

**EFFECTS OF ORGANIZATIONAL LEARNING ON BUSINESS
PERFORMANCE: A CASE STUDY OF GEOMATIC ENGINEERING FIRMS
IN SEYCHELLES**


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REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER IN
BUSINESS ADMINISTRATION OF KENYA METHODIST UNIVERSITY**

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DECLARATION

This thesis is my original work and has not been presented for a degree or any other award in any other university.

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DEDICATION

This thesis is dedicated to my family members who have been a great source of inspiration and support. It is through their love and encouragement that I was able to complete this thesis.

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First, I would like to thank the almighty God who has given me peace of mind and good health during the period of coming up with this thesis.

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ABSTRACT

From a strategic standpoint, knowledge is an essential resource in the firm; thus, via continual learning, the corporation should prioritise producing, instituting, and integrating knowledge as the most significant organizational capability. As a result, the purpose of this research was to investigate the effects of organisational learning on business performance in Seychelles geomatic engineering businesses. The study sought to determine the impact of information acquisition, knowledge invention, communication efficacy, and organizational memory on company success. The research employed a descriptive study design. The research included 60 managers from Seychelles geomatic engineering businesses. To ensure that all managers were included in the sample, census sampling was used. The chosen participants gave data for the research by completing questionnaires that were presented to them in person by the researcher. Since the data was solely quantitative, it was examined using both inferential and descriptive statistics. The study's findings were provided in both tabular and narrative formats. Knowledge acquisition revealed a significant effect on business performance. Knowledge innovation revealed a significant effect on business performance. Communication effectiveness revealed a significant effect on business performance. Organizational memory revealed a significant effect on business performance. The study concluded that knowledge acquisition, knowledge innovation, communication effectiveness, and organization memory significantly affect the business performance of geomatic engineering firms in Seychelles. The research advised companies to invest in organizational knowledge acquisition by hiring talented staff, improving infrastructure like information management to aid in the enhancement of organizational memory, and inspiring innovativeness in developing innovative approaches of tackling problems, novel products, and services within the organisation. Lastly, the research suggested that suitable organizational communication channels be established to aid in enhancing communication efficacy in businesses, which would eventually result in enhanced company performance.

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LIST OF ACRONYMS AND ABBREVIATIONS

ANOVA	Analysis of Variance.
GEF	Geomatic Engineering Firms.
KM	Knowledge Management.
MIS	Management Information Systems.
OL	Organizational Learning.
OP	Organizational Performance.
RBV	Resource-Based View.
SECI	Socialization, Externalization, Internalization, and Combination.
SMEs	Small and Medium Enterprises.
VRIN	Valuable, Rare, Inimitable, and Non-substitutable.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Organizational learning is the process whereby organizations acquire or create knowledge and transfer the knowledge within the organization to improve themselves. Organizational learning is critical to every institution's prosperity. It is also important to note that companies that want to thrive in business must be prepared to practice and apply learning. The conclusion is that in the current globalised era, learning is a must instead of a preference for every business (Montes et al., 2015).

In support of this, Spicer and Sadler-Smith (2016) also assert that, for an effective organization, one of the most important capabilities is organizational learning. They also went further to indicate that Organizational learning is unquestionably an important element of company rejuvenation initiatives that must not be overlooked by a company. Companies, in response, must be able to stay out with the rate of constant developments in the ecosystem in order to guarantee that they exist for a considerable time, meet the intense competition in the market, and considerably improve their level of performance (Montes et al., 2015).

The notion of the learning organization is still being researched, as is the advancement of its measuring technique. As per Egan et al. (2017), the link between corporate learning culture and results has expanded rapidly in current times. This is mostly owing to the various research being conducted to better comprehend organizational ideas, and also the acceptance of corporate principles of learning. Notwithstanding scholars' and academics' attempt to describe linkages in organizational learning, and also the

theoretical perspectives connected with it, the connection between organisational learning culture as well as its results, and also employee learning, is still to be thoroughly examined. The research on this field especially in the public services sector leaves much to be desired. Furthermore In the public service, the link between occupational learning, career satisfaction, and organisational dedication is still to be investigated (Rowden & Conine, 2005).

Developments in organisations throughout the world have sparked an enthusiasm in identifying and assessing any need for organisational performance improvements using a variety of techniques. As a result, the majority of businesses throughout the world have yet to traverse the global competition of the market. This is true for both commercial businesses and public agencies. The competitiveness structure in any business, nevertheless, is concentrated on sustaining a high degree of quality of service, risk mitigation, and transparency. Organisations must fully utilize their capabilities (Girish, 2019). Organizational learning has gained a lot of interest in recently, and subsequent research show that this focus will continue to expand in the future (Rowden & Conine, 2005).

Some studies from a global perspective focused on the use of data and information while others sought to determine the role played by organizational learning in the business performance of any firm. The bulk of these research suggest that there is a positive link between the two factors. In a heavy engineering company, Jain and Moreno (2015) attempted to determine the influence of organizational learning on business performance and knowledge management methods. The research revealed that organisational learning variables affected the company's performance favorably.

Several studies have also shown a link between organisational learning transferring cultures and creativity. Tajeddini (2016) investigated the impact of innovations on the efficiency of Iranian public organizations. According to the findings of the study, characteristics including such organizational learning and creativity have a favorable impact on public performance of the organization. As per the research, an organisation may improve its cost effectiveness, timeliness, and solid performance by increasing its organizational innovation and learning focus.

Steinmo and Hansen (2016) performed a study to determine if research institutions can interact with other companies, particularly engineering-based companies, to enhance innovation creation. The research found that engineering businesses rely on interpersonal and economic closeness to public research institutions. The research found that partnerships with other businesses might help engineering-based firms gain both cognition and organisational development.

Studies on how organizational learning affects business performance have also been conducted even in the continent of Africa. This implies that researchers have not been focused only on determining the influence of organizational learning in developed areas such as Asia, the Middle East, the USA, and Europe. The majority of these studies have indicated that there exists a positive correlation between organizational learning and business performance. The studies found that most firms in Africa are now focusing on obtaining and retaining their knowledge in specific cases through legal measures to protect their knowledge in a certain area such as innovations (Kenton, 2020; Girish, 2019).

In Southern Africa, Urban and Gaffurini (2017) investigated organizational learning skills as predictors of social innovation. According to the findings of the study, different aspects of organisational learning capacities represent a considerable degree of variance in the degrees of societal innovations.

Dewah (2014), conducted a study to determine how knowledge loss could affect public broadcasting corporations' performance in Botswana, South Africa, and Zimbabwe. The study found that even though these corporations have lost valuable information to their competitors, they have no measures in place to recover the lost information. The study recommended the establishment of a knowledge officer's post to oversee the management of the broadcasting corporations' knowledge. However, issues such as knowledge loss require in-depth analysis since an organization is likely to lose its competitive edge following a loss of knowledgeable employees. Such studies have shown that a knowledge-based economy is characterized by firms trying to outdo each other in terms of knowledge and therefore organizational learning is very crucial for a company to succeed. OL ensures that knowledge in the organization is shared among employees and thereby improving the overall knowledge level of the firm.

Several studies have been conducted on this field of organizational learning with researchers limiting their study area to East Africa. For example, research carried out to assess efforts of organizational learning by Abenga (2018) indicates that there have been tremendous efforts to understand the underlying concept behind organizational learning and organizational performance in Kenya.

Ndinya (2010) examined East Africa Cables' organizational learning method in Kenya. According to the findings of the research, the firm has implemented critical

components of organizational learning like preserving essential information, transmitting relevant data through one era to the next, and archiving all contracts in a dedicated database for future.

Nevertheless, research that attempted to understand the link between organisational performance and organizational learning did not concentrate on Seychelles geomatic engineering businesses. As a result, it is evident that there is a study vacuum in identifying the link between organizational learning and performance in Seychelles geomatic engineering companies. This study aimed at filling these gaps identified in the literature to aid the research on organizational learning and organizational performance with a specific focus on Geomatic engineering firms in Seychelles.

Through organizational learning, knowledge is created, retained, and transferred within an organization (Chang & Lee, 2017). Curado (2006) defined organizational learning as the process through which members of the organization, employees, for example, participate in the process of interacting as well as share knowledge and experiences with one another thus improving the level of knowledge in the organization.

Through organizational learning, new and innovative ideas are developed. Organizational learning conducted by learning organizations helps the organization to increase its staffs' skills, knowledge, and work experience. Without a doubt, these learning organizations ensure that knowledge is retained and transferred within the employees during the learning process (Hodgkinson, 2020).

Wang and Ahmed (2003), argue that to understand the learning processes in an organization, it is of essence to understand the individual learning processes. The complex nature of the organization makes the learning process more complex than that

of an individual. Organizational learning, as per Wang and Omar (2003), “is indeed not merely a grouping of individual learning procedures, and yet also involves interplay among both individuals within the institution, interplay among institutions as an institution, and interplay between the institution and its scope.” Contemporary studies consider organizational learning as more heterogenous and richer as opposed to early studies that tend to put organizational learning as a simple process (Taylor et. al., 2010).

Even though there exists a consensus that Organizational Learning is a product of an organization’s adaptation to various external pressure caused by the competitive environment that they are existing in, the Organizational Learning concept is still not properly defined and the related theories are not explicit and are in disorder (Cheng et. al., 2014).

Due to the lack of practical approaches, researchers tend to attribute practical approaches to aspects of Organizational learning theories (Wu et al., 2010). They further argue that approaches to organization learning implementation are achieved through the relating of the practice and theory in the studies. Various organizational learning concepts have been advocated such as people mentoring, processes evaluations, and technology. However, many studies attributing practical approaches to organizational learning theory mainly pin-point on selected concepts. The practice involved in the process of organizational learning includes teamwork, supportive leadership, and the organization’s ability to become flexible.

1.1.1 Knowledge Acquisition

Knowledge acquisition involves extracting, storing, and using the knowledge obtained in software from a source e.g. a human expert. It is used to ensure that new knowledge has been identified, acquired, and stored (Girish, 2019). It also can be defined as the process used to define the rules required for a knowledge-based system. There are three components of knowledge acquisition that every organization should explore before any action on the knowledge is taken.

First, one must evaluate if the information is relevant to the specific interest of the organization. Secondly, one must determine if the source identification number is valid and whether the level of expertise of the source matches the requirements of the organization. Lastly, specific knowledge acquisition techniques and participants should be identified. In past years, knowledge acquisition was used together with expert systems to obtain expert knowledge but recent years have witnessed knowledge acquisition to be the most crucial component of generating information. The ability of an organization to perform well in an economy depends on its ability to acquire knowledge fast enough. After acquiring this knowledge, the firms should have the capability to use this knowledge to better themselves and in turn improve their performance levels (Girish, 2019).

1.1.2 Knowledge Innovation

In a world that is characterized by a dynamic world of business, innovation has become very crucial in any organization willing and ready to dominate the knowledge-based economy. According to Leiber et al. (2015), innovation can be defined as change and renewal. However, in the current business world, it implies the development of new

corporate services. Knowledge innovation is defined as the process to use both development activities and research information from experiments to promote knowledge required by both system and technical innovation.

According to Plessis (2007), the world economy is rapidly growing and is being influenced by the rapid change in the innovation world in that more and more innovations are being made daily. This speed in innovation being experienced in recent years is attributed to the dynamic technology, the high demand for the development of new products, and many products having very short lifecycles. Organizational knowledge is very key in promoting innovations within the organization. As such, the knowledge available at a firms' disposal dictates to what extent the product innovated will be complex. Therefore, to ensure that the organization has successful and adequate innovations, then management of the complexity that occurs due to reach and richness of knowledge should be managed. Furthermore, a company that has a workforce with creative ideas that eventually lead to innovations, gains a competitive advantage over the other firms in the market. By doing so, it can attract a larger market to its products, especially in a technology company. The business performance of any organization or firm is dictated by the knowledge innovation level of the organization and the ability of the firm to innovate.

1.1.2 Communication Effectiveness

Communication is a crucial part of the success of an organization. Communication can be defined as the art in which messages are sent and received in a given setting. On the other hand, effective communication entails more than sending and receiving messages. Effective communication in an organization can be defined as the process in

which accurate information is sent and feedback received with the message sent having not been changed in any way (Leiber et al., 2015).

Many are times that the sender of a message may decide to change the message instead of delivering the exact message, this happens especially when the message is sent orally. In an organizational setup, the slightest change in information could cause a whole series of catastrophic predicaments. For instance, in accounting, the accountant may receive information that a product was sold at the price of 1000 instead of 10000. This would not reflect well when dealing with accounting and auditing of the firm's finances. Therefore, there is a need to enhance effective communication in a firm to ensure that business performance is improved. Knowledge sharing is an effective tool to ensure that a company gains a competitive advantage over others. But knowledge sharing through organizational learning is more likely to be improved by ensuring there is effective communication. Effective communication in any organization ensures harmonious co-existence and saves time and money (Cheng et al., 2014).

1.1.4 Organizational Memory

In a business set-up, traditional memory i.e. an individual's ability to acquire, retrieve, and retain knowledge is extended to accommodate everyone in the organization and hence a business set-up uses the concept of organizational memory. Organizational memory is also referred to as institutional or corporate memory. It is defined as the amount of knowledge acquired, body data accumulated as well as information in the whole of the organization's existence. It is comprised of key elements such as knowledge acquisition, knowledge maintenance, knowledge retrieval (Walsh & Ungson, 2019).

Walsh and Ungson (2019) added that knowledge acquisition entails accumulating information from past decisions. This information should be stored in different storage facilities instead of being stored centrally. Knowledge maintenance entails retaining information by using five different repositories i.e. individuals in the organization, the language framework in the organization, the systems, and procedures used in the organization, the links that exist between one individual to the other and the surrounding environment, and the surroundings of the organization where information and knowledge is stored. These repositories can be summarized as individuals, culture, transformation, structures, and environmental activities respectively.

The last component of organizational memory is knowledge retrieval which can be controlled or carried out automatically. In a controlled set-up of knowledge retrieval, stored data is accessed deliberately while an automatic means of knowledge retrieval entails the effortless process to access organizational memory through taking several actions. However, several models explain organizational memory. However, all these models come down to a specific basis of the type of knowledge available and the complexity of the storage facilities. The organizational memory of a firm will dictate how the business performs in the economy (Walsh & Ungson, 2019).

The actualization of organizational memory with the performance of the organization is still a topic under study. Rusaw (2005), proved that the effect of high rate of turnover of knowledgeable individuals in an organization has a direct negative influence on the organizations' performance. Various benefits of improved organization memory are faster access to past solutions or mistakes which guides decision making thus reducing the amount of time taken to carry out tasks, enhanced learning capabilities, and

analysis of existing data to improve on processes and products. Organizational memory is also a fundamental factor in an organization's re-engineering.

