



DEPARTMENT OF MANAGEMENT STUDIES
MASTER OF COMMERCE DEGREE IN STRATEGIC MANAGEMENT
MODELLING THE EFFECTS OF DYNAMIC CAPABILITIES ON
OPERATING
ROUTINES IN ZINARA

BY

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DECLARATION

I Precious Mhizha do hereby declare the contents of the research study to be true and not copied from anywhere or in any publication and previous degrees without acknowledgements.

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DEDICATION

This dissertation is dedicated to my family. Thank you for the encouragement and support you have given me throughout this journey. May God bless you all!

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I would also like to acknowledge my supervisor for his extensive efforts in providing me guidance through the course of my dissertation. In addition, thank you to the various stakeholders in all the organisations studied for their extensive contributions to this study.

ABSTRACT

The main aim of this study was to model the impact of dynamic capabilities on operating routines. The variables were sensing capability, reconfiguring capability, learning capability, and functional efficiency. The researcher used the Zimbabwe National Road Administration (ZINARA). The population comprised of senior revenue clerks, controllers and supervisors of ZINARA, Zimbabwe. Data were collected from the sample of 240 participants using a structured questionnaire. The study adopted the Statistical Package for the Social Sciences (SPSS), for complex statistical data analysis. After the analysis, sensing capability, reconfiguring capability and learning capability were found to have a positive significant impact on functional efficiency of ZINARA. Although this study is a replication of other studies, still this study provides a framework to appreciate the relationship between dynamic capabilities and operating routines ZINARA in Zimbabwe. Hence ZINARA senior clerks, controllers and supervisors are encouraged to embrace the explored dynamic capabilities variables in this study for functional efficiency. Directions for further research were provided.

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

This chapter focuses on introducing the key tenets of the study. The chapter covers background to the study, statement of the problem, objectives, the conceptual framework, significance of the study, delimitation of the study, definition of key terms and organization.

1.1 BACKGROUND TO THE STUDY

Dynamic capabilities and operating routines are two critical concepts that have been extensively studied by scholars over the years. In this study, the relationship between dynamic capabilities and operating routines would be explored.

Dynamic capabilities refer to an organization's ability to adapt and change its resources, processes, and structures to meet changing circumstances (Teece, 1997). Operating routines, on the other hand, refer to the standard procedures and practices that an organization follows to perform its tasks effectively and efficiently. The relationship between these two concepts is complex, as they can both support and hinder each other.

Teece (1997) introduced the concept of dynamic capabilities in the late 1990s. He argued that organizations that could develop dynamic capabilities would be more successful than those that could not. Teece (2011) also emphasized the importance of aligning dynamic capabilities with operating routines to achieve organizational goals and objectives. He believed that organizations that could align their dynamic capabilities with their operating routines would be more efficient and effective than those that could not.

Benner and Tushman (2003) studied the relationship between dynamic capabilities and operating routines in the early 2000s. They argued that organizations that could

balance their dynamic capabilities with their operating routines would be more successful than those that could not. Benner and Tushman (2003) emphasized the importance of integrating dynamic capabilities into existing operating routines to achieve organizational goals and objectives. They believed that organizations that could integrate their dynamic capabilities into their operating routines would be more efficient and effective than those that could not.

Foss and Saebi (2017) studied the relationship between dynamic capabilities and operating routines in the mid-2010s. They argued that organizations that could develop dynamic capabilities while maintaining their existing operating routines would be more successful than those that could not. Foss and Saebi (2017) emphasized the importance of balancing exploration and exploitation to achieve organizational goals and objectives. They believed that organizations that could balance exploration and exploitation would be more efficient and effective than those that could not.

The relationship between dynamic capabilities and operating routines is complex and requires a delicate balance. Dynamic capabilities can enhance operating routines by enabling organizations to adapt and change their resources, processes, and structures to meet changing circumstances. However, dynamic capabilities can also hinder operating routines by disrupting existing procedures and practices. Operating routines can support dynamic capabilities by providing a stable environment for exploration and exploitation. However, operating routines can also hinder dynamic capabilities by limiting an organization's ability to adapt and change.

In other words, the relationship between dynamic capabilities and operating routines is critical for organizational success. Scholars like Teece (1997), Benner and Tushman (2003), Foss, and Saebi (2017) have studied the relationship between these concepts and have emphasized the importance of aligning, integrating, and balancing dynamic capabilities with operating routines to achieve organizational goals and objectives. By developing dynamic capabilities while maintaining existing operating routines, organizations can improve their efficiency and effectiveness and achieve long-term success.

A plethora of studies that seek to understand the factors that lead some companies to obtain competitive advantage over the competition (Teece, Pisano, & Shuen, 1997) is apparent in literature. There are many theoretical approaches that explain the relationships, among which are the stakeholder theory (Bosse, & Philips, 2010), the Resource Based View (Barney, 1991), and dynamic capabilities (Teece, 2007). The stakeholder theory explains competitive advantage through the relationships that a company develops with its stakeholders. In addition, the RBV brings about competitive advantage when considering the unique, rare, and valuable resources of the company. Furthermore, capabilities are the ability of companies to continually change their organizational resource and capability base.

Recently, several studies have recognized the importance of understanding how these theoretical approaches could be applied together to explain the performance of companies and their competitive advantage (Barney, 2018; Barney, Ketchen & Wright, 2021; Freeman, Dmytryiev, & Phillips, 2021). However, this study aims to model the effects of dynamic capabilities on operating routines. Although both have been addressed in more depth by researchers but little has been done considering the in the field of ZINARA Zimbabwe.

Based on extant literature explored, this study gives three main contributions. First, it consists of defining specific dynamic capabilities that could be developed by ZINARA in the search for better organizational performance. These capacities are conceptualized according to the literature, and routines and ways of developing them are presented. The second refers to the discussion about which capabilities have greater or lesser potential to create positive operating routines, contributing to the demand of researchers in the area for more research on when dynamic capabilities are likely to be rare, expensive to imitate and non-substitutable, in rather than just describing their nature and attributes (Barney et al., 2021). Hence this study proposes a model for modelling the impact of dynamic capabilities on operating routines.

1.2 JUSTIFICATION OF THE STUDY

The expectation of the results of this study would contribute to the improvement of operating routines of ZINARA based on dynamic capabilities. Identifying the processes and functioning of learning capabilities, reconfiguration capabilities and sensing capabilities as a starting point for enhanced operating routines. Therefore, the justification of the study lies in getting an enhanced understanding of the dynamic capabilities and operating routines.

1.3 STATEMENT OF THE PROBLEM

Based on the discussions held with strategic management scholars and research done on dynamic capabilities there is a need for dynamic capabilities that enhance operating routines in ZINARA. The literature on Dynamic Capabilities has grown remarkably over the last few decades, making it one of the most used theoretical frameworks in the field of strategy, and has been applied also in such areas as human resource management, operations management, international management, information systems, and technology and innovation management (Barreto 2010; Schilke et al. 2018). A plethora of research has been conducted on dynamic capabilities (Salvato and Rerup 2011; Salvato and Vassolo 2018; Schreyögg and Kliesch-Eberl 2007; Wenzel et al. 2021) but very little has been done to operationalize the dynamic capabilities (sensing, reconfiguring, and learning) on operating routines in ZINARA. Therefore, there is a gap in the research on the dynamic capabilities impact on operating routines and that is why this study models the impact of dynamic capabilities on operating routines.

1.4 RESEARCH OBJECTIVES

The study was guided by the following research objectives:

1.4.1 Main Research Objective

To model the impact of dynamic capabilities on operating routines

1.4.2 Sub-Research Objectives

To determine the effect of sensing capability on operating routines

To evaluate the impact of reconfiguring capability on operating routines

To examine the relationship between learning capability on operating routines

1.5 RESEARCH QUESTION

Are dynamic capabilities able to enhance operating routines in ZINARA, Zimbabwe?

