	Receptive	5	3.3000	0.83666	0.37417	2.2611	4.3389	2.00	4.00
	Active	4	3.7500	1.04083	0.52042	2.0938	5.4062	2.50	5.00
	Total	57	3.1754	0.81004	0.10729	2.9605	3.3904	1.00	5.00

E4: One-way-ANOVA results for Sheffé`s test

Multiple Comparisons

Scheffe

Dependent Variable	(I) TwoStep Cluster Number	(J) TwoStep Cluster Number	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Operational_Coordination	Autonomous	Receptive	-0.57727	0.48646	0.499	-1.8054	0.6508
		Active	-1.32727*	0.48646	0.031	-2.5554	-0.0992
	Receptive	Autonomous	0.57727	0.48646	0.499	-0.6508	1.8054
		Active	-0.75000	0.65867	0.527	-2.4128	0.9128
	Active	Autonomous	1.32727*	0.48646	0.031	0.0992	2.5554
		Receptive	0.75000	0.65867	0.527	-0.9128	2.4128
Operational_Configuration	Autonomous	Receptive	-0.01205	0.26300	0.999	-0.6760	0.6519
		Active	-0.08705	0.26300	0.947	-0.7510	0.5769
	Receptive	Autonomous	0.01205	0.26300	0.999	-0.6519	0.6760
		Active	-0.07500	0.35611	0.978	-0.9740	0.8240
	Active	Autonomous	0.08705	0.26300	0.947	-0.5769	0.7510
		Receptive	0.07500	0.35611	0.978	-0.8240	0.9740
Integration	Autonomous	Receptive	-2.09167*	0.31241	0.000	-2.8781	-1.3052
		Active	-1.44167*	0.34598	0.001	-2.3126	-0.5708
	Receptive	Autonomous	2.09167*	0.31241	0.000	1.3052	2.8781
		Active	0.65000	0.44597	0.353	-0.4726	1.7726
	Active	Autonomous	1.44167*	0.34598	0.001	0.5708	2.3126
		Receptive	-0.65000	0.44597	0.353	-1.7726	0.4726
Responsiveness	Autonomous	Receptive	0.58000	0.32962	0.222	-0.2497	1.4097
		Active	-1.20000*	0.36503	0.007	-2.1189	-0.2811
	Receptive	Autonomous	-0.58000	0.32962	0.222	-1.4097	0.2497
		Active	-1.78000*	0.47053	0.002	-2.9644	-0.5956
	Active	Autonomous	1.20000*	0.36503	0.007	0.2811	2.1189
		Receptive	1.78000*	0.47053	0.002	0.5956	2.9644
Performance	Autonomous	Receptive	-0.18542	0.37925	0.888	-1.1401	0.7692
		Active	-0.63542	0.41999	0.326	-1.6926	0.4218
	Receptive	Autonomous	0.18542	0.37925	0.888	-0.7692	1.1401
		Active	-0.45000	0.54137	0.709	-1.8128	0.9128
	Active	Autonomous	0.63542	0.41999	0.326	-0.4218	1.6926
		Receptive	0.45000	0.54137	0.709	-0.9128	1.8128

*. The mean difference is significant at the 0.05 level.