1.1.5 Business Performance

According to Azemina (2018), organizational performance symbolizes the success of a company. Organizational performance entails the organization's actual results and is measured against the goals and objectives of the organization. It encompasses two areas of firm outcomes. Organizations measure their performance to improve on it. Performance can be measured at the individual level, team level, or organization level. According to Koopmans et al. (2011), individual performance can be measured based on tasks performed, adaptive performance, contextual performance, and counterproductive work behavior. Various dimensions describe team performance; DeChurch and Mesmer-Magnus (2010) posit that completion of a task is the perfect measure of team performance while Kendall and Salas (2004) attribute team's performance to various factors such as leadership, orientation, adaptability, and behavior which they summed up as input-process-output.

Other important measures of business performance are increased sales, managerial efficiency, and profit margins. Park et al. (2018) noted that among the ways through which businesses can enhance their performance is through the creation of new knowledge and sharing it with other employees to achieve competitive advantage and business sustenance in customer service or creating more attractive and custom made products which in turn leads to higher sales.

Geospatial engineering firms are considered to be dependent on technology innovation to solve new world challenges in landmass surveying. Investment in knowledge

management on the acquisition, knowledge innovation, and effective communication is more likely to enhance business performance by effectively cutting on costs, managerial efficiency, and realizing higher revenues (Gatuyu & Kinyua, 2020; Guo et al., 2019).

1.1.6 Organizational Learning and Business Performance

Change is inevitable, as such organizations strive to find ways in which they will adapt to change. Organizational learning offers organizations this rare opportunity to adapt to the changing times by the process of learning. According to Sajjad (2007), for organizations to improve their capabilities to gain a competitive advantage over others in the market, then the organization should seek to implement effective organizational learning.

Lopez et al. (2015) indicated that the financial performance and the competitiveness of an organization are directly influenced by the process of organizational learning.

Findings of empirical research have repeatedly revealed that organizational learning has a positive influence on the performance of organizations. A study by Argote and Epple (1990) on organizational learning conducted across various industry settings deduced that as organizations learn through experiments, they accumulate experiences that result in overall performance improvement. They further argued that learning by experience allows organizations to disseminate knowledge and acquire skills based on firsthand experiences and on-job training of the employees. Other researches have shown that when employees are trained on the job, their level of job satisfaction improves. With an improved rate of job satisfaction, the resultant is enhanced performance. Some contemporary studies have been done to analyze the relationship

between organizational learning and organizational performance. The majority of these studies revealed that the effect of organizational learning on its performance is dependent on what the organization views as a measure of performance (Shaju & Durai, 2017).

Most organizations consider finance as a measure of business performance (Lei et al., 1999). The financial performance of an organization simply implies its growth in both sales and its profits as well as the growth of its sales margin. According to Bontis et al. (2002), even though financial outcomes are important, other performance indicators do exist and these may include but are not limited to skills, processes, innovativeness and value change, and employee satisfaction. Definitions of organization performance have seen myriad proposals in a majority of literature with major inference on how an organization is capable of effectively using its resources to generate income and improve on its processes (Barney, 2007).

Evidence is found in most literature pointing that organizations are likely to benefit more if they can effectively use the knowledge gained from external sources to improve on their internal environment. This is premised on the fact that organizations may not have control of external factors or knowledge but they have control of their internal knowledge. Improvement of an organization's internal knowledge through innovations and learning attributes to about 60 percent of the organization's competitive advantage (Carvenale, 1992).

Researchers such as Calantone et al. (2002), have populated the theory that learning results in the creation of new knowledge which propels the organization to quickly respond to various fluid changes in the external environment affecting the organization.

According to a study by Farrel (1999), the researcher found out that organizational learning results in positive performance in organizations. In the empirical study on organizational learning, the researcher concluded that organizational learning yields positive effects on performance, commitment, and teamwork. Suffice to conclude that when if an organization exists in an environment where learning is given more attention and is encouraged, employees will be more motivated to meet their targets, improve on knowledge sharing, learn, improve on their skill which is considered as parameters for measurement and escalation of performance.

Although many studies posit that organizational performance is linked to organizational learning, little or no evidence to support this analogy is found in the Geomatic engineering industry. The author believes that no study has been carried out to validate this phenomenon in Geomatic engineering firms in Seychelles.

1.1.7 Geomatics Engineering

Geomatics Engineering is a rapidly developing engineering discipline that focuses on spatial information, that is, information that has a location and position. The location is the primary factor used to integrate a very wide range of data for spatial analysis and visualization. Geomatics engineers apply engineering principles to spatial information and implement relational data structures involving measurement sciences. They manage local, regional, national and global spatial data infrastructures. It also involves aspects of Computer Engineering, Software Engineering, and Civil Engineering (Bhatt, 2020).

Seychelles, a small African country is currently faced with a sharp increase in infrastructural developments thus an increase in the number of Geomatic engineering

entrepreneurs who are majorly in construction and civil works. Running these businesses requires one to constantly scan the environment and continuously learn from the dynamic field of Geomatics to stay competitive and improve on performance.

1.2 Statement Of the Problem

Organisations all around the world have realized the value of organisational learning. Organisational learning has received a large lot of attention in the twenty-first 100 years, to the point that it has virtually grown dominant among many other theories that impact management research papers. And over ages, the scientific community has maintained there is a link between generalized learning and favorable work. Nevertheless, there is little data to back up this notion. The research conducted to evaluate the influence of organizational learning on organisations has struggled to offer sufficient proof to justify this viewpoint. Empirical data demonstrating a link between organisational learning and operational outputs is becoming increasingly difficult to arrive at.

Researchers have attempted to establish a link between performance-based results and learning practices. Many argue that learning in an organisation has a favorable impact on the group's level of performance. Others have stated that employees who are regarded to do well at work are primarily active in learning-related activities. As a result, this suggests that there is a beneficial link between performance-based results and instructional experiences. Other research has found that organizational learning has a beneficial impact on both the company's non-financial and financial performance.

Despite these significant advances in the domain of organizational learning, no research has been performed on the implications of organisational learning and

organisational performance on geomatic engineering businesses. The research that have been conducted have not attempted to determine the link between these characteristics and organizational success. Since a conclusion, it is obvious that there is a study gap that needed to be filled, as the association between the variables and organizational performance in geomatic businesses has garnered little attention. The purpose of this research is to find out what the impacts of organisational learning are on organisational performance in geomatic engineering firms in Seychelles?

1.3 General Objective Of The Study

The main objective of this study was to establish the effect of organizational learning on business performance in geomatic engineering firms in Seychelles.

1.4 Specific Objectives

- i. To establish the effect of knowledge acquisition on business performance in geomatic engineering firms in Seychelles.
- ii. To establish the effect of communication effectiveness on business performance in geomatic engineering firms in Seychelles.
- iii. To assess the effect of knowledge innovation on business performance in geomatic engineering firms in Seychelles.
- iv. To establish the effect of organizational memory on business performance in geomatic engineering firms in Seychelles.

1.5 Research Hypothesis

HO1: Acquiring knowledge has no significant effect on business performance in geomatic engineering firms in Seychelles.

HO2: Effective communication has no significant effect on business performance in geomatic engineering firms in Seychelles.

HO3: Knowledge innovation has no significant effect on business performance in geomatic engineering firms in Seychelles.

HO4: Knowledge dissemination has no significant effect on the business performance of geomatic engineering firms in Seychelles.

1.6 Significance of the Study

The study helps managers of the existing geomatic engineering firms to align their knowledge stocks effectively to maximize performance through acquisition of knowledge, innovation, improving communication, and enhancing organization memory.

This study provides an opportunity for practicing geomatic engineering entrepreneurs in Seychelles to understand the dynamics of organizational learning and organizational performance. In exploring this relationship, geomatic engineers willing to become entrepreneurs will also understand the dynamics surrounding the relationship thereby capitalizing on the information to guide their start-ups.

Managers of firms that are already in existence get the opportunity to maximize their performance by making sure that they utilize their knowledge stocks effectively. This study also provides a great contribution to the already existing literature on the relationship between Organizational learning and Business performance with biasness to the geomatic engineering perspective.

1.6 Limitations of the Study

Organizational learning and business performance being an emotive topic the targeted respondents were reluctant to give their opinion on the subject. The researcher, however, explained to the respondents that the study was only meant to collect their views for purpose of writing an academic Thesis. The researcher further presented a research permit from KEMU to build confidence among respondents which enhanced response among respondents.

Being a period where the world is grappling to come into terms with the COVID-19 pandemic some respondents had not yet returned to their place of work and were minimizing interactions with visitors. The researcher, however, observed all COVID-19 measures such as sanitizing hands, washing hands and wearing face masks as well as keeping the social distance at the respondents' place of work to build respondents' confidence in having our questionnaire responded to.

1.8 Assumptions of the Study

This study assumed that every organization practices a different kind of management from other firms. It also assumed that the employees follow the organizational culture of the firm they are currently working for and that the employees will not be influenced by the organizational culture of their previous employing firms.

1.9 Operational Definition Of Terms

- Business Performance:** the terms were used in the study to refer to how business evaluates measures on sales, managerial efficiency, and profit margins.
- Effective Communication:** the terms were used in the study to refer to a state achieved by an organization whereby the management can communicate with other employees and stakeholders within the organization.
- Knowledge Acquisition:** the term was used in the study to refer to the different ways through which organizations gather knowledge which includes outsourcing, benchmarking, and discovering imitation.
- Knowledge Innovation:** the terms were used in the study to refer to the process used both in the development of new processes and goods to promote knowledge required by both system and technical staff.
- Organizational Memory:** the terms were used in the study to refer to process in learning where an organization improves the capability of its staff to assimilate knowledge in the future through a continuous building of knowledge blocks, where a firm foundation of knowledge allows one to learn

more and build on this knowledge earlier acquired.

Organizational Learning:

the terms were used in the study to refer to learning established via important persons to link with later organisational developments.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on the literature review. The chapter is organized as follows; first, a theoretical framework where various theories guiding the study on organizational learning and business performance are presented. It is followed by an empirical review of previously done studies on organizational learning and business performance. The knowledge gap is also identified in this chapter. Finally, the conceptual and operational frameworks upon which the study is based.

2.2 Theoretical Review

According to Saunders et al. (2009), theories are required to guide the researcher in the specific field or explain and understand a concept in the field under study. A research study requires a theoretical framework to explain the reason behind the existence of the research problem being studied. Through a theoretical framework, some assumptions made by previous researchers are challenged while the authenticity and validity of others are checked.

The current study will be guided by four theories: intellectual capital theory, intellectual property theory, knowledge economy theory, and finally resource-based view theory (RBV). These theoretical concepts are very essential when valuing human resources and intangible assets of the organization in business. These theories are discussed below.

2.2.1 Intellectual Capital Theory

According to Andriessen (2004), the 20th and 21st century has witnessed rapid changes that have impacted economic growth and generation of wealth across the globe. But most important of all changes is the rate at which intangible assets have become very crucial in any firm or organization's success (Barrena-Martínez, et al., 2020).

In light of this, researchers have drawn conclusions that focusing more on intangible assets rather than tangible assets build a firm's competitive advantage over others. Furthermore, Daley et. al. (2017) indicated that firms that are more likely to succeed and survive in a harsh economy are those firms that have put more focus on intellectual capital, which is an intangible asset. This has sparked more research in this field which has resulted in different definitions of intellectual capital and intellectual capital theory.

The intellectual capital theory is a legal concept in which the theory that focuses on the value of organizational learning is found. In any organization, the intangible assets that include the knowledge and sales networks influence the competitive advantage of the organization in a significant way compared to the tangible assets of the organization. According to Roos and Von Krogh (1996), this idea is simply explained by comparing the market value and physical capital value of a service organization. They found out that the market value was larger than the value of the organization's physical capital. By definition, intellectual capital is an asset in its way. Intellectual capital is simply all informational resources that an organization has at its disposal to gain profits, customers, and improve the business (Chen, 2019).

The intellectual capital theory itself operates around assets including trademarks, patents, copyrights, and customer loyalty. From an organization's point of view, patents and copyrights help the organization to protect inventions, originality of either artistic or literary works while trademarks and customer loyalty help establish the organization's dominance in the market. Moreover, the intellectual capital theory also encompasses assets that establish the organization's inner abilities i.e. IT style and corporate culture as well as assets that ensure the organizations' day-to-day activities are met such as sales networks and the knowledge possessed by the employees. Since organizational learning is more often than not assumed to be a capital asset, then organizational learning should in simple terms entail balancing the portfolio of knowledge after which this portfolio of knowledge should be coordinated to give maximum returns on investment (Madhavaram & Hunt, 2017).

According to Daud and Yusoff (2017), the most crucial component that improves the competitive advantage of a firm in a knowledge-based economy is knowledge and intellectual capital. This knowledge-based economy is developed based on individuals transferring knowledge and intellectual capital from one individual to another where firms in this economy should have the capability to rapidly innovate new products to gain an upper hand in the market (Wickramasinghe & Sharma, 2015). Intellectual capital is based on organizational knowledge acquired through organizational learning. Organizational knowledge in turn influences the organization's capabilities (Ramezan, 2017).

Intellectual capital is among the most important resources of an organization. There are three key resources of an organization i.e. intellectual capital, physical capital, and

financial capital (Steenkamp & Kashyap, 2018). Human, organizational and social capital are some of the aspects of intellectual capital. Whereas organizational capital positively results in an increased ability of a firm to innovate, both human and social capital affect the firm's radical ability to innovate. Besides, studies that have been carried out to understand the influence of intellectual capital and entrepreneurship performance have concluded that there indeed exists a positive relationship (Chua & Richardson, 2020).

However, according to Marshall et al. (2016) if the organization does not provide good and conducive learning conditions then the organization faces dramatic risks where these risks are not accounted for. Therefore, the need to measure and manage organizational knowledge is attributed to needs arising from accounting as well as quality management.

Intellectual Capital theory is premised on the assumption that intellectual formation creates a means of economic capital, and that higher education is a means of preparing individuals for work, and primary education, not one's social background, influences graduate outcomes (Simon, 2017).

According to Simon (2017), the use of one theory and closed system modeling makes human capital theory not meet the test of practicality, this is majorly due to flaws in the method of modeling, lack of appropriate mathematical tools, and multivariate analysis of inter-reliant variables. It is assumed that capital theory uses a single linear pathway on the multifaceted passage among mixed education and work. The theory fails to

expound on how education supplements productivity, or why organizations pay different salaries (Simon, 2017).