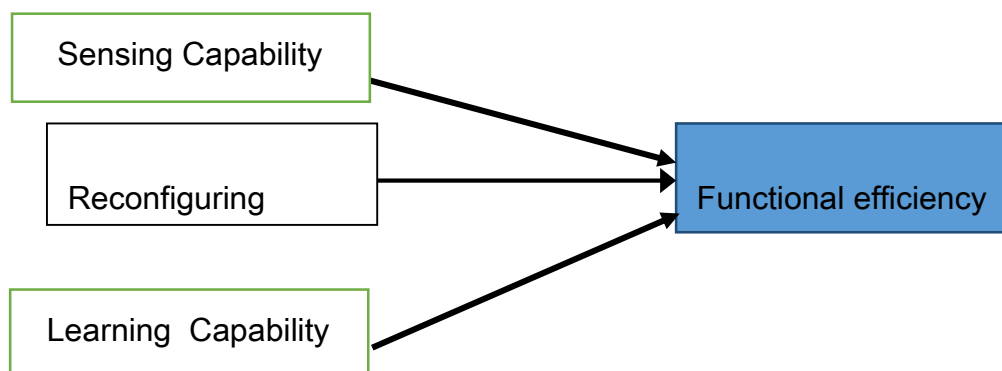
1.6 STATEMENT OF HYPOTHESES

H1: There is a positive significant relationship between sensing capability and functional efficiency

H2: There is a positive significant relationship between reconfiguring capability and functional efficiency

H3: There is a positive significant relationship between learning capability and functional efficiency

1.7 CONCEPTUAL FRAMEWORK



Researcher's own compilation (2023)

1.8 DELIMITATIONS OF THE STUDY

The study would only focus on sensing capability, reconfiguring capability, learning capability and functional efficiency. The population and sample size would be derived from ZINARA Zimbabwe.

1.9 DEFINITION OF KEY TERMS

All the key terms are defined according to the literature explored in this study.

1.10 ORGANIZATION OF THE STUDY

Chapter 1 – Background and aim of the study

Chapter 2 – Literature Review: Dynamic capabilities and operating routines

Chapter 3 – Research methodology and data collection

Chapter 4 – Data analysis and discussion of findings

Chapter 5 – Summaries, conclusions and recommendations

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter focuses on the exploration of related literature. Dynamic capabilities and operating routines are expounded as they are operationalised. All the variables or constructs are explained given the relationships.

2.1 THEORETICAL FRAMEWORK

In a seminal contribution, Teece, Pisano and Shuen (1997) introduced dynamic capabilities to explain how companies achieve and maintain competitive advantage. Although current management research lacks a concise definition and conceptualization of dynamic capabilities (Peteraf and Verona, 2010; Peteraf, Di Stefano and Verona, 2013), core readings agree that dynamic capabilities represent a metaroutine that systematically adjusts a company's operating routines to changing environmental requirements (Helfat et al., 2007; Zollo and Winter, 2002). Based on the core studies, dynamic capabilities are taken as a meta-routine designed to improve a company's operating routines.

Operating routines secure the operational functioning of the company. They involve those routines along a company's value chain by which a company usually earns profits (e.g. purchasing of raw materials, research and development, production and selling of goods) (Helfat et al., 2007). Dynamic capabilities create, extend and modify operating routines to adjust operating routines to changing environmental requirements (Teece, 2007; Winter, 2003). Given that dynamic capabilities primarily affect a company's operating routines (Protogerou, Caloghirou and Lioukas, 2012), the focus is on the relationship between dynamic capabilities and operating-routine performance in ZINARA.

The most important antecedents of DCs theory can be found in the resource-based view (Barney, 1986; Rumelt, 1984; Wernerfelt, 1984). This theoretical approach establishes that valuable, rare, inimitable and non-substitutable (VRIN) resources are the main source of competitive advantage. However, its static vision of successful firms does not address how they survive in changing environments. Teece et al. (1997) thus defined DCs as the firm's abilities to integrate, build and reconfigure internal and external competences to achieve sustainable competitive advantage. Although some scholars have tried to understand better the dynamic capabilities, there is still a gap when considering other environments like Zimbabwe.

Eisenhardt and Martin (2002) initiated this approach, claiming that DCs are embodied in particular organizational processes, such as product development routines, strategic decision making or alliance and acquisition routines. This approach may make it easier to understand the general nature of DCs, and ensure major management applicability. Since Eisenhardt and Martin (2002), many scholars have identified prospective DCs and characterized their general nature using one specific DC (e.g., Karim and Mitchell, 2000; Moliterno and Wiersema, 2007). NPD and alliance management capability are now the most solidly established DCs (Pavlou and El Sawy, 2011; Schilke, 2014). This implies that DCs are very vital in organizations.

According to the literature, dynamic capabilities are made up of interdependent activity components (Vogel and Güttel, 2013). Among a number of different conceptualizations (e.g. Eisenhardt and Martin, 2000; Schreyögg and Kliesch-Eberl, 2007), the theoretical work of Teece and colleagues (Teece, 2007; Teece, Pisano and Shuen, 1997) represents the most influential contribution to these components

(Di Stefano, Peteraf and Verona, 2010; Peteraf, Di Stefano and Verona, 2013). Using this work as a starting point, we proceeded in an extensive review of research in order to develop a concise and observable set of activity components that can be tested empirically. By comparing the different terms and meanings used in the literature to describe the components of dynamic capability activity, the work of Teece was validated (Teece, 2007). Accordingly, three activity components that constitute dynamic capabilities: (1) sensing; (2) learning; and (3) reconfiguring, were picked.

The regular and joint execution of sensing, learning and reconfiguring activity components constitutes a dynamic capability that allows companies to achieve an adequate adjustment of companies' operating routines to competition and thus may enhance operating-routine performance.

2.2 CONCEPTUAL FRAMEWORK

The study's key constructs were illustrated in the conceptual framework in Figure 1.1 in the previous chapter and were discussed expansively in the sub-sections that follow. As a potential remedy, recent literature substantiates the value of studying the observable activity patterns generated by capabilities (Pentland, Hærem and Hillison, 2010). By focusing on the three observable dynamic capabilities activity components of sensing, learning and reconfiguring, this study was able to describe and measure dynamic capabilities clearly. In order to capture their procedural and recurring character, the study relied on items proposed by Hambrick (1981) and Pfeffer and Leblebici (1973) in their empirical studies on organizational routines and activity patterns. However, since these items do not originate from the dynamic capabilities literature, they were reformulated in order to fit each of the three dynamic capabilities components. The reformulations and adaptations were guided by the current dynamic capabilities literature (e.g. Ettlie and Pavlou, 2006; Newey and Zahra, 2009). In order to provide survey respondents with a clear understanding of this study's conceptual position, we described each of the three components in managerial language.

Importance of dynamic capabilities

Recent empirical studies demonstrate that dynamic capabilities allow companies to gain sustained competitive advantage via enhancing the performance of operating routines (Protogerou, Caloghirou & Lioukas, 2012; Schlömer, Wilhelm, Maurer & Wallau, 2013). Operating routines are considered important for the functioning of any company (Becker, 2004; Nelson and Winter, 1982). Operating routines contribute to the competitiveness of companies through reliable task performance (Rumelt, 1995) and coordination (Stene, 1940) driven by processes of habitualization (Cohen and Bacdayan, 1994) and organizational learning (Argote, 1999; Zollo and Winter, 2002).

At the same time, operating routines also exhibit inherent stability (Gilbert, 2005; Katkalo, Pitelis and Teece, 2010; Nelson and Winter, 1982), which hinders companies from responding adequately to changes in the environment. This stability may eventually cause maladaptation between operating routines and environmental requirements (Collinson and Wilson, 2006; Lavie, Stettner & Tushman, 1991; Miller & Friesen, 1980). Dynamic capabilities create value by adjusting operating routines to changes in environmental requirements. Therefore, dynamic capabilities enhance the performance of a company's operating routines and inhibit well-performing operating routines from turning into core rigidities (Eisenhardt & Martin, 2000; Leonard-Barton, 1992; Teece, Pisano & Shuen, 1997; Zollo & Winter, 2002). This shows clearly that dynamic capabilities are critical for operating routines.

While prior studies have put the relationship between dynamic capabilities and the performance of operating routines to empirical test, there is considerable variability in the definition of operating-routine performance, which hinders researchers from effectively comparing results. Some studies conceptualize operating-routine performance using effectiveness as a performance indicator. Effectiveness captures the extent to which an operating routine achieves a preconceived goal (e.g. the extent to which a purchasing routine succeeds at procuring a fixed quality of raw material). Accordingly, these studies examine the effects of dynamic capabilities with respect to the degree that operating routines contribute to goal achievement. For example, in their qualitative analysis of the companies Yahoo! and Exite, Rindova and Kotha (2001) demonstrate that these companies were able to implement organizational changes more effectively than did their competitors, as a result of employing dynamic capabilities.

Other studies conceptualize operating-routine performance using efficiency as a performance indicator. Efficiency captures the extent to which an operating routine achieves a preconceived goal in relation to underlying costs (e.g. the extent to which a purchasing routine provides a fixed quality of raw material divided by the cost of implementing that routine). Thus, these studies focus on the effect of dynamic capabilities by comparing goal achievement with efforts taken (e.g. Zott, 2003). Only few studies include both effectiveness and efficiency indicators (e.g. Drnevich and

Kriauciunas, 2011; Schlömer et al., 2013). However, such studies often do not distinguish effectiveness and efficiency as two conceptually distinct indicators of operating-routine performance. Drnevich and Kriauciunas (2011), for example, combine several items measuring operating-routine effectiveness and efficiency into a single, integrated performance measure (relative company performance at the operating-routine level). While providing valuable insights into the general relationship between dynamic capabilities and operating-routine performance, their study is unable to provide insight into the distinct effects of dynamic capabilities on operating-routine effectiveness and efficiency. But this study ignores effectiveness and emphasizes on functional efficiency.