Appendix F: Respondents List

Timestamp	Email address	Job position	Organisation
8/30/2022 8:41:35	boris_gehring@web.de	Executive management	Element
8/31/2022 16:12:21	cesar.buque@gmail.com	Senior management	TUV SUD AG
9/3/2022 11:10:28	norman.van.oudtshoorn@protonmail.com	Executive management	TÜV SÜD
9/4/2022 17:01:01		Middle management	PCCW Global
9/5/2022 14:38:16	thwaitsdell@gmail.com	Middle management	Knorr Bremse
9/12/2022 16:04:41		Executive management	Pro-Tec
9/14/2022 5:39:02		Senior management	Citi
9/14/2022 5:46:36		Executive management	SMBC HK
9/14/2022 10:48:08		Executive management	MS Amlin
9/16/2022 3:15:16		Executive management	Disrupcion
9/17/2022 3:02:41		Executive management	Oyu Tolgoi LLC
9/18/2022 6:23:32		Middle management	Ubombo Sugar Ltd
9/18/2022 9:41:42		Senior management	Citibank
9/18/2022 9:42:39		Middle management	Lafarge
9/18/2022 9:58:44		Middle management	GIZ
9/18/2022 12:08:14		Middle management	DHL GLOBAL FORWARDING
9/18/2022 13:33:22	Patrick Catabua	Senior management	Cushman&wakefield Broll
9/19/2022 6:57:07	emre.buyukkalfa@tuvsud.com	Executive management	TUV SUD Malaysia Sdn Bhd
9/19/2022 7:37:43	ThomasGeorg.Petzold@tuvsud.com	Middle management	TÜV SÜD
9/19/2022 8:00:06	ezhilan.n@tuvsud.com	Middle management	TSM
9/19/2022 8:15:02		Executive management	tuvsud south asia
9/19/2022 8:26:41	Mark.Gedult@tuv-sudre.co.za	Executive management	TUV SUD South Africa Real Estate Services (Pty) Ltd
9/19/2022 8:38:44	skalala@yahoo.com	Senior management	Cummins Inc.
9/19/2022	josefbpeters@gmail.com	Executive	TUV Rheinland

8:47:56		management	
9/19/2022 9:28:30	bratin.roy@tuvsud.com	Senior management	TUV SUD
9/19/2022 9:53:10	Jeanne.Hallett@tuvsud.com	Senior management	TUV SUD SOUTH AFRICA PRO-TEC (PTY) LTD
9/19/2022 10:18:32	Manuel.Sayagues@tuvsud.com	Senior management	TUV SUD ATISAE
9/19/2022 10:22:44	viktor.metz@tuvsud.com>	Senior management	TÜV SÜD LGÖ
9/19/2022 15:28:56	bernie.asnong@gmail.com	Executive management	TÜV SÜD Atisae
9/19/2022 17:26:40	james.marsh@tuvsud.com	Executive management	TUV SUD Global Risk Consultants
9/19/2022 22:33:54	rudismit@gmail.com	Senior management	Bureau Veritas
9/20/2022 3:26:41		Middle management	Mercedes Benz
9/20/2022 3:52:06		Middle management	TUV SUD Malaysia Sdn Bhd
9/20/2022 6:40:17		Executive management	Metropolitan
9/20/2022 8:40:26	raulsanguinogomez@gmail.com	Executive management	TÜV SÜD ATISAE
9/20/2022 9:05:15	khushboo.oswal@tuvsud.com	Senior management	TUV SUD South Asia
9/20/2022 11:59:07	soon-lee.ng@tuvsud.com	Senior management	TUV SUD PSB Pte Ltd
9/20/2022 12:19:50	valter.capitani@tuvsud.com	Senior management	Bytest Srl
9/20/2022 12:31:48		Senior management	Hydraulic Engineering Repair Services, a Division of Hudaco Trading (Pty) Ltd
9/20/2022 15:20:24		Executive management	Steinmuller
9/20/2022 15:32:51		Senior management	Standard Bank
9/21/2022 9:50:41	alan.a.kotze@gmail.com	Middle management	South32
9/21/2022 19:22:49	marten.daling82@gmail.com	Senior management	Rio Tinto
9/22/2022 14:29:53	gabor.bohner@gmx.de/ gabor.boner@tuvsud.com	Senior management	TUV SUD
9/22/2022 15:37:35	21752223@mygibs.co.za	Senior management	Accord / Safilo
9/23/2022 9:48:50		Executive management	TÜV SÜD
9/24/2022 9:28:51	feroseoaten@avts.co.za	Executive management	AVTS Roadworthy Stations (Pty) Ltd