Critiques of Intellectual Capital Theory argue that it is difficult for organizations to accurately report on their intellectual capital. Mouritsen and Roslender (2009) raised some concerns with the ethics of organizational reporting practices and states that there are still concerns with calculation, numbering, quantification, and measurement of intellectual Capital. The primary concern is on how to use numbers in the representation of intellectual capital and that how effectively can these numbers be used to represent knowledge. Mouritsen and Roslender (2009) posits that a problem still exists since “representation of knowledge has important political, ethical, social and organizational implications”

2.2.2 Intellectual Property Theory

According to Kenton (2020), there are several examples of a firms’ intangible or non-physical assets where one of them is intellectual property. Intellectual property describes the organization’s intangible assets where these assets are owned by the organization and are legally binding in that these assets cannot be used by any other organization without the prior consent of the organization that owns these assets. Unlike intellectual capital theory that emphasizes managing and accounting for knowledge, intellectual property theory focuses on the legal and ethical issues that surround intellectual capital (Sønderholm, 2010). The theory is based on the idea that products of intellectual capital should be protected in a similar way to the tangible assets that are protected. The 21st century has witnessed developed countries putting

measures in place to ensure that both intangible and tangible assets are protected in a similar manner (Kenton, 2020).

Many legal and ethical issues surround intellectual capital. Some of these legal and ethical issues include secrets involved in trade, proprietary rights including copyrights, and patents (Sønderholm, 2010). Most technological and software companies own at least one type of intellectual property since most of them are involved in innovations. This ensures that a company that owns, say a patent on its product, can design, re-design, and make improvements on their innovation but no other company can steal their technology (Kenton, 2020). One such intellectual property is the patent of a personal computer that was filed in 1980. This patent was filed by Steve Jobs and three others at Apple Inc. Therefore, the only difference comes in the way the company exploits its innovations to gain a competitive advantage especially in a knowledge-based economy (Bolisani & Scarso, 2012).

In a knowledge-based economy, knowledge has a very high value and therefore companies and organizations in recent years have engaged themselves in the art of identifying these assets and protecting them from use outside of the company. After these assets have been identified, the company is then tasked with the responsibility of ensuring that value has been extracted from these assets. The company is then supposed to ensure that no other company can extract value from these assets and in this case protecting the assets legally is the most crucial part (Kenton, 2020). The value obtained from these assets is the organizational knowledge that can be shared through organizational learning to make sure knowledge transfer within the organization takes place. As earlier seen, organizational knowledge gifts the organization a competitive

edge compared to others. According to Bolisani and Scarso, (2012), organizational learning including technical knowledge can be assigned a monetary value since organizational learning ensures that organizational knowledge is shared, and therefore in a knowledge-based economy, this organization is bound to be dominant and make more profits compared to the rest. The profit margin of the organization attributed to organizational knowledge can be viewed as the monetary value of the organization (Bolisani & Scarso, 2012). Besides, intellectual property as a whole can be viewed to represent an organization's competitive edge and therefore this organization should guard and protect the intellectual property to ensure that in the knowledge-based economy, this organization is the dominant one (Kenton, 2020).

Intellectual property theory is premised on the assumption that intellectual property rights are actual rights. Stallman (2001), a major critique of this theory, is against grouping copyrights, patents, and trademarks together and referring to them by use of a singular term and cautions against conceptualizing different laws into a collective term. He argues that "to avoid spreading unnecessary bias and confusion, it is best to adopt a firm policy not to speak or even think in terms of intellectual property".

2.2.3 Knowledge-Economy Theory

The knowledge economy theory is observed to be an extension to information economics where this theory has become a key theoretical concept in the organizational learning field and it has over the years developed significantly simply due to the mere concern to manage knowledge. Managing knowledge is the key basis upon which this theory has developed. It operates around the basis that the product life cycle of knowledge is a commercial market where professional knowledge is found. This idea is

applied to both the internal and external markets of the organization. Since professional knowledge is very valuable to any firm, then an organization is tasked with managing the knowledge economy. The knowledge economics theory dictates one should make important and informed management decisions that should be based on the rationale of knowledge economics.

The knowledge economy theory emphasizes organizations implementing professional support whose functions include environmental communication, reducing risk and complexity, coordinating, standardizing, and improving routine tasks that arise from the reduction in complexity. Professional or commercial knowledge is characterized based on four elements that include universal scientific knowledge, capacity to break down a complex task into simple tasks, judgment due to maximizing the use of experts, and finally, routine skills that are based on experience (Salavou, 2004).

This theory focuses on creating and distributing knowledge as good in the value chain of the organization. It further focuses on knowledge as a direct product in this chain that can be marketed externally- outside the organization. For instance, a technique used to manage the knowledge economy is by use of a knowledge management life cycle that happens to be generic. According to Hancock (2019), organizational learning comprises of four very important processes; structuring a knowledge class e.g. methodology, choosing a knowledge container such as a document, disseminating human and technical processes to ensure container of knowledge is available in its market, and lastly producing a commercial value for the customer.

The major impendence to effective adoption of this theory is the clear definition of the term Knowledge. According to Terry (2008), various definitions of knowledge are not

definitive or conclusive. This leads to the formalization and modeling of Knowledge Economy to be vague since it is only a relative concept. Terry (2008) posits that there is a lack of enough proof and consideration on how information society and knowledge society can be used interchangeably. He argues that information is not the same as knowledge and its use depends on the preference of the organization or individuals in the organization.

2.2.4 Resource-Based View Theory

The resource-based view theory was pioneered by Barney (1991) who laid the foundation on how the organization can exploit strategic resources in achieving better performance. The focus of strategic management has been on the performance of a business based on its utilization of inelastic resources to achieve competitive advantages. A company that is more resources endowed is said to have a more competitive advantage. Among the resources that organizations boast of including skilled human resources or intellectual capital, good information communication and technology as well as financial muscles that enable an organization to achieve self-sustenance throughout its business life cycle (Haseeb, et. al., 2019).

The theory noted that strategic resources are immobile resources that are heterogeneous and only applicable to a particular organization at a particular time which gives the organization a competitive advantage over the other institution. To acquire such capabilities or resources another institution would take a considerable amount of time to for example hire, retain or develop human resources to that extent and therefore an institution possessing such skills will therefore benefit for a considerable amount of

time before the competitors catch up in terms of owning such technology or skilled workforce (Singh et al., 2019).

For a high-achieving organization, clearly defined goals, philosophies, and articulate leadership is key in steering the organization towards achieving their goals and realizing their vision. Managers need to ask themselves how they can achieve better performance through achieving competitive advantage. One of the ways of doing that is through the acquisition of resources that are inelastic in supply, among the key resources being knowledge acquisition and management. Innovations, intellectual properties, and knowledge generation and acquisition have been commonly cited as unique sources of inelastic resources that help a business achieve competitive advantage and therefore better business performance (Taylor, 2017).

Without constant innovation in innovative services and goods lines, a firm's product quickly gets unchangeable and, as a result, readily seen as ultimate in the marketplace. Organisations are thus advised to provide a portion of their yearly budget to innovative product creation, skill acquisition through training, and establishing a study, development, and innovation division that produces new commercial ideas and develops innovative products that enhance performance through the achievement of competitive advantage (Singh et al., 2019).

Knowledge acquisition is associated with technological infrastructure, organizational infrastructure, and organizational culture. Besides the process of knowledge acquisition, knowledge memory, knowledge conversion, and knowledge use are all associated with the knowledge capability of any firm that results in better organization performance if taken advantage of (Taylor, 2017).

In the current knowledge age organizations have to acquire, remember and make business decisions based on the existing organization memory. Organizations must therefore not make mistakes now and then in the guise of re-inventing the wheel. An organization, therefore, makes the best of its decision based on the pool of acquired knowledge which is also documented to reference by the other employees at any particular time (Maury, 2018).

Organizations can acquire knowledge from a variety of sources that includes; previous research on existing products, carrying out benchmarking with the existing market leaders, creating a business alliance with market leaders as well as researching new knowledge in unique industries from their existing customers/distributors needs and priorities. Such acquired knowledge needs to be integrated with the existing knowledge to make more informed decisions. Knowledge as an asset in an organization possesses unique qualities that include; knowledge is scarce, it does also not get lost through transfer (Haseeb, et. al, 2019).

Organizational culture plays a critical role in determining the boundaries and scope in knowledge generation and sharing. An attractive organizational culture that promotes cooperation, the interaction of staff, and sharing of knowledge is key in ensuring the transfer of knowledge in organizations. However, a culture that limits interactions hurts knowledge sharing and generation. The organization needs to understand that better performance is achieved through fostering interdependent behaviors of cooperation, knowledge sharing, and reciprocating support that creates a conducive environment for the conversion of knowledge, knowledge sharing, and better application of knowledge in the organization's memory (Taylor, 2017).

Kraaijenbrink et. al. (2010) a critique of this theory asserts that the applicability of Resource-based view theory is too limited. They posit that this theory is not practical to small firms as they cannot sustain competitive advantage. The main contention is that competitive edge “can be founded on their constant capabilities, and so they stand outside the boundaries of the source of energy view” (Kraaijenbrink et. al, 2010). Likewise, sustaining a competitive edge is impossible. Presently, the environment that the firms operate on is dynamic whereby firms need to constantly innovate and adapt to changes to attain competitive advantage. As per RBV theory, to sustain a competitive edge, the resources in the organization should meet VRIN criteria; that is, invaluable, a rare, not imitated, and not easily substituted. Considering the current fluid environment, this is not achievable and competitive advantage can only be temporary.

Priem and Butler (2001), another critique of this theory argues that RBV lacks operational validity or significant managerial implications. The theory focuses on managers developing and attaining VRIN resources to achieve a suitable organization but does not explain how this can be achieved. Some critiques of this theory also argue that RBV is not a theory of the firm even though it tries to reach it. This proposition was put forward by Kogut and Zander (1992). They concluded that RBV is certainly pushing to be a theory of the firm, but it materially differs from the existing theories of the firm.

The resource heterogeneity from the Austrian economic subjectivists’ view (Foss, 1994), argues that in RBV theory, the effect of managers’ decisions based on their judgments due to their cognitive abilities is not fully recognized. It further posits that the sustained competitive advantage of a firm rests on employees and teams in the firm

but not in the resources within the firm or the market it serves. By this, it does not point to the fact that there are no resources that can be of value to the organizations. Resources such as specific human resource practices, quality management systems, and procedures that facilitate learning can be unique and valuable to a particular firm. In totality, the argument is that; to create sustained competitive advantage, an organization requires both bundles of resources and managerial capabilities to identify and fully exploit the productive opportunities within them. The major concern is whether such knowledge qualifies to be considered as a resource just as those in the bundle.

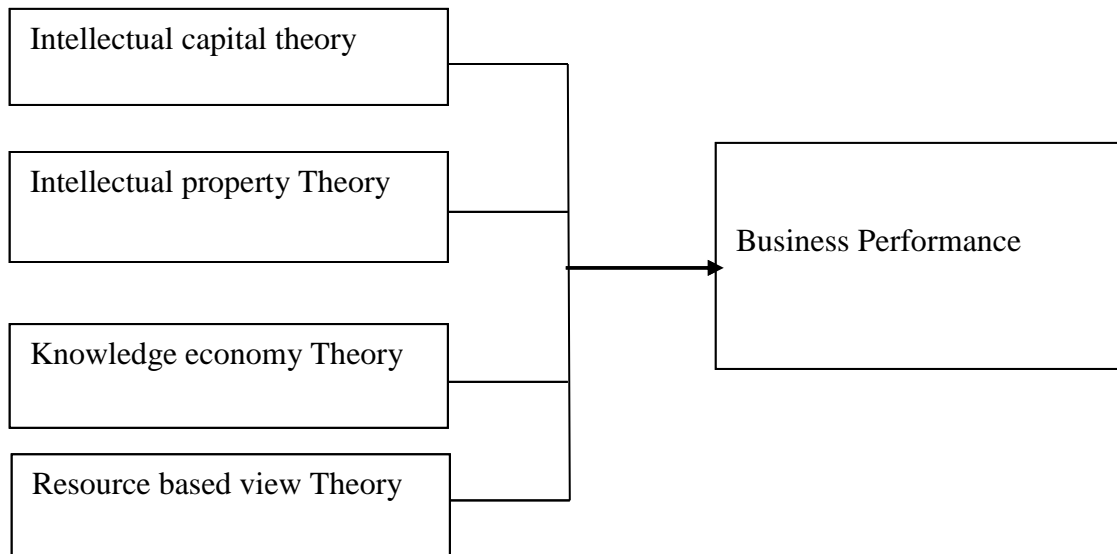


Figure 2.1: Theoretical Framework

Source: Research (2021)

2.3 Review of Empirical Studies

2.3.1 Knowledge Acquisition and Performance

There are different ways through which organizations use knowledge acquisition. Some of these methods include outsourcing, benchmarking, discovering imitation, etc. (Bhatt, 2020). In the business world, firms gain a competitive edge simply by generating new knowledge within the organization. In other words, the success of an organization in recent years is not based on its ability to process information but its ability to create and continuously discover new information (Malhotra, 2020).

Daud and Yusoff (2010) studied the influence of knowledge management on the financial performance of firms in Malaysian firms. The study used social capital as a moderating variable. The study used questionnaires to collect data from 151 usable questionnaires. Regression analysis was used in data analysis. The results of the study

revealed a positive relationship between knowledge management and social capital, the study also revealed that social capital influences the financial performance of the firms and finally confirmed that social capital has a moderating role on the influence of knowledge management and firm performance. The study recommended the use of strategies associated with acquiring and transfer of knowledge in the organization to foster social capital which intern influences firm performance.

The performance level of the firm is determined by how fast the firm can develop a competent staff that is knowledge-based. A firm's knowledge-based competence includes intellectual and knowledge capital. Knowledge within an organization is the key to its success as the organization's competitive edge is influenced by the level of knowledge in the organization (Nonaka, 2019). This implies that firms in the knowledge-based economy can improve their competitive edge simply by acquiring their knowledge and improving the speed at which their staff learns compared to their competitors.

However, the knowledge acquired should be relevant to the firm and its specialties. Therefore, a firm is supposed to acquire more and more knowledge assets relevant to its specific operations. Unlike the factors of production i.e. labor, land, and production that are governed by the law of diminishing returns, knowledge is governed by the law of increasing returns. This means that every unit of knowledge that has been used effectively increases the performance levels (Malhotra, 2020)

According to Wong and Aspinwall (2014), the process of acquiring knowledge is not as easy as it seems. This process requires the firm to create, generate, develop, build, and construct knowledge. External sources can be used by an organization to acquire

knowledge. These external sources of knowledge include hiring people that possess the required knowledge as well as buying knowledge assets. It is worth noting that research documents and patents are examples of intangible knowledge assets. According to Lee and Yang (2020), geomatic engineering firms have several sources from which they acquire external knowledge. These sources include using knowledge-driven firms to obtain it, searching, and adopting knowledge obtained from other sources. According to Wong and Aspinwall (2014), firms ensure a faster and direct knowledge flow to their employees, by maintaining proximity to their customers. This will also ensure that the employees can know more about the competition they are bound to face in the market as well as the behavior and actions of market trends.