In addition to measurement and comparability, as the above review demonstrates, much prior research focuses on companies in highly dynamic environments (Drnevich and Kriauciunas, 2011; Protogerou, Caloghirou and Lioukas, 2012) and finds a positive effect of dynamic capabilities on operating routine performance. However, these inquiries fail to recognize that operating-routine performance may differ in terms of effectiveness and efficiency (Barney, 1991; Daft, 1983; Jacobides & Winter, 2005; Peteraf & Barney, 2003) when considering environments like Zimbabwe. As a consequence, current research remains ambiguous on whether dynamic capabilities have an impact on the efficiency of operating routines.

Functional efficiency implies economizing on functional costs for labour and IT without sacrificing overall operating-routine goals. Thus, if dynamic capabilities are to result in enhanced functional efficiency of operating routines, their benefits must be greater than all resulting functional costs (Barreto, 2010). Functional costs include the costs for the operating routine as well as the implementation and maintenance of dynamic capabilities. On the one hand, costs for labour and IT come about because the operating routine itself is costly. On the other hand, the development, maintenance and use of dynamic capabilities generate costs within a company (Ambrosini & Bowman, 2009; Winter, 2003). More specifically, sensing activities result in search costs (Zott, 2003); learning activities are costly because companies must process and codify experience and solution patterns (Zollo & Winter, 2002); and finally, reconfiguring activities transfer abstract response patterns into actual change activities, inducing

change costs as well as opportunity costs for business interruption (Zahra, Sapienza & Davidsson, 2006).

The literature on dynamic capabilities points to an overall positive performance effect of possessing dynamic capabilities. Accordingly, the benefits of dynamic capabilities in goal achievement should exceed all resulting functional costs (Barreto, 2010; Schlömer et al., 2013). Dynamic capabilities help to save resources within operating routines and therefore decrease functional routine costs (Aragón-Correa and Sharma, 2003). For example, sensing and adopting new manufacturing technologies can streamline and accelerate operating routines. This reconfiguration releases labour capacity and thereby reduces functional operating routine costs (Eakin, 2002). Similarly, regular learning activities broaden the scope for redesigning company routines and thus provide hints and solutions for enhancing existing operating routines (Romme, Zollo & Berends, 2010). With regard to costs for developing and maintaining dynamic capabilities, one can state that, once established within a company, dynamic capabilities encourage continuous routine reorganization and improvement to enhance goal achievement (Zollo & Winter, 2002). Therefore, the economic benefits should outweigh the setup and maintenance costs of dynamic capabilities. In sum, dynamic capabilities should not only enhance the effectiveness of routines, but also increase the efficiency of operating routines, even when the costs for employing dynamic capabilities are taken into account (Schlömer et al., 2013).

However, it is expected that the impact of dynamic capabilities on the ratio between goal achievement and underlying functional costs (i.e. functional efficiency) to be greater under high levels of environmental dynamism. High levels of environmental dynamism generate a comparatively high erosion of competitive advantages, quickly reducing the value contribution of existing operating routines (Winter, 2003).

Therefore, maintaining dynamic capabilities is especially profitable for organizations in dynamic environments that have to adjust their operating routines frequently (Barreto, 2010). In contrast, because of the functional costs induced by dynamic capability maintenance and limited effect on improvements in both goal achievement and underlying cost structure in environments exhibiting low dynamism, dynamic

capabilities contribute less to the functional efficiency under low levels of environmental dynamism (Aragón-Correa & Sharma, 2003).

Routines

The original concept of routines was first brought to scholarly attention more than seven decades ago as a habitual action because of repetition and which is followed regularly without specific directions or detailed supervision by any member of the organization. To many persons the term "routine" implies the absence of individual initiative and imagination (Stene, 1940). Since the introduction, the concept of routines has moved drastically from an organizational that is static to phenomenon of continuous change (Feldman, 2003). Similar to the hierarchy of dynamic capabilities, where zero-level capabilities are defined as the capabilities which earn firms their living and first-order capabilities which govern the rate of change of zero-level capabilities (Collis, 1994). The same has been applied in the concept of routines building on Latour's distinction between ostensive and per formative to build a theory that explains why routines are a source of change as well as stability (Latour, 1986). The ostensive aspect of a routine embodies zero, what we typically think of as the structure. The per formative aspect embodies the specific actions, by specific people, at specific times and places, that bring the routine to life (Feldman & Pentland, 1994).

Sensing capability and functional efficiency

Sensing capability and functional efficiency are two critical components that determine the success of any system. Sensing capability refers to the ability of a system to detect, measure and respond to changes in its environment. On the other hand, functional efficiency refers to the effectiveness and productivity of a system in achieving its intended purpose. The relationship between sensing capability and functional efficiency is complex and interdependent. This paper will analyse the relationship between sensing capability and functional efficiency by citing scholars in the field. According to Kusiak (2018), sensing capability is crucial in enhancing the functional efficiency of a system. The author argues that sensing technology can provide realtime

data on the performance of a system, which can be used to optimize its operations. For instance, in manufacturing systems, sensors can be used to monitor the production process and detect any anomalies or defects. This information can be used to adjust the production process and improve the quality of products. Similarly, in transportation systems, sensors can be used to monitor traffic flow and optimize routes, reducing travel time and improving efficiency.

Furthermore, sensing capability can enhance the reliability and safety of a system, thus improving its functional efficiency. According to Liu et al. (2019), sensing technology can be used to detect potential hazards and prevent accidents in various systems. For instance, in aviation systems, sensors can detect weather changes and provide pilots with real-time information on potential hazards such as turbulence.

This information can be used to adjust flight paths and avoid hazardous conditions.

In addition, sensing capability can improve the energy efficiency of a system, thus enhancing its functional efficiency. According to Wang et al. (2019), sensing technology can be used to monitor energy consumption in various systems, such as buildings and factories. This information can be used to identify areas of inefficiency and implement measures to reduce energy consumption, thus improving the overall efficiency of the system.

However, the relationship between sensing capability and functional efficiency is not always straightforward. According to Zhu et al. (2019), the effectiveness of sensing technology in improving functional efficiency depends on several factors, such as the accuracy and reliability of sensors, the quality of data collected, and the ability of the system to process and act on this data in real-time. Therefore, it is essential to consider these factors when designing and implementing sensing systems.

In conclusion, sensing capability and functional efficiency are two critical components that determine the success of any system. Sensing technology can enhance the functional efficiency of a system by providing real-time data on its performance, improving reliability and safety, and reducing energy consumption. However, the effectiveness of sensing technology in improving functional efficiency depends on

several factors, and it is essential to consider these factors when designing and implementing sensing systems.

Hence, it could be hypothesized that there is a positive significant relationship between sensing capability and functional efficiency.

Learning capability and functional efficiency

Learning capability and functional efficiency are two essential concepts that are closely related and have a significant impact on each other. Learning capability refers to an individual's ability to acquire new knowledge and skills, while functional efficiency refers to the ability of an individual or organization to perform tasks effectively and efficiently. In this paper, we will analyze the relationship between learning capability and functional efficiency, with reference to the works of scholars.

Senge (2017), a prominent scholar, introduced the concept of a learning organization. According to him, a learning organization is one that continually improves its ability to create its future. Senge argues that organizations that prioritize learning and development are more efficient, innovative, and adaptable than those that do not. He emphasizes the importance of creating a culture of learning within an organization that encourages individuals to develop their skills and knowledge continuously. Senge (2017) believes that by doing so, organizations can improve their functional efficiency by enhancing their ability to adapt to changing circumstances.

Kolb (1984)'s experiential learning theory suggests that individuals learn best through a cycle of concrete experiences, reflective observation, abstract conceptualization, and active experimentation. Kolb (1984) argues that this cycle of learning enhances an individual's ability to apply new knowledge and skills in realworld situations, thereby improving their functional efficiency. He emphasizes the importance of experiential learning in improving an individual's ability to perform tasks effectively and efficiently.

The relationship between learning capability and functional efficiency is symbiotic. Learning capability enhances functional efficiency by enabling individuals and organizations to acquire new skills and knowledge that improve their performance. In turn, functional efficiency supports learning capability by providing a conducive environment for learning and growth. By prioritizing learning capability and development, organizations can improve their functional efficiency.