9/26/2022 8:19:18		Senior management , Executive management	TUEV SUED ASMEA region
9/26/2022 9:18:34	johangerber6@gmail.com	Senior management	Dekra
9/26/2022 14:06:00	chris.mbere@tuvsud.com	Executive management	TUV Rheinland Inspection Services
9/26/2022 16:11:29		Senior management , Executive management	De-tect Unit Inspection Pty Ltd and Cooperheat Africa Pty Ltd
9/26/2022 19:20:34	j.joubert@tandm.co.za	Senior management	GE Bently Nevada
9/27/2022 3:33:10	soo-guan.foo@tuvsud.com	Middle management	TUV SUD PSB
9/27/2022 7:26:38	charl.viljoen112@gmail.com	Senior management	TUV-RHEINLAND INSPECTION SERVICES(PTY)LTD
9/27/2022 8:51:27	sean.vosloo@mondigroup.com	Senior management	Mondi
9/27/2022 9:49:04	shyamlibiswas@tuvsud.com	Senior management	TÜV SÜD
9/27/2022 17:50:38		Executive management	Dole
9/29/2022 7:23:16	hannes.barnard@gmail.com	Junior management	Oceaneering
9/29/2022 7:35:56	hannes.barnard@gmail.com	Junior management	Oceaneering
9/29/2022 9:18:04	ezarahrend@gmail.com	Senior management	Steeltest
9/29/2022 9:24:54	toshifumi.watanabe@tuvsud.com	Middle management	TÜV SÜD Japan
9/29/2022 10:50:48	asingh@acwapower.com	Senior management	ACWA Power
9/29/2022 12:17:31	mostafa.jassim@tuvsud.com	Executive management	TUV SUD Middle East
9/29/2022 13:38:44	neil.alberts100@gmail.com	Executive management	BME Mining Canada
9/29/2022 14:29:58	babalwa.madikane@tuvsud.com	Junior management	TUV SUD South Africa
9/29/2022 15:38:40	jan.smit@sgs.com	Middle management	SGS South Africa
9/29/2022 16:01:52	swys.kotze@sgs.com	Middle management	SGS South Africa (Pty) Ltd
9/29/2022 20:20:19	aaronaustin1@gmail.com	Executive management	BME
9/30/2022 9:45:48	clinton.lambert@maha.co.za	Executive management	MAHA South Africa
9/30/2022	boshoff.kare@gmail.com	Middle	Tronox

14:19:03		management	
9/30/2022 14:22:18	vishal.premlall@rmi.org.za	Executive management	Retail Motor Industry Organisation
9/30/2022 14:31:42	Vishal.Premlall@rmi.org.za	Executive management	Retail Motor Industry Organisation
9/30/2022 17:54:59	Joe.Pretorius@howden.co.za	Senior management	Howden
9/30/2022 18:22:59	johan.gerber@dekra.com	Executive management	DEKRA Industrial RSA (Pty) Ltd
9/30/2022 23:22:29	christi.moller@xpint.com	Executive management	Xtreme Productivity
10/1/2022 8:50:00	29492158@mygibs.co.za	Middle management	PhilagroSA
10/1/2022 9:53:19	sizwe.ntumba@icloud.com	Senior management	Thungela Reaources
10/1/2022 11:38:43	ebenb@talisman.co.za	Executive management	BHP Billiton
10/1/2022 18:51:29	rosemary.serrao@protonmail.com	Senior management	Rio Tinto
10/2/2022 17:26:00	johan.gerber@dekra.com	Executive management	DEKRA Industrial RSA (Pty) Ltd
10/3/2022 4:34:37	mei-yee.chan@tuvsud.com	Middle management	TUV SUD
10/3/2022 7:53:02	hans-juergen.schimpgen@applus.com	Senior management	APPLUS Automotive
10/3/2022 8:13:18	petrus@norsenet.co.za	Executive management	Norsenet
10/3/2022 9:13:01	taumashigo@yahoo.co.uk	Executive management	Standard Bank
10/3/2022 10:07:53	gerhard.holtshauzen@bilfinger.com	Senior management	Steinmüller Africa
10/3/2022 21:50:16	21818704@mygibs.co.za	Senior management	GE
10/4/2022 1:41:24	marsha.moller@gmail.com	Senior management	John Holland
10/6/2022 7:54:11	takalani.sandani@gmail.com	Senior management	Bisichi Mining
10/7/2022 11:11:03	jim.holt@tuvsud.com	Senior management	TUV SUD NEL
#############	dirk@nazdom.co.za	Executive management	Bureau Veritas
#############	jiri.socha@tuvsud.com	Senior management	TUV SUD Czech
#############	s.denboef@tandm.co.za	Senior management	TANDM Technologies (Pty) Ltd
1/23/2023 7:15:50	natalie.durandt@tuvsud.com	Senior management	TÜV SÜD Pro-Tec (Pty) Ltd
1/23/2023 7:17:56	janus.smit@tuvsud.com	Senior management	TUV SUD Pro Tec
1/23/2023	jaco.smith@tuvsud.com	Senior	TÜV SÜD Pro-Tec