2.3.2 Knowledge Innovation and Performance

In recent years, the focus of attention seems to have shifted to understanding the relationship between innovation and performance levels. However, studies conducted on this relationship have not presented sufficient empirical evidence to support the fact that indeed there exists a relationship between innovation and performance levels (Calantone et al., 2020).

Prakash and Power (2014) investigated the impact of knowledge innovation on the business results of Australian manufacturing enterprises. The research was descriptive in essence, with data gathered using survey questionnaires. The study's findings indicated that innovativeness is an important component in any firm's performance and sustainability plan since it impacts the company's capacity to deliver customers and consumers pleasure as well as satisfy their goals. With new trends, a company innovation inclination determines how quickly it responds to these changes. From the

standpoint of a firm, innovation assists companies in gaining a competitive edge over other enterprises in the market. The willingness of a company to innovate is referred to as its innovation orientation. Numerous variables may be utilized to determine a business's preparedness to innovate; for example, a firm that wants to achieve a high level of innovativeness ought to be open to newer concepts and prepared to execute and embrace these fresh concepts. It must also be adaptable by adopting cutting-edge technology, skills, and management methods. Workers' job satisfaction and perceptions toward the job improve as a result of an innovation-oriented business, as does the organization's dedication to the company.

Irungu (2008) discovered that findings from his research on Organisational Learning, Competitive Edge, and Company Performance in Kenyan Small and medium enterprises were in line with prior empirical research on the link between organisational learning and performance of the firm. This means that the study discovered a link between organisational learning and competitive edge and performance of the firm in Kenyan Small and medium enterprises.

Mbugua (2016) studied the factors that influence organizational learning in Interhealth East Africa. The study found that well-established organizational structures and organizational cultures tend to positively influence organizational learning. Further, the study concluded that firms should strive to attain a competitive advantage over other firms in the knowledge-based economy through knowledge sharing.

Shitemi (2016) examined the link between organisational learning, information management, and continual development in one firm, General Electric East Africa. The research showed that a company's capacity to enhance its products or services provides

it with a substantial competitive advantage. Nevertheless, its fundamental success element is the capacity of both workers and employers using the company's information resources to maintain a competitive edge in an ever-changing corporate environment.

Makabila (2018) did a similar research in Kenya on the benefits of organisational learning on gaining competitive edge for state businesses in Kenya. The research also discovered a favorable link among organisational learning and acquiring a competitive edge, with the pace of learning aiding the connection between the two factors and also the connection among systems approach and competitiveness.

Calantone et al. (2020) investigated the spread of innovation in Canadian technological enterprises. The research was descriptive, with data collected via a semi-structured questionnaire. The research 's findings revealed that organisational performance was improved as a result of innovation dissemination. This research also discovered that a firm's capacity to perform is favorably influenced by its innovativeness. This research also discovered that numerous elements impact a firm's or company 's competitive advantage. These elements include the firm's capacity to satisfy its customers, the company's ability to integrate new sophisticated technology in its day-to-day activities, and the actions taken by the firm's rivals. These elements have been shown to improve a company's company performance. The research concluded that in order for a business or organization to acquire a competitive edge over others in the market, it must be innovative. In addition, research have been undertaken to investigate the link between the dissemination of innovation and the emergence of new goods.

Klomp and Van Leeuwen (2001) performed a research to assess the impact of the various stages of the innovation process on overall financial performance. The study discovered that there is a substantial difference in the level of performance of innovative and non-innovating businesses, with the former outperforming the other.

Fang et al. (2017) investigated the impact of networking on Taiwanese innovation performance. The research was conducted on 144 high-tech companies. Questionnaires were utilized to gather information about how an institution's network with one another allows it to develop its organizational innovation skills. The study demonstrated that knowledge networks have a favorable and substantial influence on the innovativeness of companies by encouraging exchange of information, sharing of knowledge, and transmission, that has a significant impact on the institution's creative performance.

2.3.3 Communication Effectiveness and Performance

There exists a relationship between effective communication and effective information technology (Amber, 2017). There are advantages to a firm having a platform that allows effective communication i.e. the management can communicate with other employees and stakeholders within the organization, it enhances teamwork between the users and the technical support people, and also allows room for people to share their experiences. This will result in an effective information system where effective information system promotes the satisfaction of its users and impacts both the organization and the individuals in the organization. It is expected that effective communication will have a positive influence on the support of effective information systems by the top management of the organization.

According to Marlow et al. (2018), providing a platform that promotes communication promotes organizational learning. A necessity for a learning organization is the availability of channels to facilitate individual learning as well as facilitating communication with its customers, employers, and stakeholders. To do so, a firm should have at its disposal, an effective communication platform to ensure that the firm's staff can discuss issues freely and openly (Hill, 2016).

A learning organization should also provide room for individuals to acquire and share knowledge among themselves as well as be able to adapt and accommodate the change. Unless these factors are adhered to by the organization, then there is no learning organization. This is because a learning organization is built on creating, sharing, and implementing collective learning by the use of an effective communication platform among individuals who then form teams. In this case, knowledge is being created, shared, and implemented through the organizational learning cycle (Marlow et al., 2018).

2.3.4 Organizational Memory and Performance

According to Schilling (2018), "Learning engenders learning". This statement is well explained by the use of an example i.e. an organization that invests in technology and learning improves the capability of its staff to assimilate knowledge in the future. Learning entails the continuous building of knowledge blocks where a firm foundation of knowledge allows one to learn more and build on this knowledge earlier acquired. This simply means that learning is a cumulative process. According to Scott (2017), to obtain exponential rather than linear knowledge growth, then previously acquired knowledge is enhanced by the use of a shared organizational memory which in turn

produces a synergistic effect for exponential knowledge growth. There are several advantages to cumulatively obtained knowledge that includes identifying new but relevant knowledge. These advantages include identifying emerging competitors, customers, and new emerging trends in technology. Organizational learning promotes innovation, problem-solving, and decision-making of its employees since the individuals will synergistically use the knowledge obtained to come up with creative and innovative ideas.

A firm is more flexible and adaptable to environmental changes when it has at its disposal, a wider knowledge base (Bierly & Chakrabarti, 2016). Having a wider knowledge base of a particular discipline promotes high-performance levels. For instance, a company X with both pharmaceutical and biotechnology divisions can have both divisions use different knowledge centers. But having these two divisions come together and by use of a central directory, they get a chance to link their different knowledge centers. This would in turn help the company to determine and pursue new ideas, trends, and processes from different people and different sources. Therefore, the main agenda is managing different knowledge centers via one central directory that can lead to improved performance levels.

According to Leiber et al. (2015), the main reason technology companies are successful by having the competitive edge of being the first to introduce new products in the market is mainly due to their ability to implement innovative ideas fast enough. To remain competitive in a market faced with harsh and stiff competition, then firms willing to gain a competitive edge should acquire more and more knowledge. Besides, due to the harsh market conditions, information can become obsolete and therefore

knowledge champions are required to identify the relevant pieces of information (Anand et al., 2018).

2.4 Critique of existing literature relevant to the study

There have been several attempts made by the research community towards providing empirical evidence to demonstrate the relationship that exists between organizational learning and business performance levels. However, these studies have had limitations. Limitations in areas such as the methodology and concepts used in the research affect the generalizability of these studies. In other words, the theoretical and empirical literature in this study has proved the need for a study that circumnavigated these limitations to come up with research that is of great importance to the advancement of literature on learning organizations. The literature discussed above has shown that most of the studies carried out failed to narrow down the relationship between organizational learning and the organizational performance of Geomatic firms, and specifically on Geomatic engineering firms in Seychelles. This, therefore, shows that there is yet much to do as shown in the empirical and theoretical literature reviewed in general. Besides, the available literature cannot be sufficient enough to understand the relationship between organizational learning and the performance of geomatic engineering firms in Seychelles. Therefore, research in this area prompted a study to be carried out to investigate the relationship between the two variables focusing on the Geomatic engineering firms in Seychelles. This study tried to bridge the gap in the research world and by doing so it provided sufficient findings on how and to what extent organizational learning influences the organizational performance of geomatic engineering firms in Seychelles.

2.5 Conceptualization

Conceptualization is mainly concerned with explaining major research variables used in the study to achieve the research objective. On the other hand, a conceptual framework is used to demonstrate and explain the relationship between the independent variables and the dependent variable. Figure 2 is a diagrammatic representation of the conceptual framework. According to Sidani and Reese (2018), an independent variable is presumed to affect the dependent variable. The dependent variable, on the other hand, depends on another variable (Bloomfield & Fisher, 2019). This study used four independent variables, that is; knowledge acquisition, Communication effectiveness, Knowledge innovation, and Organizational memory. They were measured against the Business Performance of Geomatic Engineering firms as the dependent variable.

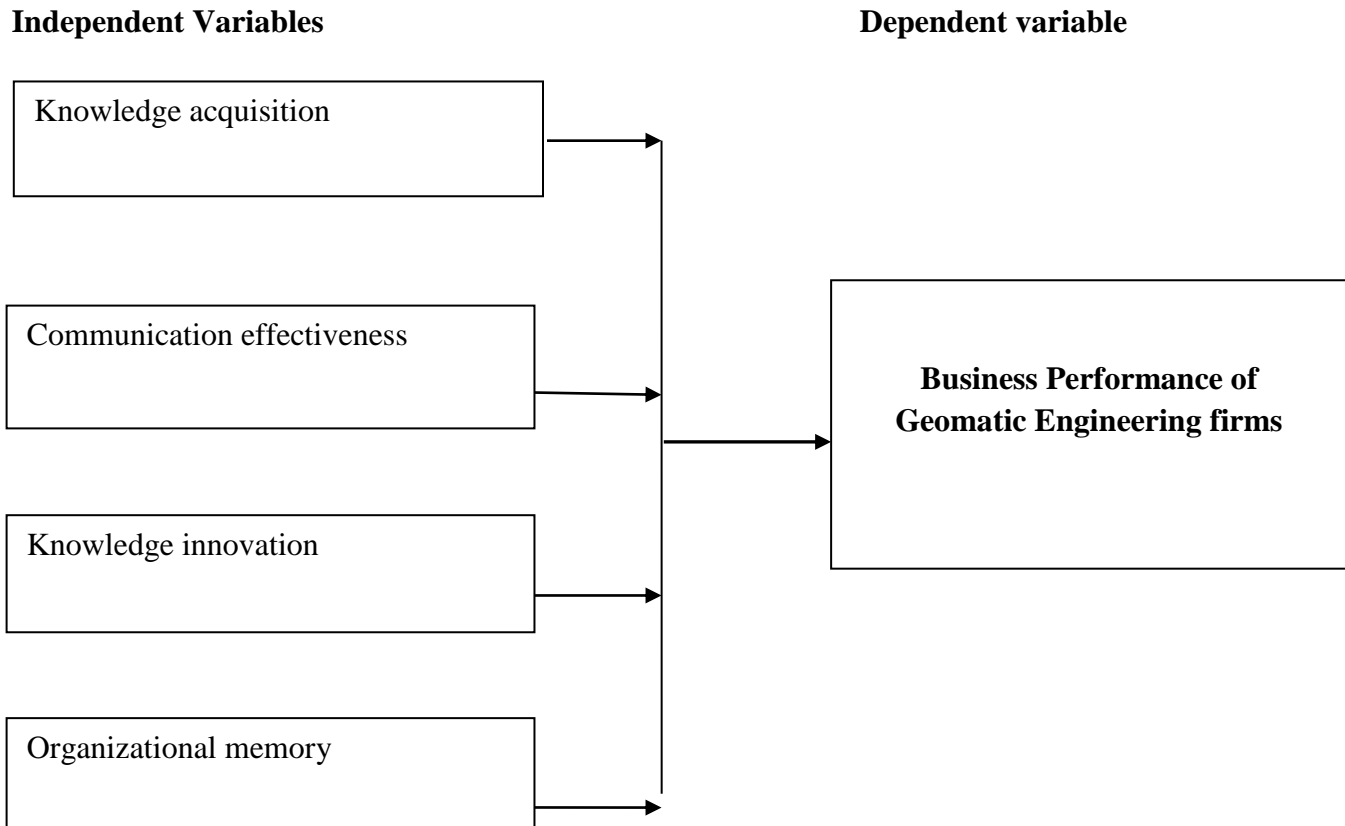


Figure 2.2: Conceptual Framework

Source: Research (2021)

2.6 Operationalization of Variables

Operationalization entails demonstrating the relationship between one or more specific indicators with the definition of a concept. In other words, operationalization is how we measure variables and the indicators of these variables, and the parameters to measure. Figure 3.3 demonstrates the parameters used by the researcher. To determine how organizational learning influence the business performance of geomatic engineering firms in Seychelles, the research variables of the study were operationalized as follows; To establish the effect of knowledge acquisition on the business performance of Geomatic engineering firms in Seychelles, the study rated the extent to which factors

influencing knowledge acquisition e.g self-reporting, documentation, program instrumentation, networks, and knowledge engineering influence the business performance of geomatic engineering firms in Seychelles. To determine the effect of effective communication on the business performance in geomatic engineering firms the study focused on rating the extent to which factors influencing communication effectiveness including customers, employees, suppliers, and stakeholders influence the business performance of geomatic engineering firms in Seychelles. To assess the extent to which knowledge innovation affects business performance in geomatic engineering firms the study focused on rating the extent to which factors influencing knowledge innovation such as market development, product development, and new technology influence the business performance of geomatic engineering firms in Seychelles. To determine how organizational memory influences business performance in geomatic engineering firms, the study focused on rating the extent to which factors influencing organizational memory such as strategic flexibility and adaptability to environmental factors, and retrieval or access to the information influence the business performance of geomatic engineering firms in Seychelles.