In conclusion, the relationship between learning capability and functional efficiency is essential for personal and professional growth. Scholars like Senge (2017) and Kolb (1984) have studied the relationship between these concepts and have emphasized the importance of learning and development in achieving organizational goals and objectives. By creating a culture of learning within an organization and prioritizing experiential learning, individuals and organizations can improve their functional efficiency and adaptability, thereby achieving long-term success. Hence it could be hypothesized that there is a positive significant relationship between learning capability and functional efficiency.

Reconfiguring capability and functional efficiency

Reconfiguring capability and functional efficiency are two critical concepts that are closely related and have a significant impact on each other. Reconfiguring capability refers to an organization's ability to adapt and change its resources, processes, and structures to meet changing circumstances, while functional efficiency refers to an organization's ability to perform tasks effectively and efficiently. In this paper, we will analyze the relationship between reconfiguring capability and functional efficiency with reference to the works of scholars over the years.

Hamel and Prahalad (1989) introduced the concept of core competencies in the early 1990s. They argued that organizations should focus on developing their core competencies, which are unique strengths that enable them to outperform their competitors. They emphasized the importance of reconfiguring capability in developing and maintaining core competencies. Hamel and Prahalad (1989) believed that organizations that could reconfigure their resources, processes, and structures to meet

changing circumstances would be more efficient and effective than those that could not.

Christensen (2018) introduced the concept of disruptive innovation in the late 1990s. He argued that organizations that could develop disruptive innovations would be more successful than those that could not. Christensen (2018) emphasized the importance of reconfiguring capability in developing disruptive innovations. He believed that organizations that could reconfigure their resources, processes, and structures to develop and implement disruptive innovations would be more efficient and effective than those that could not.

McGrath (2005) introduced the concept of transient advantage in the early 2000s. She argued that organizations should focus on developing transient advantages, which are short-term competitive advantages that enable them to outperform their competitors. She emphasized the importance of reconfiguring capability in developing and maintaining transient advantages. McGrath (2005) believed that organizations that could reconfigure their resources, processes, and structures to develop and maintain transient advantages would be more efficient and effective than those that could not. The relationship between reconfiguring capability and functional efficiency is symbiotic. Reconfiguring capability enhances functional efficiency by enabling organizations to adapt and change their resources, processes, and structures to meet changing circumstances. In turn, functional efficiency supports reconfiguring capability by providing a conducive environment for reconfiguring resources, processes, and structures. By prioritizing reconfiguring capability, organizations can improve their functional efficiency by enhancing their ability to adapt to changing circumstances.

In conclusion, the relationship between reconfiguring capability and functional efficiency is essential for organizational success. Scholars like Hamel, Prahalad, Christensen, and McGrath have studied the relationship between these concepts and have emphasized the importance of reconfiguring capability in achieving organizational goals and objectives. By developing and maintaining core competencies, disruptive innovations, and transient advantages through reconfiguring capability, organizations can improve their functional efficiency and achieve long-term success. Hence this

could be hypothesized that there is a positive significant relationship between reconfiguring capability and functional efficiency.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The preceding chapter deliberated on the literature review about the research variables, the theories that explains the variables of the study, and the model of the study. The chapter discusses the research philosophy, the research approach, the design, the sampling strategy, data collection process, data analyses and interpretation. Ultimately, the chapter focuses on the research instruments that were used to collect research data – that is the questionnaire and how it was constructed. At the end, a summary of the chapter is given and is also linked to the next chapter.

3.2 RESEARCH PARADIGM

According to Philips (1987:27), “a particular paradigm acted as a framework that determined the key concepts and methods, the problems that were significant, and so on”. There is a general covenant among researchers that research should be carried out using diverse frameworks. However, there is an on-going argument on the grade of trust and integrity pertaining to the knowledge that is a product of different paradigms (Neuma, 2011). Saunders et al. (2019) had indicated that a researcher has to work within the context of a given framework – that regulates the problems that are considered important, the way these problems can be defined, the choice of the most appropriate methods of investigation. To this effect, there are basically three philosophies – namely ontology, epistemology and methodology.

3.2.1 Ontology

It is an “an area of philosophy that deals with the nature of being, or what exists; the area of philosophy that asks what reality is and what the fundamental categories of reality are” (Neuman, 2011:111). It is considered as the science that deals with the nature of reality (Marsh and Furlong, 2002). It is a belief system that looks at the way

individuals interpret the representations of facts. The main question that it seeks to answer is whether social entities have to be viewed as subjective or objective. Thus, principally ontology describes the researcher's perspective about the nature of reality or the phenomenon under investigation. In this study the research views the phenomenon under investigation as objective reality.

Because the researcher regards the ontological perspective as objective reliability – this will affect the choice of the research approach, and design, methods of data collection and analysis that are going to be adopted. The ontological philosophy has two positions upon which the science of reality can be grouped. The two are positivism and subjectivism.

3.2.2 Epistemology

Khazanchi and Munkvold (2003:2) define epistemology as “a theory of knowledge that deals with the nature of knowledge, its establishing whether such claims are warranted”. Scotland (2012) suggests that epistemology is worried with the nature and forms of knowledge. In real terms, the epistemological assumptions focus on how knowledge can be created, acquired and communicated. Wasik (2016) opines that epistemology is an investigation into the ways of how researchers arrive at knowledge and the limitations that they have.

3.2.3 Methodology

Methodology is one of the most important constituents of a research study. Silverman (2016) defines it as the method that is used by researchers, which includes the tactics of data collection to data analysis to conduct their research. Thus, research methodology looks at whether a researcher will use either the qualitative or quantitative methods or mixed methods in order to carry out research. The researcher choice of the research methods is guided by the nature of the problem under investigation.

Sarantakos (2005) defines research methodology as a research strategy that translates ontological and epistemological principles into research guidelines that

researchers have to follow in order to carry out a study. It also includes the procedures and practices that guide research. For example the positivist research approach prescribes the need to take a quantitative approach in the carrying out of a study. The objective ontology contained in the view requires that the methodology that the researcher follows has to be positivist in nature, that is, it has to take an objective approach. The focus of this research approach is to identify research variables and trace hypotheses that are related to the relationship between the research variables (Marczyk, DeMatteo and Festinger, 2005).

Generally, positivist researchers may use experimental designs that test effects. The data collection techniques used target collecting numerical data; these data enable presentation of data in a quantitative form (Sarantakos, 2005). This study, takes a quantitative approach – as the procedure of generating knowledge. Thus in principle, methodology refers to the strategy, plan of action or design that guides the choice and use of particular methods.

3.3 RESEARCH APPROACH

A quantitative method is used in this study. A quantitative approach seeks to quantify the data and as a result statistical analysis is done on the data. Usually quantitative research is preceded by a qualitative research. In this study the quantitative research uses surveys that collect numerical data and it employs statistical analysis. The approach uses predefined categories or variables which are assigned to a logical scale of values which are defined in numbers (Dörnyei, 2007). According to Cresswell (2003) quantitative research uses a post-positivist claim for developing knowledge. This obliges the researcher to categorise specific variables and hypotheses, uses measurement and tests theories. The main strategy involves the use of surveys and the collection of data using predetermined research instruments that yields numerical data (Cooper and Schindler, 2014). The quantitative research analyses numerical data through a deductive method of enquiry to test the association between variables. It necessitates a large representative sample of respondents which permit research results to be generalised. Despite the use of this approach here, it has disadvantages in that it cannot provide a precise picture of a complex situation.

3.4 RESEARCH DESIGN

Malhotra and Dash (2019) define research design as a blue print for conducting a research project. It spells out the processes that are necessary to collect the data that are needed to solve business research problems. In this study the researcher employed a descriptive research design – a design that attempts offer a description of research phenomena that is being investigated usually at different levels such as the individual, the organisation and some other perspectives (Saunders et al., 2014).

According to Malhotra (2010), descriptive is regarded good when the researcher is examining the relationship between the independent and dependent variables. In most cases, when the design is used it prescribes that the researcher trace research questions and hypotheses before the data collection process. For the purpose of doing this research objectives and hypotheses were crafted before the data was collected - thus in this case pre-coded questionnaires were crafted first before going into the field. This particular design calls for the researcher to use large samples. Because of this requirement the study had a total sample of 250 participants. One the main reason why this design was preferred is generally because it permitted the researcher to test relationships proposed by the set hypotheses.

3.5 SOURCES OF DATA

For the purpose of carrying out this study both primary and secondary data were used. These data played a number of roles to help the researcher to define the problem at and chart a way towards solving the problem at hand.

Secondary data

Secondary data are considered as information that was collected by someone for other uses other than the current research (Cooper and Schindler, 2014). In any study, researchers leverage secondary data in an attempt to answer a new research question, or to examine an alternative perspective on the original question of a previous study.