14:01:03		management	(Pty) Ltd
1/25/2023 6:27:28	quintis.nel@gmail.com	Senior management	Rio Tinto
1/25/2023 11:28:54	Jan.vanbeek@tuvsud.com	Senior management	TÜV SÜD Nederland B.V.
1/25/2023 11:28:57	lazarus.govender@tuvsud.com	Senior management	TÜV SÜD South Asia Pvt. Ltd
1/26/2023 12:47:46	rnel@eddyfi.com	Middle management	Eddyfi Technologies
1/30/2023 0:08:43	josemaria.arnau@tuvsud.com	Executive management	TUV SUD Iberia
1/30/2023 21:44:37	stefan.rentsch@yahoo.de	Executive management	TÜV SÜD Austria
1/31/2023 4:52:11	suchitra.shahapurkar@tuvsud.com	Middle management	TUV SUD South Asia

CERTIFICATION OF ADDITIONAL SUPPORT

(Additional support retained or not - to be **completed by all students)**

Please note that failure to comply and report on this honestly will result in disciplinary action

I hereby certify that (please indicate which statement applies):

- ***I RECEIVED*** *additional/outside assistance (i.e. statistical, transcriptional, and/or editorial services) on my research report*

If any additional services were retained– ***please indicate below which:***

☒ ***Statistician***
☐ ***Transcriber***
☐ ***Editor***
☐ ***Other (please specify:.................................)***

Please provide the name(s) and contact details of all retained:

NAME: …………Muhammed "StatsNinja" Jamal………...…………………………….. EMAIL ADDRESS: ……statsninja@gmail.com……………………………………….. CONTACT NUMBER: ……+27 61 531 1992……………………….………………… TYPE OF SERVICE: ………Statistics assistance……………………………………….

I hereby declare that all *statistical write-ups and thematic interpretations of the results for* **my study were completed by myself without outside assistance**

NAME OF STUDENT:
……………………………Leon Nel……………………………………………….

SIGNATURE:
…………………………………………………………………………………………….

STUDENT NUMBER:

21818526
…………………………… … … … … …………………………………………… ………
STUDENT EMAIL ADDRESS:

21818526@mygibs.co.za

GIBS CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT : STATISTICIAN

CONFIDENTIAL INFORMATION

In this Agreement, "**Confidential Information**" shall mean any information disclosed by the Parties to this Agreement, directly or indirectly, in writing, orally, which by its nature or the circumstances of its disclosure should be reasonably construed as being confidential, including but not limited to any and all information relating to existing and future strategic objectives, business plans and corporate opportunities, scientific, commercial and technical data or statistical information, any information concerning the current or proposed business of the Parties including, without limitation, product innovations, concepts, know-how, trade secrets and trade marks, information regarding the operations, future plans, projected sales, marketing, economic and financial information, costs, production, growth and distribution, technical information, information about its officers, consultants, management, employees, customers, delegates, students and other related parties, patents, intellectual property and information relating to products and/or services, whether patentable or not, or whether able to be copyrighted, or not, and all products and technology in research and development by the Parties, received directly or indirectly by the Parties verbally or in documents, writings, charts, drawings, computer generated data and any other form of data, no matter how acquired, deduced or delivered, as well as notes, correspondence, analyses, documents and any other written or computer generated records containing Confidential Information.

It is a condition of engagement that the Parties shall preserve and aid in preserving all Confidential Information, in particular any confidential company information, which may be revealed during the course of interactions of the Parties. Such Confidential Information relates to information that is not in the public domain.

The Parties shall at all times keep the contents of the initiative/s being proposed by either Party, and this agreement, confidential and shall use its best endeavours to keep confidential any information which it has acquired or may acquire pursuant to this initiative/s. For the purposes of this clause, Confidential Information excludes information which:

is publicly available or becomes publicly available through no act or default of any Party;

was in the possession of a Party prior to its disclosure otherwise than as a result of a breach by any Party of any obligation of confidentiality to which it is subject;

is disclosed to either Party by a person which the person did not acquire the information under an obligation of confidentiality; and

is independently acquired by either Party as a result of work carried out by a person to whom no disclosure

of such information has been made;

The Parties undertake in relation to the Confidential Information, as follows:

2.1 not to use any Confidential Information for any purpose (including any technical or commercial purpose) other than for the Permitted Use;

2.2 not to disclose any part of the Confidential Information to any third party; and

2.3 not to disclose any part of the Confidential Information to its employees or professional advisors, except to those employees or professional advisors who are required to receive the Confidential Information for purposes of the permitted use, it being understood that the Parties shall –

2.3.1 inform such employees or professional advisors of the confidential nature of such information; and

2.3.2 instruct them to treat such information confidentially in accordance with the terms of this Agreement; and

2.3.3 be responsible if its employees or professional advisors to whom it has disclosed the Confidential Information should fail to treat such information confidentially in accordance with the terms of this Agreement.

Neither Party shall use or disclose Confidential Information except with prior written consent or in accordance with an order of a court of competent jurisdiction or in order to comply with any law or governmental regulations by which any Party concerned is bound or as may be lawfully requested in writing by any governmental authority.

In the event that the receiving party should breach the provisions of this agreement and fail to remedy such breach within 7 (seven) days from date of a written notice to do so, then the disclosing party shall be entitled to invoke all remedies available to it in law including the institution of urgent interim proceedings and/or an action for damages.

The Parties undertake to permanently delete any electronic copies of Confidential Information received, and destroy any confidential printed documentation or similar material in their possession promptly once they are no longer required for the negotiation of a proposed services or on completion of the contracted services.

Upon termination of negotiations for a proposed service or on completion of the contracted service , the Parties are to confirm to each other that they are no longer in possession of any Confidential Information.

In the event of any one or more of the provisions of this Agreement being held for any reason to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision of this Agreement, and this Agreement shall be construed as if such invalid, illegal or unenforceable provision

was not a part of this Agreement, and the Agreement shall be carried out as nearly as possible in accordance with its original terms and intent

The confidentiality obligations as contained in this Agreement shall commence from the date of signature of this Agreement and shall remain in force indefinitely irrespective of the termination of the contracted services.

Signed at ____Johannesburg_____on this ___1st__day of_____March_2023.

On behalf of: ___Statistician_____

Name: Muhammad Hassim Jamal_____ Signature: _____
duly authorised and warranting such authority

Name: ____Leon Nel (Student)__ Signature: _____
duly authorised and warranting such authority

Witness 1: _____ Witness 2: _____