Independent Variables

Dependent variable

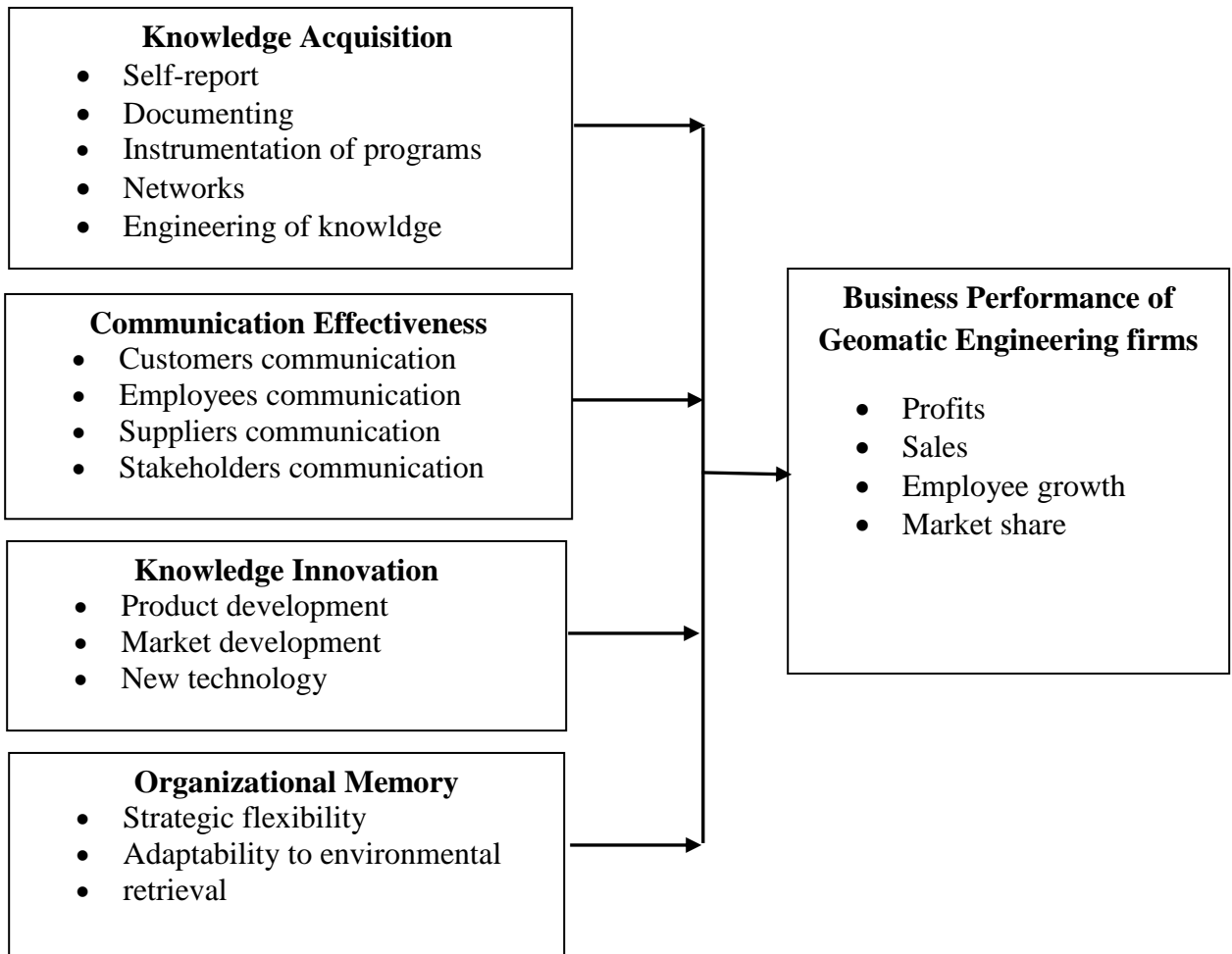


Figure 2.3: Operational Framework

Source: Research (2021)

2.7 Research Gaps

Several studies have been conducted focusing on the relationship that exists between performance-based outcomes and learning. In this case, the performance-based outcomes represent the performance of an organization that implements organizational learning. However, there lacks a specific study that focuses its research on the relationship between these variables based on studying geomatic engineering firms in

Seychelles. Furthermore, studies on how organizational learning influences other factors such as job satisfaction, have hotly received much attention, and in fact, the already existing studies cannot be relied upon as they do not determine how these factors affect the business performance of Geomatic engineering firms in Seychelles. The lack of such a study has led to inadequate empirical evidence in this area. As a result, a knowledge gap has been created on how organizational learning influences performance levels of geomatic engineering firms in Seychelles. This study aimed to fill this knowledge gap in the research world by determining how organizational learning influences the business performance of geomatic engineering firms in Seychelles.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter comprises the research methods adopted during the study to answer the research questions. It entails the research design, instruments used for data collection, the methodology of data collection and analysis, the population and sample size. The chapter fundamentally illustrated the procedures used during the study in achieving the study objectives.

3.1 Research Design

According to Creswell (2012), a research design is a strategy used in carrying out a study where a phenomenon is described. In research, a phenomenon is described to obtain an accurate state of facts by explaining the condition of the phenomenon with little or no manipulation. Therefore, a research design is chosen on the merit of its ability to describe with little or no manipulation of the variables obtained in the field. This study, therefore, adopted a descriptive research design method to describe the effects of organizational learning on the performance of geomatic engineering firms in Seychelles. Descriptive research is a research method that describes a population, situation, or phenomenon that is being studied.

According to Neuman (2004), a descriptive research design can be used in both qualitative and quantitative research studies. Grace (2005) further indicates that to use a descriptive research design, one must organize, tabulate, and describe the data collection method. This research design was preferred in this study due to its ability to establish the natural form of a phenomenon and characterize them. Moreover, this

research design goes ahead to describe these phenomena by focusing on answering the how, what, when, and where questions of a research problem (Mugenda & Mugenda, 2003).

3.2 Population

The population is simply determined by the researcher through the total number of elements that he or she would wish to describe (Cooper and Schindler, 2009). In this research, the research drew conclusions regarding participants from Seychelles geomatic engineering businesses. Seychelles has six geomatic engineering businesses, as per the ministry of industry and cooperative (2020). The intended audience consisted of sixty managers from across various Geomatic Engineering businesses in Seychelles. Each organization provides two top executives and 8 mid-level managers.

Table 3.1: Population Distribution

Category of Managers	Population
Top-level Managers	20
Middle-level managers	40
Total	60

Source: Researcher (2020)

3.3 Sample Size

The size of the sample of sixty participants was acquired using the census sampling technique, in which the entire populace was utilized as a representative. Census sampling is a method whereby data is collected from the whole population. It is normally used when the targeted population is not large and is clustered. In this study, census sampling was adopted since all the targeted firms are situated in Victoria, a small capital of Seychelles thus it was not difficult to collect data from all of them.

3.4 Research Instruments

This study used a questionnaire to gather information. A survey is a type of research tool that consists of a series of inquiries are used to obtain information from respondents (Taber, 2018). The questionnaire was adopted because it saves on cost and time since no interviews or phone calls were required and the time used to compile data was also reduced since some of the questions used were closed-ended. It also gave the respondents ample time to fill in the questionnaires. The questionnaires used in this study contained both open and closed-ended questions.

3.5 Pilot Test

To determine whether the data collection instrument was reliable and viable, a pilot test was used. It was a rehearsal test carried out on a portion of the sample to assess whether the research tool was reliable and viable. It helps to mitigate the chances of any repetition errors during the early stage of collecting data (Dikko, 2016). A sample of 10% of the total respondents was used to carry out the pilot test. However, the results of the pilot study were not included in the final study.

3.5.1 Validity of Research Instrument

According to Thanasegaran (2009), the validity of any research instrument is determined by the ability of that instrument to collect data that is useful to the study. Validity measures the ability of a research instrument to ask the right questions (Almanasreh, et al., 2019). There are two types of validity; content validity and construct validity. Content validity refers to the ability of the research instrument used in the study is testing the correct information necessary for the study which in this case was organizational learning and business performance. This was achieved through

numerous literature reviews therefore the resulting indicators used in the questionnaire had been accepted as measures of organizational learning and performance. On the other hand, construct validity refers to the ability of the questions used in the questionnaire to have adequate constructs premised on the study's conceptual framework indicators. This was achieved through a review by an expert whose views were incorporated in the final questionnaire. This was done to ensure that the questionnaire was clear, not ambiguous, and collected useful information for the study.

3.5.2 Reliability Tests

To test the reliability of the research items used, Cronbach's alpha was used. The reliability of a research instrument determines whether the research instrument used could give consistent responses over a repeated number of data collection if the same instrument is used for all similar data collection procedures (Dikko, 2016). Since it was a measure, the reliability threshold was set at a minimum of $\alpha = 0.7$ where items falling below this level were rejected. Those that were above the threshold of 0.7 were accepted. A reliability test was performed on 10 pilot study responses. The reliability coefficient was calculated to determine whether every time the questionnaires were administered, they had the same responses. From repetitive pre-test, both the length and the ambiguity of the questionnaire were revised. Changes to the questionnaire were made by the researcher to make the questionnaire more reliable and bring Cronbach's alpha to a minimum of 70%. The changes to the questionnaire were applied in such a way that the questionnaire incorporated the objectives of this particular study.

3.6 Data Collection Procedure

This survey's primary data was collected utilizing well self-administered survey tool with open and closed-ended structured items. This method of data collection was preferred due to its ability to provide a good percentage of standardized data on the population under study by using generalized information for the questionnaire. More so, it gave room to the respondents to fill the questionnaires at their own time hence reduced pressure on them. This method also tends to be the easiest and cheapest method of data collection while at the same time providing large amounts of data (Lievens, 2002).

3.7 Data Analysis and Presentation

The overall design of the research and the data collected dictate the most suitable method of data analysis (Mishra et al., 2018). This study provided room for the researcher to choose, among a variety of choices, the best type of data to answer the research questions of this study. The type of data collected dictated the statistical procedure that was used. Qualitative data were analyzed using a different statistical procedure from quantitative data. In this study, parametric tests were used to analyze quantitative data by using means and standard deviations. On the other hand, inferential statistics including correlation and regression analysis were used to analyze the qualitative data.

Regression analysis is a statistical procedure that seeks to determine whether there exists a relationship between two or more quantitative variables. To be more specific, this study used linear regression as it was more applicable in this research. This

technique of linear regression allows for the estimation of more variables. Quantifying the effect of the variables being studied in this research was valuable.

3.8 Ethical Issues

To ensure ethical practices in the study, the researcher guaranteed the confidentiality of the respondents. The respondents were informed that their responses would only be used in the completion of an academic process. The research authorization letter was also produced during questionnaire administration to seek consent for data collection, therefore no one was compelled to give responses; it was a voluntary exercise. To build the confidence of the respondents, the researcher while dropping the questionnaires, was accompanied by two Seychellois, who would introduce the researcher to the management of the targeted firms in their local dialect. The Seychellois were also used effectively by the researcher to interpret the questionnaire to the respondents who had difficulty understanding some parts of the questionnaire. This made it easier for the researcher to collect data from the respondents.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

Chapter four of this research presented the findings of the study, interpretation, and discussions of the findings that was guided by the four research objectives; that is the impact of acquiring knowledge on the business performance of geomatic engineering firms, the effect of effective communication on the business performance of geomatic engineering firms, the extent to which knowledge innovation affects business performance in geomatic engineering firms and the effect of organizational memory on business performance in geomatic engineering firms in Seychelles.

4.1.1 Response Rate

Response rate refers to the percentage of usable responses out of the total of the administered questionnaire. A responsive questionnaire is that which can be used for further analysis as it is deemed adequate. The research sent sixty questionnaires, with 51 replies received and accepted for subsequent evaluation in the research, resulting in an 85 percent return rate. According to Fowlr (2014), a return rate of 50% is adequate for further research, and anything beyond 70% is great. Following table displays the outcomes.

Table 4.1: Response Rate

Response	Frequency	Percentage (%)
Responded	51	85
No response	9	15
Total	60	100

Source: Research (2021)

4.1.2 Reliability Tests

A reliability test was conducted on the pre-tested questionnaires to establish instrument reliability. Reliability was tested through Cronbach Alpha (α). An alpha value that was higher than 0.7 revealed that the questionnaire was consistent and more reliable for further analysis. Table 4.2 shows the results.

Table 4.2: Reliability Test

Variable	Chronbach's α value	Number of Items
Knowledge acquisition	0.789	5
Knowledge innovation	0.864	5
Communication effectiveness	0.873	7
Organization memory	0.786	6
Business Performance	0.827	6

Source: Research (2021)

Table 4.2 shows that; knowledge acquisition with an alpha score of 0.789, which revealed that the items were reliable, an example of a question was 'Knowledge is highly documented at our businesses'. Knowledge innovation had a Cronbach score of 0.864 which revealed that the questions under knowledge innovation were reliable, an example of a question was 'There seems to be novel information development in information systems, such as program information systems and personal ERP.

On communication effectiveness, a Cronbach alpha of 0.873 was achieved showing that part of the questionnaire on communication effectiveness was reliable; on

organization memory, the Cronbach alpha result was 0.786, which also showed that part of the questionnaire with questions on organization memory was also reliable.

Finally, on business performance, the Cronbach alpha result was 0.827 which revealed that reliability had been achieved on the part of a questionnaire asking about business performance, an example of a question was ‘We have increased our profits through organization learning’. The instrument was therefore reliable in data collection and for further analysis.

4.2 Demographic Analysis

Under demographic analysis; statistics on gender, the position occupied by the employees in the firm, and the years that employees had worked in the organization were analyzed.

4.2.1 Gender of the Respondents

This part of the purpose of the study was to determine the gender makeup of the participants. Table 4.3 demonstrates the results.

Table 4.3: Gender of the Respondents

Gender	Frequency	Percent
Male	29	56.9
Female	22	43.1
Total	51	100.0

Source: Research (2021)

According to Table 4.3, the vast bulk of participants were male as shown by 56.9%, only 43.1% of the respondents were female. These revealed that engineering organizations and industry are mainly dominated by male workers, however, the females are also catching up. Various studies support this premise. According to research by National Science Foundation (2017), Women make up only 20% of engineering graduates with a graduate degree. Corbett & Hill (2015) opines that

women comprise a mere 12% of the total workforce in engineering. This underrepresentation can be attributed to two things; not only is a lower rate of entry of women than men in the engineering profession (Sassler et al., 2017) but they exit the profession at a higher rate than men as well (Xu, 2017).

4.2.2 Years of Experience

The purpose of this portion of the research was to determine the experiences of the respondents at their place of work. The results are shown in Table 4.4.

Table 4.4: Years of Experience

Years of Experience	Frequency	Percent
Less than 5 years	20	39.2
Between 6 and 10 years	28	54.9
above 10 years	3	5.9
Total	51	100.0

Source: Research (2021)

Table 4.4 revealed that the majority of the workforce had worked between 6 and 10 years as shown by 54.9%, this was followed by workers who have worked for less than five years, only 5.9% of the workers had worked in the engineering businesses for a period of above 10 years. The majority having worked for a period of between 6 and 10 years is an indication that the workforce understands the internal entrepreneurial affairs of the organization and they are therefore more informed based on their experience. Proponents of Human Capital Theory such as Tan (2014) attest to this phenomenon whereby he argues that the length of time an employee stays in the organization determines their knowledge and skills. The longer the employee stays in an organization, the employee's skills and knowledge improve. With time, employees

gather experience which equips them with more knowledge, skills, and abilities to apply these skills to work.

4.2.3 Position in the Organization

This section of the study sought to establish the position of the employee in the organization. Table 4.5 shows the results.