In this study, the evaluation of secondary data was done before the gathering of primary data. The research read books, journal articles, web-sites and researches that were done by other scholars. The information obtained from secondary data assisted the research to select the most appropriate design, a good sampling strategy. Above all it was also important as it guided the researcher to select the best theory and it was upon the foundation of previous studies that hypotheses were developed and proposed.

Primary data

These are data that has been collected from first-hand-experience is known as primary data. These are data that are gathered to answer the research questions under research. Primary data has not been published yet and is more reliable, authentic and objective. Primary data has not been changed or altered by human beings; therefore its validity is greater than secondary data. In this study primary data were collected from the research participants – the supervisors, controllers and senior revenue clerk from ZINARA. To get data from participants a survey was administered to participants.

3.6 TARGET POPULATION

The target population for a survey entails the entire set of units for which the survey data are to be used to make inferences. Thus, the target population refers to those units for which the findings of the survey are meant to generalize. Cooper and Schindler (2014) define target population as the total number of elements that are characterised by similar features. In any research study that is undertaken target population has the information that the researcher is looking for to answer the research question at hand or simply to finish the investigation. The target population of this study included all the senior revenue clerks, controllers and supervisors for ZINARA. Thus data were collected from these participants. Despite targeting these people, only those in the urban areas were included and we excluded those members who were difficult or impossible to contact during the data collection period.

3.7 SAMPLING METHODS

A sample design is an outline that offers the basis and methodology for choosing a sample.

3.7.1 Sampling technique

Whenever research is done, data about people can be collected either through the use of a census or a sample. For this study it was not feasible to apply a census to collect data, instead a sample was the most appropriate approach since there was time and financial limitations. Thus data was collected from small representative portion of the total population. The researcher used a non-probability sampling strategy.

3.7.2 Non-probability sampling

A non-probability approach was used in this research to choose the respondents of this study. It is designated as an approach where the research uses personal judgement to handpick the research respondents (Malhotra, 2016). This is a subjective way of choosing the participants who should participate in the survey.

Quota sampling

In this it was not possible to list all members of the population and randomly select elements from that list, because of the cost, timeliness, and convenience. As such the alternative procedure is quota sampling. Sekeran and Bougie (2013) define quota sampling as a type of purposive sampling that makes sure that the target groups in which the researcher is interested have sufficient representation in a study through the assignment of a quota. With the quota sampling procedure, the population of interest was divided into subgroups namely – senior revenue clerks, controllers and supervisors. The intent is to choose a sample whose frequency distribution of characteristics reflects that of the population of interest. Obviously, it was necessary to know the percentage of individuals making up each subset of the population. Based on this, the researcher divided the target population into three groups. This was done in

order to make sure that all groups are represented in the study. In the case of this study, each group had a portion of 33% that is each group had 80 participants. This made sure that the composition of the participants is equally distributed.

3.7.3. Sample size

McGivern (2013:238) defines sample size as all the number of elements that are included in a study. In deciding on the sample size a number things were considered. It is important that the sample size has to be representative of the total population so that the results are reflecting the true image of the population. It is also important to make sure that the sample size makes it easy to do some statistical calculations without limiting the researcher. Hair et al. (2014) note that a sample size should be large enough to permit factor analysis, regression, and even structural equation modelling to be worked. The sample size of this study was relatively large, that is it was 240.

3.7.4 Sample elements

A sample element is regarded as a research participant in a population who has the data that the investigator is looking for. These data help the investigator to fully answer the questions under investigation (Sekaran & Bougie, 2013). The elements of this study consisted of the individuals in the form of revenue clerks, controllers and supervisors who are currently working for ZINARA and have been in the organisation for at least two years. To ensure that ethical considerations were not violated only those respondents above the age of 18 years were allowed to participate in the survey- thus excluding those below the stated age.

3.7.5 Sampling errors

In any study that is done, sampling errors are usually common in the process of collecting data because of the kind of estimates that are found on a sample. Sampling error has been defined as the error that the researcher may make after estimating the characteristics of the concerned population basically because one would have measured a portion of the population instead of the total population (Mukvandi et. al.,

2013). As a way to minimise sampling error the researcher decided to use a relatively large sample size.

3.7.6 Non-sampling errors

A non-sampling error is defined as the errors that are a result of other sources of errors which are not coming from sampling. Generally these errors emanate from the respondents and researcher. A researcher may have failed to state a good research problem and as result respondents may fail to understand and in the end respond incorrectly to the research question. Malhotra and Dash (2016) suggest that who indicated that there are two types of non-sampling errors that include primarily nonresponse and response errors. A non-response error is defined a scenario where the respondent rejects to participate in a survey resulting in a reduced sample size. A response error occurs when the participant gives false answers pertaining to the question at hand.

3.8 DATA COLLECTION INSTRUMENTS

The questionnaire forms the backbone of this survey and the success of it lies in the way it was designed. Mahotra (2010) defines a questionnaire as a planned way of data collection that is made up of a collection of questions that are written. A questionnaire is simply a list of mimeographed or printed questions that is completed by or for a respondent to give his opinion. A questionnaire is the main means of collecting quantitative primary data in a standardized way so that the data are internally consistent and coherent for analysis. Questionnaires should always have a definite purpose that is related to the objectives of the research, and it needs to be clear from the outset how the findings will be used. The success and failure of a study is based on a good or bad questionnaire. A questionnaire should converse with the participants in a clear way. When crafting a questionnaire, it is good that it is done in such a way that it stimulates and inspires participants so that they complete the survey.

In the development of the questionnaire it was significant to observe the best practices prescribed in research practice so that it could gather the required data from the participants. According to Giese et al. (2021) a questionnaire should allow the researcher to collect data that permit the researcher to answer the problem at hand, and at the same time it has to be reliable and relevant to the study at hand. One of the most significant things is that a questionnaire has to be easy to use and be short enough to avoid fatigue when participating in a survey. The questionnaire used in this study met these prescriptions.

3.9 DATA COLLECTION INSTRUMENT

This part looks at the questions that relate to the variables that were measured in this study. The researcher measured these variables: sensing, learning, reconfiguration and functioning efficiency. These were measured using item statements that were adapted from (Wilhelm, Schlomer, and Maurer, 2015).

The other part of the questionnaire consisted of demographic data. This section asked the respondents to provide information on sex, age, educational qualifications among others. The research had an important question that was used to exclude respondents below the age of 18 years to take part in the survey.

Table 3.1 Research instruments and sources

| Variable | Code | Item statements | Sources |
|------------------------|-------|---|------------------------|
| Sensing | SEN 1 | ZINARA looks for new opportunities in the operating environment | Jantunen et al. (xxxx) |
| | SEN 2 | ZINARA always searches for new practices of doing business | |
| | SEN 3 | ZINARA conceptualises new ways of doing business | Lin et al. (2013) |
| Learning, | LEA1 | Knowledge is widely shared in ZINARA | |
| | LEA2 | ZINARA rewards those employees who take risk. | |
| | LEA3 | ZINARA helps customers anticipate developments in the business. | Prieto et al. (2007) |
| Reconfiguration | REC 1 | ZINARA staff introduce perceptible changes that lie outside the existing features of existing products/services | |
| | REC 2 | ZINARA staff reconfigure the networks of relations and communication relationships both within and outside the firm | Gregory et al. (2017) |
| | REC 3 | ZINARA staff transfer knowledge to the whole organization | |
| | REC 4 | ZINARA staff are able to replace out-dated knowledge | |
| Functioning efficiency | FEF1 | ZINARA realises efficiencies in communication with customers | |
| | FEF2 | ZINARA has been able to reduce the time it takes to serve motorists at toll gates. | |
| | FEF3 | ZINARA realises efficiencies at the services it offer at its Toll gates | |

3.9.1 Reliability and validity of a measurement scales

When one is doing research is very crucial that the researcher makes sure that the measurement instruments are reliable and valid. For a scale to be able to produce quality results it has to be assessed in terms of its accuracy. A researcher needs to check if the scale measures what it is supposed to measure (Cooper and Schindler, 2014). The reason why scale should be assessed on its accuracy is that scales are not perfect and because of that they are subject to errors. When a researcher assesses the scale the probabilities are high that one reduces the degree of error as one makes sure that the scale is dependable and effective.

A scale is considered reliability based on the degree to which it is free from mistakes and permits the research to get consistent results. The consistency of a measurement instrument displays the uniformity and permanency with which the instrument measures the concept. Cooper and Schindler (2014:260) indicate that consistency emphasizes on the degree to which the scale is free from error. A good scale must have a high degree of reliability. In this study scale reliability is measured using Cronbach's alpha which is expressed in numbers between 0 and 1. Zero is at the lower end and 1 at the upper-end of the scale. A measure is reliable when it has a value of at least 0.7 (Manerikar & Manerikar, 2015).