Table 4.5: Position in the Organization

Position	Frequency	Percent
Engineering	9	17.6
Processing	19	37.3
Marketing	16	31.4
HR/Finance/Administration	7	13.7
Total	51	100.0

Source: Research (2021)

The majority of the employees are in the processing department as shown by 37.3% of the respondents, followed by 31.45% of the respondents who are in the marketing department. Besides, 17.6% of the workforce are in the engineering department, HR/Finance/Administration that comprises of accountants, human resource managers, and company administrators are only 13.7%.

4.3 Descriptive Analysis

The descriptive analysis conducted in the study included the use of frequencies, percentages, mean, and standard deviation on study variables that included knowledge acquisition, knowledge innovation, communication effectiveness, and organization memory, and business performance as discussed below.

4.3.1 Knowledge Acquisition

The study in this section attempted to determine the degree to which participants agreed or strongly agreed with assertions on knowledge acquisition. In doing this task

the study used Likert-type questions whereby one was strongly disagreed, two was disagreed, three was neutral, four was agreed, and five was strongly agreed. The outcomes are shown below.

Table 4.6: Descriptive Statistics on Knowledge Acquisition

	1		2		3		4		5		M	Std
	n	%	n	%	n	%	n	%	n	%		
We acquire knowledge through self-reporting	4	7.8	10	19.6	12	23.5	16	31.4	9	17.6	3.31	1.28
Knowledge is highly documented at our business	1	2.0	6	11.8	6	11.8	18	35.3	20	39.2	3.98	1.086
We acquire knowledge through networking with staff and other stakeholders	2	3.9	8	15.7	6	11.8	22	43.1	13	25.5	3.71	1.137
There are programs instrumentation on knowledge acquisition	1	2.0	7	13.7	7	13.7	28	54.9	8	15.7	3.69	0.969
There is infrastructure on knowledge engineering at our business	2	3.9	2	3.9	7	13.7	24	47.1	16	31.4	3.98	0.990

Source: Research (2021)

Table 4.6 revealed that asked on the statement that; we acquire knowledge through self-reporting, The bulk of participants believed, as evidenced by 31.4% and a mean of 3.31; on knowledge is highly documented at our business, The bulk of participants believed as indicated by 39.2% and a mean of 3.98; We acquire knowledge through networking with staff and other stakeholders, a bulk of participants believed as shown by 43.1% and mean of 3.71; there is programs instrumentation on knowledge

acquisition, The bulk of participants believed a 54.9% and a mean of 3.69; there is program instrumentation on knowledge acquisition, The bulk of participants believed 54.9% and mean of 3.69; there is infrastructure on knowledge engineering at our business, The bulk of participants believed 47.1% and mean of 3.98. Lee and Yang (2020) concurred with the above findings that, geomatic engineering firms have several sources from which they acquire external knowledge. External sources include customers, markets, competitors, and even the general public. Knowledge-driven engineering firms can obtain new knowledge through searching and adopting the knowledge obtained from these other sources.

Girish (2019) also supported these findings that knowledge acquisition involves extracting, storing, and using the knowledge obtained in software from a source e.g. a human expert. It is to ensure that new knowledge has been identified, acquired, and stored.

Similarly, a study by Taylor (2017) revealed that knowledge acquisition is associated with technological infrastructure, organizational infrastructure, and organizational culture. Besides the process of knowledge acquisition, knowledge memory, knowledge conversion, and knowledge use are all associated with the knowledge capability of any firm that results in better organization performance if taken advantage of.

Further, Haseeb et. al. (2019) found out that organizations can acquire knowledge from a variety of sources that include; previous research on existing products, carrying out benchmarking with the existing market leaders, creating a business alliance with market leaders as well as researching new knowledge in a unique industry from their existing customers/distributors needs and priorities. Such acquired knowledge needs to

be integrated with the existing knowledge to make more informed decisions. Knowledge as an asset in an organization possesses unique qualities that include; knowledge is scarce and it does not get lost through transfer.

4.3.1 Knowledge Innovation

The study in this section attempted to determine the degree to which participants concurred or opposed given assertions on knowledge innovation. In doing this task the study used Likert-type questions whereby one was strongly disagreed, two was disagreed, three was neutral, four was agreed, and five was strongly agreed. The outcomes are shown below.

Table 4.7: Descriptive statistics on Knowledge Innovation

	1		2		3		4		5		M	SD
	n	%	n	%	n	%	n	n	%	n	%	n
On emerging businesses, there is fresh information innovation.	2	3.9	1	2.0	11	21.6	22	43.1	15	29.4	3.92	0.997
On fresh service areas, there really are acquired knowledge advances.	0	-	2	3.9	9	17.6	28	54.9	12	23.5	3.98	0.761
There is fresh knowledge development on fresh technologies and equipments.	3	5.9	2	3.9	7	13.7	20	39.2	19	37.3	3.98	1.104
There really are novel information system expertise innovations, such as project implementation and personal ERP.	1	2.0	6	11.8	10	19.6	21	41.2	13	25.5	3.76	1.031
There is newer product knowledge development.	2	3.9	1	2.0	10	19.6	28	54.9	10	19.6	4.02	0.927

Source: Research (2021)

Table 4.7 confirmed that when questioned about the assertion: there is novel knowledge innovation on emerging businesses, the large percentage of participants concurred (43.1 percent and a mean of 3.92); there is novel knowledge innovation on novel channels, the large percentage of participants concurred (54.9 percent and a mean of 3.98); there is novel understanding innovation on novel technology and equipment, a large percentage of participants firmly agreed (54.9 percent and a mean of 3.98); there is novel knowledge advancement on novel technology and equipment, a large

percentage of participants firmly agreed (54.9 percent and a mean of 3.76; There is knowledge creation of novel goods, as demonstrated by 54.9 percent of respondents and an average of 4.02.

According to Prakash and Power (2014), innovativeness is a critical component in any company's performance and sustainability strategy because it impacts the firm's capacity to deliver client and customer pleasure as well as satisfy their objectives. With the passage of time, a company innovation inclination determines how quickly it adapts to these developments. From the standpoint of a firm, innovation inclination assists companies in gaining a competitive edge over other enterprises in the market. The willingness of a company to innovate is referred to as its innovativeness.

Singh et al. (2019) agreed that without constant innovation in novel goods and service areas, a business's product quickly gets immutable and, as a result, readily seen as outmoded in the market. Institutions are thus advised to allocate a portion of their yearly budget to novel product advancement, developing skills through coaching, and having a R&D department that creates innovative solutions and develops novel products in order to enhance their achievement and obtain a competitive edge.

Calantone et al. (2020) backed up the results by revealing that numerous variables impact a firm's or organisations competitive advantage. These elements include the firm's capacity to satisfy its customers, the firm's ability to integrate new sophisticated technology in its day-to-day activities, and the actions taken by the firm's rivals. These elements have been shown to improve a company's business performance.

4.3.3 Communication Effectiveness

The study in this section attempted to determine the degree to which participants concurred or opposed given assertions on communication effectiveness. In doing this task the study used Likert-type questions whereby one was strongly disagreed, two was disagreed, three was neutral, four was agreed, and five was strongly agreed. The outcomes are shown below.

Table 4.8: Descriptive Statistics on Communication Effectiveness

	1		2		3		4		5		M	SD
	n	%	n	%	n	%	n	%	n	%		
Employees easily share knowledge and ideas in decision making	2	3.9	1	2.0	10	19.6	28	54.9	10	19.6	3.84	0.903
We engage our stakeholders on set goals and objectives	14	27.5	5	9.8	8	15.7	16	31.4	8	15.7	2.98	1.476
Communication is the essential element of the learning infrastructure	2	3.9	5	9.8	7	13.7	16	31.4	21	41.2	3.96	1.148
We have improved our customer service	2	3.9	4	7.8	11	21.6	22	43.1	12	23.5	3.75	1.036
We provide feedbacks to the top management in decision making process	1	2.0	3	5.9	9	17.6	21	41.2	17	33.3	3.98	0.969
Communication provides ways to share experiences	0	-	3	5.9	8	15.7	27	52.9	13	25.5	3.98	0.812
Information easily flows across all levels of management	1	2.0	6	11.8	13	25.5	19	37.3	12	23.5	3.69	1.029

Source: Research (2021)

Table 4.8 shows the statement that: Employees easily share knowledge and ideas in decision making, majority of the respondent agreed as shown by 54.9% and a mean of 3.84; we engage our stakeholders on set goals and objectives, a large percentage of the

participants concurred as indicated by 31.4% and a mean of 2.98; Communication is the essential element of the learning infrastructure, a large percentage of the participants concurred as indicated by 41.2% and mean of 3.96; we have improved our customer service, a large percentage of the participants concurred as indicated by 43.1% and a mean of 3.75; we provide feedback to the top management in the decision-making process, a large percentage of the participants concurred as indicated by 41.2% and mean of 3.98; Information easily flows across all levels of management, a large percentage of the participants concurred as indicated by 37.3% and mean of 3.69. Marlow et al. (2018) concurred that providing a platform that promotes communication encourages organizational learning. A necessity for a learning organization is the availability of channels to facilitate individual learning as well as facilitating communication with its customers, employers, and stakeholders. To do so, a firm should have at its disposal, an effective communication platform to ensure that the firm's staff can discuss issues freely and openly

Hill (2016) concurred that organization learning is built on creating, sharing, and implementing collective learning by the use of an effective communication platform among individuals who then form teams. In this case, knowledge is being created, shared, and implemented through the organizational learning cycle.

4.3.4 Organization Memory

The study in this section sought to establish the extent to which the respondents agreed or disagreed with statements on organization memory. In doing this task, the study used Likert-type questions whereby 1= strongly disagreed, 2= disagreed, 3= neutral, 4= agreed, 5= strongly agreed. The results are shown in Table 4.9.

Table 4.9: Descriptive Statistics on Organization Memory

statements	SD		D		N		A		SA		Mean	Std dev
	F	%	F	%	F	%	F	%	F	%		
Organization memory has allowed our business to adapt to the new business environment	0	-	3	5.9	15	29.4	23	45.1	10	19.6	3.78	0.832
Organization memory has helped our business build on new knowledge	2	3.9	3	5.9	6	11.8	26	51.0	14	27.5	3.92	0.997
Our business is flexible due to organization memory	6	11.8	3	5.9	6	11.8	25	49.0	11	21.6	3.63	1.232
Organizational memory allows to integrate an individual's knowledge	4	7.8	3	5.9	11	21.6	25	49.0	8	15.7	3.59	1.080
Through organizational memory we have been able to tap onto new business opportunities	2	3.9	6	11.8	9	17.6	22	43.1	12	23.5	3.71	1.082
Organizational memory has enabled our business to determine trends in technology and other macro-environmental factors	0	-	5	9.8	7	13.7	24	47.1	15	29.4	3.96	0.916

Source: Research (2021)

Table 4.9 shown the statement that: Organization memory has allowed our business to adapt to the new business environment, majority of the respondent agreed as shown by 45.1% and a mean of 3.78; organization memory has helped our business build on new knowledge, majority of the respondents strongly agreed as shown by 27.5% and a

mean of 3.92; our business is flexible due to organization memory, a majority of the respondents agreed as shown by 51.0% and a mean of 3.92; Organizational memory allows to integrate an individual's knowledge, majority of the respondent agreed as shown by a 49.0% and a mean of 3.59; organizational memory has enabled our business to determine trends in technology and other macro-environmental factors, majority of the respondent agreed as shown by 47.1% and mean of 3.96. Scott (2017), concurred that to obtain an exponential rather than linear knowledge growth, then previously acquired knowledge is enhanced by the use of a shared organizational memory which in turn produces a synergistic effect for exponential knowledge growth. There are several advantages to cumulatively obtained knowledge that includes identifying new but relevant knowledge. These advantages include identifying emerging competitors, customers, and new emerging trends in technology.

4.3.5 Business Performance

4.3.5.1 Descriptive statistics on Business Performance

The study in this section sought to establish the extent to which the respondents agreed or disagreed with statements on business performance. In doing this task, the study used Likert-type questions whereby 1= strongly disagreed, 2= disagreed, 3= neutral, 4= agreed, 5= strongly agreed. The results are shown in Table 4.10.

Table 4.10: Descriptive statistics on Business Performance

	1		2		3		4		5		M	SD
	F	%	F	%	F	%	F	%	F	%		
Team morale has increased as a result of organizational learning.	2	3.9	1	2.0	4	7.8	26	51.0	18	35.3	4.12	0.931
We have expanded into new markets products through organizational learning	4	7.8	0	-	8	15.7	31	60.8	8	15.7	3.76	0.992
Through organizational learning, we were able to enter other markets.	2	3.9	3	5.9	8	15.7	21	41.2	17	33.3	3.94	1.047
Through learning, we significantly enhanced our revenues.	0	-	3	5.9	7	13.7	22	43.1	19	37.3	4.12	0.864
We improved our sales income by implementing organizational learning.	2	3.9	1	2.0	4	7.8	32	62.7	12	23.5	4.00	0.872
We have expanded our personnel through organizational learning	4	7.8	0	-	9	17.6	28	54.9	10	19.6	3.76	1.026

Source: Research (2021)

Table 4.10 introduced the assertion that: personnel morale has been enhanced via learning, with the proportion of participants strongly agreeing (35.3 percent and average of 4.12); we have expanded into some other product lines through learning, with the proportion of participants agreeing (60.8 percent and a mean of 3.76); and we have entered new markets via learning.

Azemina (2018) concurred with the study findings that to measure the performance of an organization we consider both the financial performance and non-financial performance. The financial organizational performance entails the organization's estimate profitability. This includes the organization's net profits, the return on invested capital, the operating profit margin, the actual profit margin, the rate of return on capital, and the return on assets. Azemina (2018) agreed with the research conclusions that while measuring an institution's success, we must include both financial and non-financial performance. The monetary performance of an organisation involves the firm's estimated profitability. Net income, profitability, operational earnings before interest and taxes, real profit margin, rate of interest on equity, and asset turnover are all included. Non-financial success, but at the other extreme, is determined by the amount to which the business is effective in factors such as client devotion.

4.3.5.2 Company Sales Growth in Percentage

The study sought to establish the company sales growth in percentages. The results are presented in Table 4.18.

Table 4.11: Sales Growth

Firms	Year 2018		Year 2019		Year 2020		Mean %
	F	%	F	%	F	%	
Firm 1	10	10	10	12	10	15	12.33
Firm 2	10	8	10	10	10	15	11.0
Firm 3	10	12	10	14	10	17	14.33
Firm 4	10	15	10	16	10	20	17.0
Firm 5	10	8	10	12	10	15	11.66
Firm 6	10	16	10	19	10	20	18.33

Source: Research (2021)

Different firms had different profits increase from the year 2018 to 2020 showing some increase from the different years. The firms with the highest increase in sales growth in % had a mean increase of 18.33%, followed by the firm with an average increase in sales growth by 17.0%, this was followed by the firm with 14.33%, which was followed by a firm with sales growth at 12.33%, the firm with the least sales growth registered a mean of 11.0% average sales growth in the three years.

Azemina (2018) agreed with the research conclusions that while measuring an institution's success, we must include both financial and non-financial performance. The monetary performance of an organisation involves the firm's estimated profitability. Net income, profitability, operational earnings before interest and taxes, real profit margin, rate of interest on equity, and asset turnover are all included. Non-financial success, but at the other extreme, is determined by the amount to which the business is effective in factors such as client devotion.

4.3.5.3 Performance Key Indicators

The study sought to establish the performance of the geomatic firms in the past three years in the key areas. The table below shows the results.

Table 12: Key Performance Indicators

Aspect	The year 2018		The year 2019		The year 2020		Mean
	Firm 1	Firm 2	Firm 3	Firm 4	Firm 5	Firm 6	
No of employees	20	29	42	51	22	64	38
No. of Branches	2	3	4	3	3	5	3
Market share (%)	10	15	20	22	11	22	16.67
No of products	4	3	5	7	3	7	5

Source: Research (2021)

The study revealed that on average the number of employees that have been working in the six firms was 38 employees, the study also revealed that on average the number of branches that the geomatic firms have had in the past three years was 3 branches, on the number of products that the firms have developed in the past three years was 5 products to offer in the market. Finally, on the market share, it was revealed that firm 6 had the highest market share at 22% which they tied with firm 4; this was followed by firm 3 with 20% market share; firm 2 had 15% whereas the firm with the lowest market share was at 10%.

Azemina (2018) agreed with the research conclusions that while measuring an institution's success, we must include both financial and non-financial performance. The monetary performance of an organization involves the firm's estimated profitability. Net income, profitability, operational earnings before interest and taxes, real profit margin, rate of interest on equity, and asset turnover are all included. Non-financial success, but at the other extreme, is determined by the amount to which the business is effective in factors such as client devotion.

4.3.5.4 Company's Profitability

The research also sought to determine the profits that the companies made in the past three years from 2018 to 2020 financial years. The findings are given in the table below.

Table 4.13: Company's Profitability in the Past Three Years

Firms	The year 2018 Profits (\$'000')	The year 2019 Profits (\$'000')	The year 2020 Profits (\$'000')	Mean (\$'000')
Firm 1	519	679	791	663
Firm 2	712	819	923	818
Firm 3	978	1012	1025	1005
Firm 4	1012	1234	1434	1226.667
Firm 5	978	1012	1025	1017
Firm 6	1148	1341	1570	1353

Source: Research (2021)

The study revealed that the companies had different profits across the time between 2018 and 2020. Firm 6 had the highest average profit at \$ 1,353,000 followed by firm 4 at \$1,226, 667; which was followed by firm5 which registered a profit of \$ 1,017,000; this was followed by firm 3 that had \$ 1,005,000. The geomatic firm that had the lowest profit was firm 1 which had \$663,000.

Azemina (2018) agreed with the research conclusions that while measuring an institution's success, we must include both financial and non-financial performance. The monetary performance of an organisation involves the firm's estimated profitability. Net income, profitability, operational earnings before interest and taxes, real profit margin, rate of interest on equity, and asset turnover are all included. Non-

financial success, but at the other extreme, is determined by the amount to which the business is effective in factors such as client devotion.

4.3.5.5 Satisfaction with Profits

The research sought to examine the degree to which the participants were satisfied with the amount of profits registered by the company between the years 2018 to 2020. The results are shown in the table below. A Likert scale of 1 to 5 whereby 1= Very dissatisfying, 2=Dissatisfying, 3=Neutral, 4= Satisfying, 5= Very satisfying. Results are shown in the table below.

Table 14: Level of Satisfaction with Profits levels

Year	VD		D		N		S		VS		Mean	Std dev
	F	%	F	%	F	%	F	%	F	%		
2018	2	3.3	1	1.7	11	18.3	27	45.0	19	31.7	4.00	.999
2019	2	3.3	5	8.3	7	11.7	24	40.0	22	36.7	3.98	1.066
2020	-	-	4	6.66	8	13.3	32	53.3	16	26.7	4.03	.787

Source: Research (2021)

In 2018 majority of the geomatic firms were satisfied with their profits as shown by 45.0% and 31.7% who were very satisfied, 3.3 were very dissatisfied with the profits earned whereas only 1.7 % were dissatisfied with profits.

In the year 2019 majority of the geomatic firms were satisfied with their profits as shown by 40.0% and 36.7% who were very satisfied, 8.3 % were dissatisfied and only 3.3% were very dissatisfied with the profits earned.

Finally in 2020 majority of the geomatic firms were satisfied with their profits as shown by 53.3% and 26.7% who were very satisfied, 13.3% were neutral whereas only 6.66 % were very dissatisfied with the profits earned.

Azemina (2018) agreed with the research conclusions that while measuring an institution's success, we must include both financial and non-financial performance. The monetary performance of an organisation involves the firm's estimated profitability. Net income, profitability, operational earnings before interest and taxes, real profit margin, rate of interest on equity, and asset turnover are all included. Non-financial success, but at the other extreme, is determined by the amount to which the business is effective in factors such as client devotion.

4.4 Hypothesis Testing

Inferential statistics were carried out to determine the nature of the association between research variables in respect of the directions and intensity of the association. Both regression and correlation **analyses were carried out**. A discussion of the procedures is as follows;

4.4.1 Correlation Analysis

Pearson correlation analysis was conducted to establish the relationship between the five variables which included four independent variables (knowledge acquisition, knowledge innovation, communication effectiveness, and organization. The results are provided in table 4.15.

Table 4.15: Correlations Analysis

		Knowledge acquisition	knowledge innovation	communication effectiveness	Organization memory
knowledge acquisition	Pearson Correlation Sig. (1-tailed)	1			
knowledge innovation	Pearson Correlation Sig. (1-tailed)	.187	1		
communication effectiveness	Pearson Correlation Sig. (1-tailed)	.139	.418	1	
organization memory	Pearson Correlation Sig. (1-tailed)	.331	0.158	.336	1
		.029	.069	.016	

Correlation is significant at the 0.05 level (1-tailed).

Pearson correlation coefficient, r , runs from values of +1 to -1. The more it is towards -1 or 1, the stronger the relationship. Table 4.11 revealed that knowledge acquisition and knowledge innovation have a weak relationship of 0.187 which is significant at a p -value of 0.006; knowledge acquisition and communication effectiveness had a positive relationship of 0.139, which was significant at a p -value of 0.03; Knowledge acquisition and organization memory had a weak relation of 0.331 which was insignificant at 0.029.

Knowledge innovation and communication effectiveness had a positive relationship at $r= 0.418$ which was significant at 0.002; Knowledge innovation and organization

memory had a positive relationship at $r= 0.158$ which was insignificant at 0.069; Knowledge innovation.

Communication effectiveness and organization memory had a positive relationship of $r=0.336$ which was significant at $p\ value=0.016$; Communication effectiveness and the business performance had a positive relationship of $r=0.217$ which was significant at $p\ value=0.026$.

Klomp and Van Leeuwen (2001) agreed with the research findings when they assessed the impact of the various phases of the innovation process on net economic success. He discovered that there is a substantial difference in the level of performance of innovative businesses and non-innovating enterprises, with the former outperforming the other.

Walsh and Ungson (2019) concurred that the organizational memory of a firm will dictate how the business performs in the economy which implies that they have a relationship. Amber (2017) concurred that there exists a relationship between effective communication and business performance.

4.4.2 Regression Analysis

Regression analysis was conducted to establish the direction of the relationship as to whether it was positive or negative, on the other hand, the strength of the relationship was shown on regression coefficients and significance level set at 0.05. The results are discussed under the regression model, ANOVA, and regression coefficient tables.

4.4.2.1 Knowledge Acquisition

The study sought to test the hypothesis that knowledge acquisition has no significant effect on business performance. The results of the study was presented under the model summary, ANOVA, and regression coefficients.

Model Summary for Knowledge Acquisition

Coefficient of determination is used in establishing how much of the dependent variable explained is by the independent variable(s). The coefficient of determination is given in table 4.16 below between knowledge acquisition and business performance of geomatic engineering companies in Seychelles.

Table 4.16: Model Summary for Knowledge Acquisition

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
dimension0 1	.375 ^a	.141	.126	.688

a. Predictors: (Constant), Knowledge acquisition.

Results of the study revealed a Rsquare 14.1%. Therefore, the results shown in the table can be explained that that knowledge acquisition can explain about 14.1% of the change in the business performance of geomatic engineering firms in Seychelles.

ANOVA for Knowledge Acquisition

Analysis of variance was conducted to explain the overall significance of the variables in the model. Results are shown in Table 4.17 below.

Table 4.17: ANOVA for Knowledge Acquisition

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.490	1	4.490	9.489	.003 ^a
	Residual	27.443	58	.473		
Total		31.933	59			

a. Predictors: (Constant), knowledge acquisition

b. Dependent Variable: performance

The results of the study revealed an F-ratio of 9.489 and a p-value of 0.003. The results of the study, therefore, revealed that the model with knowledge acquisition as a predictor was significant in predicting business performance among geomatic firms in Seychelles because a p-value of 0.003 was less than 0.05.

Regression Coefficient for Knowledge Acquisition

The study sought to establish the strength and direction of the relationship between knowledge acquisition and business performance of geomatic engineering firms in Seychelles. The results of the study are shown in table 4.18 below. Dependent Variable: business performance.

Table 4.18: Coefficients for Knowledge Acquisition

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.242	.272		4.570	.000
	Knowledge Acquisition	.552	.179	.375	3.080	.003

a. Dependent Variable: Performance

The study revealed a $\beta=0.552$, $t=3.080$, and a p-value associated with it as 0.003. The study, therefore, revealed that knowledge acquisition significantly affects business performance because the p-value of 0.003 was less than 0.05. A unit increase in knowledge acquisition led to a 0.552 increase in business performance

We can therefore reject the hypothesis saying:

HO1: *knowledge Acquisition has no significant effect on business performance in geomatic engineering firms in Seychelles.*

A similar study by Singh et al. (2019) noted that in the new knowledge-based economy, emphasis is on the creation, use, and diffusion of knowledge in the organization. Firms must therefore create and make good use of knowledge in diverse operations that helps an organization improve its performance in the industry.

4.4.2.2 Knowledge Innovation

The study sought to test the hypothesis that knowledge innovation has no significant effect on business performance. The results of the study were presented under the model summary, ANOVA, and regression coefficients.

Model Summary for Knowledge Innovation

Coefficient of determination is used in establishing how much of the dependent variable explained is by the independent variable(s). The coefficient of determination is given in table 4.19 below between knowledge innovation and business performance of geomatic engineering companies in Seychelles.

Table 4.19: Model Summary for Knowledge Innovation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
dimension0 1	.369 ^a	.136	.121	.690

a. Predictors: (Constant), Knowledge Innovation

Results of the study revealed an Rsquare 13.6%. Therefore, the results shown in the table can be explained that that knowledge innovation can explain about 13.6% of the change in the business performance of geomatic engineering firms in Seychelles.

ANOVA

Analysis of variance was conducted to explain the overall significance of the variables in the model. Results are shown in Table 4.20 below.

Table 4.20: ANOVA for Knowledge Innovation^B

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.344	1	4.344	9.131	.004 ^a
	Residual	27.590	58	.476		
Total		31.933	59			

a. Predictors: (Constant), Knowledge innovation

b. Dependent Variable: Performance

The results of the study revealed an F-ratio of 9.131 and a p-value of 0.004. The results of the study, therefore, revealed that the model with knowledge innovation as a predictor was significant in predicting business performance among geomatic firms in Seychelles because a p-value of 0.004 was less than 0.05.

Regression Coefficient for Knowledge Innovation

The study sought to establish the strength and direction of the relationship between knowledge innovation and business performance of geomatic engineering firms in Seychelles. The results of the study are shown in table 4.21 below.

Table 4.21: Coefficients for Knowledge Innovation^A

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	.538	.503		1.071	.288
	Knowledge innovation	.564	.187	.369	3.022	.004

a. Dependent Variable: Performance

The study revealed a $\beta=0.564$, $t=3.022$, and a p-value associated with it as 0.004. The study, therefore, revealed that knowledge innovation significantly affects business performance because the p-value of 0.004 was less than 0.05. A unit increase in knowledge innovation led to a 0.564 increase in business performance

We can therefore reject the hypothesis saying:

HO2: Knowledge innovation has no significant effect on business performance in geomatic engineering firms in Seychelles.

Klomp and Van Leeuwen (2001) concurred with the study findings. In his study, to determine the influence of the different stages of the process of innovation on the overall economic performance of organizations, he found out that there exists a significant difference in the performance levels of innovating and non-innovating firms with the innovating firms performing better than the latter. Similar findings by Fang et al. (2017) revealed that knowledge networks had a positive and significant effect on the innovativeness of organizations through promoting knowledge exchange, knowledge sharing, and transfer which in effect has a profound effect on the innovative performance in the organization. The study recommended organization alliance and cooperation to help in exchanging knowledge and therefore promoting innovativeness.

Communication Effectiveness

The study sought to test the hypothesis that communication effectiveness has no significant effect on the business performance of geomatic firms in Seychelles. The results of the study was presented under the model summary, ANOVA, and regression coefficients.

Model Summary for Communication Effectiveness

Coefficient of determination is used in establishing how much of the dependent variable explained is by the independent variable(s). The coefficient of determination is given in table 4.22 below between communication effectiveness and business performance of geomatic engineering companies in Seychelles.

Table 4.22: Model Summary for Communication Effectiveness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.711 ^a	.505	.497	.522

a. Predictors: (Constant), Communication Effectiveness

Results of the study revealed a Rsquare 50.5%. Therefore, the results shown in the table can be explained that that communication effectiveness can explain about 50.5% of the change in the business performance of geomatic engineering firms in Seychelles.

ANOVA for Communication Effectiveness

Analysis of variance was conducted to explain the overall significance of the variables in the model. Results are shown in Table 4.23 below.

Table 4.23: ANOVA for Communication Effectiveness

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	16.133	1	16.133	59.224	.000 ^a
Residual	15.800	58	.272		
Total	31.933	59			

a. Predictors: (Constant), Communication Effectiveness

b. Dependent Variable: performance

The results of the study revealed an F-ratio of 59.224 and a p-value of 0.001. The results of the study, therefore, revealed that the model with communication effectiveness as a predictor was significant in predicting business performance among geomatic firms in Seychelles because a p-value of 0.001 was less than 0.05.

Regression Coefficient for Communication Effectiveness

The study sought to establish the strength and direction of the relationship between communication effectiveness and business performance of geomatic engineering firms in Seychelles. The results of the study are shown in table 4.24 below.