Validity of scale

It denotes the degree to which a measurement instrument measures what it is supposed to measure. When a scale is considered valid it means it does not result in errors, that is, it will be considered as accurate and unambiguous. According to Cooper and Schindler (2014) validity can be grouped into three main classes: content validity, criterion-related validity and construct validity. This research looked at content validity only.

Content validity is well-defined as an organised and personal evaluation of how well the content of a scale sufficiently covers what it is supposed to measure (Malhotra, 2010). It includes any validity strategies that focus on the content of the test. To

establish content validity, researchers investigate the extent to which a test is a representative sample of the content of whatever objectives the test was originally designed to measure. In this study, the research made sure that all the questions included measured the corresponding variable.

3.10 PRE-TESTING OF DATA COLLECTION INSTRUMENTS

Before a research instrument is used in a fully-fledged research it is important that it is pilot-tested. A pilot study is frequently performed to assess the practicality of techniques, methods, questionnaires, and interviews and how they function together in a particular context; it can also reveal ethical and practical issues that could impede the main study (Doody & Doody, 2015). In principle, a pilot study aids the researcher to identify flaws, refine data collection and analysis plan, gain experience and learn important information pertaining to participants (Beebe, 2007). In this process, for example if participants experience challenges in answering or completing the survey instruments, this will oblige the researcher to modify the wording of the items, or change the order of questions that are presented and/or change the format of the questionnaire.

In addition, the reason for pilot-testing is to make sure that all the item statements in the questionnaire are relevant. This minimises biases in the process of collecting data. After the development of a questionnaire, one is not sure if the questionnaire will be understood by the target population because of that the questionnaire has to be tested. According to McGiven (2013) pre-testing involves the assessment of how the questionnaire fits the population used in the investigation. The researcher did a pilot study to assess if the questionnaire was accurate in soliciting research data. The responses obtained were used to check if objectives could be attained using such a questionnaire. A pre-test was done to 20 participants with similar characteristics to those who participated in the survey.

3.11 DATA COLLECTION PROCESS

This research aimed to test the relationships between sensing, learning, reconfiguration and functioning efficiency. To attain this goal, a structured questionnaire was crafted. This questionnaire was administered through an email survey where the questionnaire was sent clients. Thus participants were required to complete the survey and sent them.

3.12 DATA PREPARATION

Before data can be analysed they must be organised into an appropriate form. Data preparation entails the process of how the researcher manipulates and organises data before analysis. Data preparation is typically an iterative process of manipulating raw data, which is often unstructured and messy, into a more structured and useful form that is ready for further analysis. The whole preparation process consists of a series of major activities including data capturing, editing, and analysis.

3.12.1 Data capturing

Cooper and Schindler (2011:417) define data capture as the adaptation of data collected in a research for viewing and manipulation. Because this was an email administered survey, research participants were given the questionnaire through their emails.

3.12.2 Data editing

Data was edited in order its accuracy. This meant that the researcher had to check if the questionnaire was complete. Thus the researcher had to edit the raw data to check for errors with the main purpose of making that data were accurate and consistent with the aim of the study. Incomplete questionnaires were excluded from data analysis.

3.13 DATA ANALYSIS

Data analysis allows the researcher to get meaning from the data collected. Data analysis “involves synthesis, evaluation, interpretation, categorization, hypothesizing, comparison and pattern finding” (Hatch 2002:148). Data were summarised in frequency tables, measure of central tendencies, correlation analysis and structural equation modelling.

3.14 RESEARCH ETHICS

Ethics refers to norms or moral principles that guide behaviour and relationships with others (Cooper and Schindler, 2014:28). The principal aim of ethics is to ensure that respondents are not harmed. Ethics are important, because it “guides researchers, participants and users of research, and the community on what is acceptable or unacceptable behaviour in the execution of research” (McGivern, 2013:28). A number of measures were considered in the process of carrying out the study. All the participants participated based on their own will; no one was forced to complete the questionnaire and was also allowed to withdraw from the survey at any stage. The research made sure that they were not going to disclose the participants’ names to outside parties. Thus every participant was promised anonymity in order to obtain their participation.

3.15 CHAPTER SUMMARY

The chapter discussed the research viewpoint, research method, research design, and target population, sampling strategy, sample size, measurement instruments, data collection and analysis. The next chapter analyses and interprets data.

CHAPTER IV

DATA ANALYSIS, INTERPRETATION, AND PRESENTATION

4.1 INTRODUCTION

The previous chapter discussed the research methods that were used in this study. This chapter presents, interprets and reports the findings. The results that are discussed in this chapter are based on the traced objectives. The chapter commences by presenting the demographic information of participants. There after descriptive statistics of the key variables of the study are presented before the results of a structural equation modelling are presented

4.2 DEMOGRAPHIC INFORMATION

This section of the chapter discusses the gender, age and education of the participants. This gives an overall scenario of who the participants were. Table 4.1 shows the sex composition of the respondents.

Table 4.1 Gender of respondents (N = 150)

| Gender | Frequency | Percentage | Cumulative |
|--------|-----------|------------|------------|
| Male | 85 | 56.7 | 56.7 |
| Female | 65 | 43.3 | 100 |
| Total | 150 | 100 | |

Table 4.1 shows the spread of the gender of the participants. According to what is shown in the table, the majority of respondents were males. Male respondents consisted of 56.7 percent and female respondents were 43.3 percent.

Table 4.2 The age of respondents

| Age group | Frequency | Percentage | Total |
|--------------|-----------|------------|-------|
| 18-24 | 15 | 10 | 10 |
| 25-34 | 45 | 30 | 40 |
| 35-44 | 65 | 43,3 | 83.3 |
| 45-54 | 22 | 14.7 | 98 |
| 55 and above | 3 | 2 | 100.0 |
| Total | 203 | 100.0 | |

The ages of the participants ranged between 18 and 55 years and above. The most predominant groups were those found between two main age groups 25-34 and 35 – 44. These age groups comprised of 30 and 43.3 percent respectively. This means the middle aged people dominate the levels of senior revenue clerks, controllers and supervisors. The smallest group was made up of respondents aged between the ages 55 and above. The fact that middle aged people are dominating in the survey agrees to what is written in literature (Statista, 2020).

Table 4.3 Educational qualification

| Level of education | Frequency | Percentage | Total |
|--------------------|-----------|------------|-------|
| High school | 10 | 6.7 | 6.7 |
| Diploma | 35 | 23.3 | 30 |
| Undergraduate | 70 | 46.7 | 76.7 |
| Postgraduate | 35 | 23.3 | 100.0 |
| Total | 203 | 100.0 | |

Table 4.3 shows the level of education of the respondents of this research. The table depicts that the majority of the participants have attained first degrees at university and they comprise of 46.7% of the respondents. This group is followed by two groups namely those with diplomas and postgraduate qualifications – both groups a percentage of 23.3. The least group had high school education and they were made up to 6.7%. Generally, the company employs well educated people as shown in the table.

Table 4.4 shows the distribution of income of the respondents who were made up of the research participants. Table 4.4 shows that the majority of participants were earning a monthly income of 301-500 United States dollars.

Table 4.4 Income of respondents

| Level of income in US\$ per month | Frequency | Percentage | Total |
|-----------------------------------|-----------|------------|-------|
| 0-300 | 35 | 23.3 | 23.3 |
| 301-500 | 75 | 50.0 | 73.3 |
| 501-700 | 25 | 16.7 | 90.0 |
| 701 and above | 15 | 10 | 100 |
| Total | 203 | 100 | |

This is followed by a group of respondents who earned between 0-300 United States dollars and after this group, there is the third and fourth largest groups that earned monthly incomes averaging between 501 and 700 and 701 and above United States dollars respectively. The respondents of this research are generally low income earners.

4.3 DESCRIPTIVE STATISTICS

This section discusses the descriptive statistics of the main research variables.

Table 4.5 Descriptive Statistics for sensing (N = 150)

| Item statements | Mean | Standard deviation |
|---|------|--------------------|
| ZINARA looks for new opportunities in the operating environment | 4.81 | .826 |
| ZINARA always searches for new practices of doing business | 4.65 | .974 |
| ZINARA conceptualises new ways of doing business | 4.51 | 1.122 |

According to Table 4.5, the level of the respondents' agreement stretched from 4.51 to 4.81. The respondents agreed to the statement that ZINARA looks for new opportunities in the operating environment 4.81. Respondents were in agreement ZINARA always searches for new practices of doing business indicated by a mean value of 4.65 and they agreed to the fact ZINARA conceptualises new ways of doing business. The next table presents descriptive statistics for learning.

Table 4.6 Descriptive statistics for learning (N = 150)

| Item statements | Mean | Standard deviation |
|---|------|--------------------|
| Knowledge is widely shared in ZINARA | 4.51 | .826 |
| ZINARA rewards those employees who take risk. | 4.65 | .974 |
| ZINARA helps customers anticipate developments in the business. | 4.20 | .873 |

Table 4.6 shows the responses obtained on learning. The respondents indicated that ZINARA rewards those employees who take risk. This is shown by the level of agreement which recorded a mean value of 4.65. The next statement relates to the fact that knowledge is widely shared in ZINARA. Respondents agreed to the statement as shown by an average value of 4.51. However, the least agreed statement is the one stating that “ZINARA helps customers anticipate developments in the business” and had an average value of 4.20.

The next table presents descriptive statistics on perceived reconfiguration. The table is product of the responses obtained from the survey.

Table 4.7 Descriptive statistics for reconfiguration (N=150)

| Item statements | Mean | Standard deviation |
|---|------|--------------------|
| ZINARA staff introduce perceptible changes that lie outside the existing features of existing products/services | 4.65 | .816 |
| ZINARA staff reconfigure the networks of relations and communication relationships both within and outside the firm | 4.75 | .944 |
| ZINARA staff transfer knowledge to the whole organization | 4.41 | 1.022 |
| ZINARA staff are able to replace out-dated knowledge | 4.68 | .878 |

According to Table 4.7 results show that respondents agreed to ZINARA staff reconfigure the networks of relations and communication relationships both within and outside the firm as indicated by a mean value of 4.55. Respondents also agreed that

ZINARA staffs are able to replace out-dated knowledge, ZINARA staff introduce perceptible changes that lie outside the existing features of existing services and ZINARA staff transfer knowledge to the whole organization as shown by mean values of 4.68, 4.65 and 4.41. Thus in general respondents agreed to the fact that ZINARA employees are responsible for the reconfiguration of the company's services.

Table 4.8 Descriptive statistics for functioning efficiency (N = 150)

| Item statements | Mean | Standard deviation |
|--|------|--------------------|
| ZINARA realises efficiencies in communication with customers | 4.21 | .826 |
| ZINARA has been able to reduce the time it takes to serve motorists at toll gates. | 4.75 | .974 |
| ZINARA realises efficiencies in the services they offer at Toll gates | 4.51 | 1.122 |

Table 4.8 summarises shows descriptive statistics that were calculated from response obtained from the survey concerning trendiness. Respondents agreed to the statements ZINARA has been able to reduce the time it takes to serve motorists at toll gates with a mean value of 4.75, ZINARA realises efficiencies in the services they offer at Toll gates with an average of 4.51 and ZINARA realises efficiencies in communication with customers with a mean value of 4.21.

4.4 SCALE RELIABILITY

The reliability index of the variables was computed. The researcher used Cronbach's alpha to check if the scales were reliable and results are shown in the table. This the

most widely used approach to assess the reliability of scales (Kline, 2011). According to Table 4.9, all the scales used to measure the research variables were reliable.

Table 4.9 Reliability indices

| Variable | Cronbach's alpha value (α) |
|------------------------|-------------------------------------|
| Sensing | 0.88 |
| Learning | 0.78 |
| Reconfiguration | 0.80 |
| Functioning efficiency | 0.78 |

4.5 CONFIRMATORY FACTOR ANALYSIS

It was important to check if the scales used before were going to confirm what previous studies had done, as such the researcher decided to run a confirmatory factor analysis (CFA) for several reasons. This is because the measurement scales used in many instances and similar situations. The CFA was run using SPSS version 24.

4.5.1 Assessing the suitability of the data for factor analysis

The research checked if the data were suitable to run confirmatory factor analysis. The rule that was employed entailed what was suggested by Field (2007) who noted that at least each variable should have 10 to 15 respondents. Because the study was done using 5 variables a decision was made to have a sample of 150 participants - which was well above the suggested rule. Since the data met the requirements of the rule a CFA was then run accordingly. The researcher for sampling adequacy through the Kaiser-Meyer-Olkin (KMO) which prescribes that value has to be above .6 and the Bartlett's test of sphericity has to be significant at $p < .05$. The results are shown in Table 4.10.

Table 4.10 shows the KMO values for the research variables.

| Variable | KMO value |
|------------------------|-----------|
| Sensing | .918 |
| Learning | .904 |
| Reconfiguration | .912 |
| Functioning efficiency | .760 |

Accordingly all KMO values exceeded the minimum recommended value of at least .6 and the Bartlett's test of sphericity was also significant because the p-value was less than .5 as a result could be good for CFA which was the run after.

4.5.2 Factor extraction

This portion of the research looks at the factors that were extracted after running a CFA.

Table 4.11 Factors extracted from CFA

| | 1 | 2 | 3 | 4 |
|--|------|------|------|---|
| SEN1 ZINARA looks for new opportunities in the operating environment | .655 | | | |
| SEN2 ZINARA always searches for new practices of doing business | .637 | | | |
| SEN3 ZINARA conceptualises new ways of doing business | .781 | | | |
| LEA1 Knowledge is widely shared in ZINARA | | .734 | | |
| LEA2 ZINARA rewards those employees who take risk. | | .643 | | |
| LEA3 ZINARA helps customers anticipate developments in the business. | | .665 | | |
| REC1 ZINARA staff introduce perceptible changes that lie outside the existing features of existing products/services | | | .640 | |

| | | | | |
|--|--|--|------|------|
| REC2 ZINARA staff reconfigure the networks of relations and communication relationships both within and outside the firm | | | .771 | |
| REC3 ZINARA staff transfer knowledge to the whole organization | | | .714 | |
| REC4 ZINARA staff are able to replace out-dated knowledge | | | .677 | |
| FEF1 ZINARA realises efficiencies in communication with customers | | | | .692 |
| FEF2 ZINARA has been able to reduce the time it takes to serve motorists at toll gates. | | | | .583 |
| FEF3 ZINARA realises efficiencies at the services it offer at its Toll gates | | | | .709 |

The CFA was run and the original factors were extracted since their items loaded on the relevant factor. This was obtained from the pattern matrix which contained the loaded factors. The names of the variables are: 1 = sensing; 2 = learning; 3 = reconfiguration and 4 = functional efficiency.

4.6 ESTIMATING THE PROPOSED MODEL

The research model was tested to check whether it was fitting well with the data that were collected for this study. In order to authenticate if data were fitting – a number of fit indices were then used. The following fit indices were used: Root Mean Square Error of Approximation (RMSEA) which is considered acceptable when it is less than 0,07, Normed Fit Index (NFI), Tucker-Lewis index (TLI) and Comparative Fit Index (CFI) which should have values of at least .9 or close to 9. The values of these indices should exceed a given threshold (Hair et al., 2010).

The structural equation modelling was run for the model and the results showed that the model was fitting to the data. The outcome of the test indicated that $\chi^2/d.f=$ 2.56; $p = .000$; NFI = 892; IFI = .913; TLI = .922; CFI = .910 and RMSEA = 0.060. After assessing the results it was it was noted that the indices were good and acceptable, therefore the correlation between the variables were then examined and the results are shown is in Figure 4.1 Output of structural equation modelling

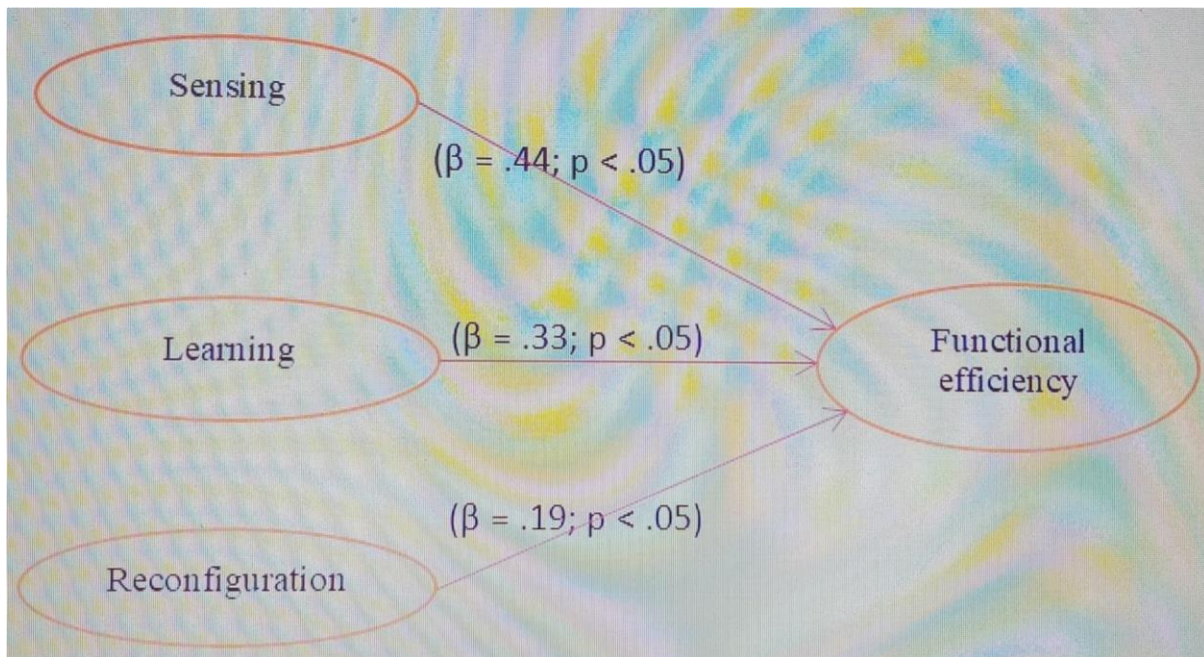


Figure 4.1 Hypotheses test results

H1: Sensing has a positive relationship with functional efficiency

The SEM results of the study have shown that there is a significant positive relationship between sensing and functional efficiency ($\beta = 0.44; p < .05$). The results agree to previous studies that confirmed a significant positive relationship between the two variables (Jantunena, Tarkiainen, Charib & Oghazic, xxxx)

H2: Learning has a positive relationship with functional efficiency.

The SEM results of the study have shown that there is a significant positive relationship between learning and functional efficiency ($\beta = 0.33; p < .05$). As found in this study, the results are in agreed to what the results by Lin, McDonough III, Lin, and Lin (2013) who in their studies also established that learning has a positive effect on functional efficiency.

H3: Reconfiguration has a positive relationship with functional efficiency

The SEM results of the study have shown that there is a significant positive relationship between reconfiguration and function efficiency ($\beta = 0.19; p < .05$). The results agreed to what others found in their studies (Gregory, Ngo & Karavdic, 2017) – where they also found that reconfiguration had a significant impact on functional efficiency.

Table 4.12 Summary of hypotheses testing results

| Hypothesis | Results |
|---|-----------|
| H1: Sensing has a positive relationship with functional efficiency | Supported |
| H2: Learning has a positive relationship with functional efficiency | Supported |
| H3: Reconfiguration has a positive relationship with functional efficiency. | Supported |

4.7 CHAPTER SUMMARY

This chapter presented and interpreted the results of the study. Initially, the results of the descriptive statistics for each variable were presented. After that confirmatory factor analysis was run and presented and finally the results of the structural equation modelling were used as the basis of testing the research hypotheses – hypotheses test results were also discussed in this chapter. The next chapter looks at the summary of results, conclusions and recommendations.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter discusses a summary of the research findings that were found from this study. The chapter is developed in the following way. First, the chapter begins by summarising the results. After that a conversation on the research results is offered, together with an attempt to link the research results to existing literature. Thereafter, the chapter deliberates the results of the research hypotheses. A summary of the significance of the study is also offered and the implications that the study has for telecommunication managers. Finally, future areas of study are suggested.

5.2 SUMMARY OF THE STUDY

This section gives a summary of the findings of this study

5.2.1 Descriptive statistics

The results of the descriptive statistics show that respondents agreed to the fact that sensing, learning, and reconfiguration had value as they had a significant effect on functional efficiency. The findings as illustrated in the previous chapter showed that respondents agreed that sensing, learning, and reconfiguration had an effect on the functional efficiency with mean values ranging from 4.20 to 4.80.

5.2.2 Hypothesis 1

The hypothesis that sensing has a positive relationship with functional efficiency was tested using the collected data, and consequently the hypothesis was supported. The results of the hypothesis testing and the resultant mathematical relationship showed a significant positive relationship between sensing and functional efficiency.

5.2.3 Hypothesis 2

The hypothesis that learning has a positive relationship with functional efficiency was tested using the data that were collected. The results of hypothesis test confirmed indeed that there was significant relationship between learning and functional efficiency.

5.2.4 Hypothesis 3

The hypothesis that reconfiguration has a positive relationship with functional efficiency was tested using the collected data. The findings of this hypothesis showed that there exists a significant positive relationship between reconfiguration and functional efficiency. This shows that respondents agreed that reconfiguration has a significant impact on functional efficiency.

5.3 CONCLUSIONS

On the basis of the results that this study found the following conclusions were reached. Sensing is important to both road users and organizational employees as both users benefit from the role it plays in functional efficiency. First, sensing is important to the two groups because when employees sense the changing environment they work in they will be able to offer services that are fitting to their clients. Road users are not passive recipient of ZINARA services but they also make significant contribution to functional efficiency through toll fees they pay.

Sensing offers an unusual opportunity for ZINARA to improve their services – If ZINARA continues to scan the operational environment it may be able to benchmark their services and have a continuous improvement on their services. The fact that ZINARA is the sole organization that offers such services it has to take a proactive action to make sure that their services are comparable to international standards. In fact, the probability of enhancing functional efficiency is very high as demonstrated by the significant positive correlation between sensing and functional efficiency.

Learning is also an issue that plays, in this study learning has provided a good platform where employees can share and distribute knowledge to different stakeholders of ZINARA. It can therefore be concluded if learning is promoted then functional efficiency can be improved greatly.

Functional efficiency is the outcome of the above discussed variables and can only be attained if ZINARA meshes these variables properly.

5.4 RECOMMENDATIONS

The major recommendations for this study are:

5.4.1 It is important that ZINARA managers must exploit the role that sensing, learning and reconfiguration has on the organization's functional efficiency. It is therefore important that the organization creates a conducive environment for employees to take a proactive approach to sense, learn, and reconfigure so that the organization can meet its goals.

5.4.2 Because sensing has managed to enhance organizational functional efficiency, it is important to ensure that ZINARA must work on improving how employees may scan the environment in order to make sure that it adapts to the context under which they do business. If the company can sense the environment properly, it can get relevant information from road users which could then be employed to offer good services to customers. If sensing is used properly by both the organization's employees and stakeholders it is then anticipated that functional efficiency is improved.

5.4.3 Because of the role that learning plays in the formation of an organization's functional efficiency – it is encouraged that ZINARA should offer adequate learning facilities to its employees and customers and that learning should be centered on recent and current practices. Learning has to be centered on the services, processes and systems that can help ZINARA to perfect its services. More importantly learning should provide information that should be shared and supplied to all employees in a user friendly format. Once this is done – ZINARA may continue to offer value to customers and continuously improve the functional efficiency of the organization.

5.4.4 It is recommended that the telecommunication industry offers more opportunities for the organization to reconfigure the organization since this has a significant effect on functional efficiency. ZINARA must keep on reconfiguring itself through efficient communication, and efficient service offering for this has been authenticated to be able produce the functional efficiency of the organization.

5.5 Recommendations for future research

This study is important since it has realized that sensing, learning, and reconfiguration enhance organization's functional efficiency. It is suggested that further studies can be done as a way of seeing if these results will duplicate or not.

5.6 Chapter summary

This study set out to investigate the effect of social media characteristics on customer value. This chapter has discussed the result of that aim. Thus discussion was centred on summary of the results, the conclusions and the recommendations of this study.

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APPENDIX 1: QUESTIONNAIRE TO RESPONDENTS

I am seeking your personal opinion on you view the statements given in the context of ZINARA. Rate the extent to which you agree to the following statement with regard to social media use on a scale: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

| Variable | Code | Item statements | 1 | 2 | 3 | 4 | 5 |
|-----------------|----------|---|---|---|---|---|---|
| Sensing | SE N1 | ZINARA looks for new opportunities in the operating environment | | | | | |
| | SE N2 | ZINARA always searches for new practices of doing business | | | | | |
| | SE N3 | ZINARA conceptualises new ways of doing business | | | | | |
| Learning | LEA 1 | Knowledge is widely shared in ZINARA | | | | | |
| | LEA 2 | ZINARA rewards those employees who take risk. | | | | | |
| | LEA 3 | ZINARA helps customers anticipate developments in the business. | | | | | |
| Reconfiguration | REC 1 | ZINARA staff introduce perceptible changes that lie outside the existing features of existing products/services | | | | | |
| | RE C2 | ZINARA staff reconfigure the networks of relations and communication relationships both within and outside the firm | | | | | |
| | RE C3 | ZINARA staff transfer knowledge to the whole organization | | | | | |