Table 4.24: Coefficients for Communication Effectiveness

Model		Unstandardized		Standardized		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.176	.163		19.480	.000
	Communication Effectiveness	.692	.090	.711	7.696	.000

a. Dependent Variable: Performance

The study revealed a $\beta=0.692$, $t=7.696$, and a p-value associated with it as 0.001. The study, therefore, revealed that communication effectiveness significantly affects business performance because the p-value of 0.001 was less than 0.05. A unit increase in communication effectiveness led to a 0.692 increase in business performance.

We can therefore reject the hypothesis saying:

HO3: *Communication effectiveness has no significant effect on business performance in geomatic engineering firms in Seychelles.*

Amber (2015) concurred that there exists a relationship between effective communication, effective information technology, and business performance.

Organization Memory

The study sought to test the hypothesis that communication effectiveness has no significant effect on the business performance of geomatic firms in Seychelles. The

results of the study were presented under the model summary, ANOVA, and regression coefficients.

Model Summary for Organization Memory

Coefficient of determination is used in establishing how much of the dependent variable explained is by the independent variable(s). The coefficient of determination is given in table 4.25 below between organization memory and business performance of geomatic engineering companies in Seychelles.

Table 4.25: Model Summary for Organization Memory

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
dimension0 1	.386 ^a	.149	.134	.685

a. Predictors: (Constant), organization Memory

Results of the study revealed a Rsquare of 14.9%. Therefore, the results shown in the table can be explained that that organization memory can explain about 14.9% of the change in the business performance of geomatic engineering firms in Seychelles.

ANOVA for Organization Memory

Analysis of variance was conducted to explain the overall significance of the variables in the model. Results are shown in Table 4.26 below.

Table 4.26: ANOVA for Organization Memory

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.749	1	4.749	10.132	.002 ^a
	Residual	27.184	58	.469		
	Total	31.933	59			

a. Predictors: (Constant), Organization Memory

b. Dependent Variable: Performance

The results of the study revealed an F-ratio of 10.132 and a p-value of 0.002. The results of the study, therefore, revealed that the model with organization memory as a

predictor was significant in predicting business performance among geomatic firms in Seychelles because a p-value of 0.002 was less than 0.05.

Regression Coefficient for Organization Memory

The study sought to establish the strength and direction of the relationship between organization memory and business performance of geomatic engineering firms in Seychelles. The results of the study are shown in table 4.27 below.

Table 4.27: Coefficients for Organization Memory

Model		Unstandardized		Standardized		Sig.
		Coefficients	Std. Error	Coefficients	t	
		B		Beta		
1	(Constant)	2.783	.251		11.066	.000
	Organization Memory	.542	.170	.386	3.183	.002

a. Dependent Variable: Performance

The study revealed a $\beta=0.542$, $t=3.183$, and a p-value associated with it as 0.002. The study, therefore, revealed that organization memory significantly affects business performance because the p-value of 0.002 was less than 0.05. A unit increase in organization memory led to a 0.542 increase in business performance.

We can therefore reject the hypothesis saying:

HO4: *Organization memory has no significant effect on business performance in geomatic engineering firms in Seychelles.*

Ungson (2019) concurred that the organizational memory of a firm will dictate how the business performs in the economy which implies that they have a relationship.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

Chapter five of the study presented the summary of findings, conclusions based on findings, and policy recommendations.

5.2 Summary

5.2.1 Knowledge Acquisition

On the effects of knowledge acquisition on business performance, it was established that most respondents agreed on having good documentation. These include possessing effective skills in work matters, being competent in coordinating departmental activities in the firm, and the ability to inspire loyalty among staff. On knowledge acquisition, the study revealed ($\beta=0.552$, $t=3.080$ and a p-value associated with it as 0.003).

5.2.2 Knowledge Innovation

On the effect of knowledge innovation on the business performance, those who agreed were on the statement that innovation orientation strongly improves market share; innovation orientation improves managerial practices such as the implementation of MIS, and that innovation helps in new product development. On Knowledge innovation, the study revealed a ($\beta=0.564$, $t=3.022$ and a p-value associated with it as 0.004).

5.2.3 Communication Effectiveness

On the effect of communication effectiveness on business performance, the findings revealed that those who strongly agreed were on communication providing ways to

share experiences and communication is the essential element of the learning infrastructure. Besides, those who agreed were on communication enables messages from top management to be passed throughout the organization. On communication effectiveness, the study revealed a ($\beta=0.692$, $t=7.696$ and a p-value associated with it as 0.001).

5.2.4 Organization Memory

On the effect of organization memory on business performance, the findings revealed that those who strongly agreed were on organizational memory enabled the determination of technology trends among other important environmental factors. Further those agreed were on organizational memory can help a firm spot emerging consumers, competitors, and suppliers. Organizational memory allows individuals to recognize valuable new knowledge and continue to build upon this knowledge and that organizational memory allows for the integration of an individual's knowledge. On Organization memory the study revealed ($\beta=0.542$, $t=3.183$ and a p-value associated with it as 0.002).

5.3 Conclusion

5.3.1 Knowledge Acquisition

The study concluded that knowledge acquisition had a significant effect on business performance in Geomatic engineering firms in Seychelles, therefore the null hypothesis was rejected. A similar study by Singh et al. (2019) noted that in the new knowledge-based economy, emphasis is on the creation, use, and diffusion of knowledge in the organization. Firms must therefore create and make good use of knowledge in diverse operations that helps an organization improve its performance in the industry.

Knowledge acquisition increases the growth of competitive advantage. Information on markets, customers, and other factors of production will empower the organizations to capture opportunities and better place them to respond to looming threats. With enhanced knowledge, organizations will be in a better position to reach their goals faster, cheaper with better quality products and services than their competitors.

5.3.2 Knowledge Innovation

The research concluded that innovation in knowledge significantly determined performance of the firms in Seychelles geomatic engineering businesses, therefore the null hypothesis was rejected. Klomp and Van Leeuwen (2001) agreed that there is a substantial difference in level of performance between innovative and non-innovating businesses, with the former outperforming the latter. According to Fang et al. (2017), knowledge networks have a positive and substantial influence on the innovativeness of companies by encouraging information exchange, sharing of knowledge, and transferring that has a sizable influence on the firm's innovative performance. Strategies are plans which integrate the organization's policies, goals, processes, and actions which results in an interconnected organization plan. A cohesive organization plan is vital in an organization as it promotes creativity and aids in enhancing innovation. Other studies in various sectors have revealed that implementation of strategies, development of proper human resource management practices, and knowledge management policies within an organization have a positive effect on the innovation and productivity of the organization.

5.3.3 Communication Effectiveness

The study found that communication efficacy had a substantial impact on company success in Seychelles geomatic engineering businesses, thus the study null hypothesis was rejected. Amber (2015) concurred that there exists a relationship between effective communication, effective information technology, and business performance. The most influential and effective managers are the ones who are capable to understand communication and consequently utilizing it effectively in the organization since communication is the mode by which managers accomplish every managerial function in the organization. For managers to plan effectively and successfully, managers are supposed to pass their vision within the organization effectively by communicating efficiently. In organizing, assigning, and completing tasks, managers depend on free-flowing communication in the organization both vertically and horizontally among the departments and colleagues while respecting the hierarchy.

5.3.4 Organization Memory

The research showed that organizational memory had a substantial impact on company performance in Seychelles geomatic engineering businesses, thus the null hypothesis was rejected. Ungson (2019) concurred that the organizational memory of a firm will dictate how the business performs in the economy which implies that there exists a relationship between them.

5.4 Recommendations

5.4.1 Knowledge Acquisition

The study recommended for the firms to enhance knowledge acquisition by encouraging employees to do independent self-reporting, doing more documentation,

and building networks to boost knowledge and business performance. Firms should also develop strategies for knowledge acquisition by laying out training and exchange programs. Re-engineering of firms to be better placed to acquire knowledge should also be encouraged. Organizations should always strive to acquire new knowledge. For an organization to acquire new knowledge, either the knowledge has to be developed or invented internally, or be acquired from external environment or external sources. Several sources of knowledge both internal and external do exist within the organization. To acquire knowledge from the external environment, organizations should rely on customers, markets, competitors, the general public, and the government.

5.4.2 Knowledge Innovation

The research also advocated increasing company innovation by developing new and innovative products, market expansion, and new technologies, which would eventually improve organizational performance by increasing competitive edge. Organisations must place a greater emphasis on developing innovative policies and strategies that will boost their competitive edge. The research advocated organizational alliance and collaboration to aid in the exchange of information and, as a result, the promotion of innovativeness.

5.4.3 Communication Effectiveness

The study also recommended the improvement in communication effectiveness through the utilization of appropriate communication channels, adopting the most appropriate organizational structure, and the inculcating of organizational cultures that boost communication in the organization.

5.4.3 Organization Memory

The study finally recommended for the organization to invest in modern technology to assist in building organization memory that assists in quick retrieval of data, flexible decision making, and ultimately business performance. For organizations and managers to improve operational performance, it is important to build, update and use the organization's memory in terms of the database. The database will enhance the organization's capacity to innovate and improve performance. Organizations' past experiences guide their present and the future. Therefore, knowledge gained by employees in an organization is considered a valuable asset which the organization should not lose but fight to retain.

5.5 Recommendation For Further Studies

The study's findings suggest numerous avenues for additional study in organizational learning and corporate performance. Because this research only looked at Geomatic Engineering Firms (GEF), a much wider investigation involving different divisions of engineering areas would be required to obtain a clear conclusion. Future study that includes other nations and industries would give a much deeper and more generalizable basis for comprehending this complicated problem of organizational learning (OL) and organizational performance (OP).

The model could only explain 88.5% invariance of the business performance of geomatic engineering firms, it is recommended that a study be carried out consisting of other factors that were not part of the model to predict the business performance of geomatics firms. This study also focused majorly on internal variables that affect organizational learning. The researcher believes that other external factors affect

organizational learning and business performance. Therefore, future research should incorporate these external factors which influence organizational learning and business performance such as government policies, politics, and geographical location of the firm.

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APPENDICES

Appendix I: Introductory Letter

My Name is Oniare Ouma Nicholas; I am a student at Kenya Methodist University currently pursuing a Masters degree in Business Administration. To enable me to complete the degree, being required is to research the *Effect of Organizational Learning on Business Performance: A Case Study of Geomatic Engineering Firms in Seychelles*. Your help in responding to the above topic in the following questionnaire will enable me to achieve the goal.

Thank you

Yours Sincerely,

A handwritten signature in black ink, appearing to read 'Oniare Ouma Nicholas', written in a cursive style.

Nicholas Ouma

+2482724343

Appendix II: Questionnaire

Instructions: Tick where appropriate (✓)

SECTION A: DEMOGRAPHIC INFORMATION

1. Gender

Male

Female

2. How long have you worked at the firm?

Below 5 years between 5 and 10 years

Above 10 years

3. Kindly indicate the department you work for?

Engineering

Processing

Marketing

HR/Finance/Administration

SECTION B: KNOWLEDGE ACQUISITION

Using a scale of 1 to 5 where 1 = strongly disagreed, 2 = disagree, 3= Neutral, 4 = Agree and 5 = strongly agree. Please rate the following statement on knowledge acquisition.

	Statement on Knowledge acquisition	1	2	3	4	5
4	We acquire knowledge through self-reporting					
5	Knowledge is highly documented at our business					
6	We acquire knowledge through networking with staff and other stakeholders					

7	There are programs instrumentation on knowledge acquisition					
8	There is infrastructure on knowledge engineering at our business					

SECTION C: KNOWLEDGE INNOVATION

Using a scale of 1 to 5 where 1 = strongly disagreed, 2 = disagree, 3= Neutral, 4 = Agree and 5 = strongly agree. Please rate the following statement on knowledge innovation.

	Statements on Knowledge innovation	1	2	3	4	5
9	There is new knowledge innovation in new markets					
10	There are new knowledge innovations on new service lines					
11	There is new knowledge innovation on new equipment and technology					
12	There are new knowledge innovations on management information systems like project management information systems and human ERP					
13	There is knowledge innovation of new products					

SECTION D: COMMUNICATION EFFECTIVENESS

Using a scale of 1 to 5 where 1 = strongly disagreed, 2 = disagree, 3= Neutral, 4 = Agree and 5 = strongly agree. Please rate the following statement on communication effectiveness.

	Statements on Communication Effectiveness	1	2	3	4	5
14	Employees easily share knowledge and ideas in decision making					
15	We engage our stakeholders on set goals and objectives					

16	Communication is an essential element of the learning infrastructure					
17	We have improved our customer service					
18	We provide feedback to the top management in the decision-making process					
19	Communication provides ways to share experiences					
20	Information easily flows across all levels of management					

SECTION E: ORGANIZATIONAL MEMORY

Using a scale of 1 to 5 where 1 = strongly disagreed, 2 = disagree, 3= Neutral, 4 = Agree and 5 = strongly agree. Please rate the following statement on organization memory.

	Statements on Organizational memory	1	2	3	4	5
21	Organization memory has allowed our business to adapt to a new business environment					
22	Organization memory has helped our business build on new knowledge					
23	Our business is flexible due to organizational memory					
24	Organizational memory allows integrating an individual's knowledge					
25	Through organizational memory, we have been able to tap into new business opportunities					
26	Organizational memory has enabled our business to determine					

	trends in technology and other macro-environmental factors					
--	--	--	--	--	--	--

SECTION F: BUSINESS PERFORMANCE

Using a scale of 1 to 5 where 1 = strongly disagreed, 2 = disagree, 3= Neutral, 4 = Agree and 5 = strongly agree. Please rate the following statement on business performance.

	Statement on Business performance	1	2	3	4	5
27	The staff morale has been improved through organizational learning					
28	We have diversified into other products through organizational learning					
29	We have made entry into new markets through organizational learning					
30	We have increased our profits through organizational learning					
31	We have increased our sales revenues through organizational learning					
32	We have increases our workforce through organizational learning					

Appendix III: Performance Schedule

1. What was your company's sales growth in percentage (%) in the following years?

Year 1----- year 2----- year 3-----

2. Please indicate the numbers in the following aspects of your company for the past three years:

Aspect	Year 1	Year 2	Year 3
No of employees			
No. of Branches			
Market share			
No of products			

3. What was the position of your company's profitability in the past three years?

(Profit =Income – Expenses)

Yr 1.....

Y2.....

Y3.....

4. How satisfying was your company's overall profitability in the following years?

Very dissatisfying	Dissatisfying	Neutral	Slightly satisfying	Very satisfying

Appendix IV: List of Firms

Firm 1	Allied Builder (Seychelles) Limited
Firm 2	Mahe Design & Build
Firm 3	O-NIVO Construction (Pty) Ltd
Firm 4	Sai-Fu Enterprise Co.,Ltd. 塞舌尔·宝业塞富有限责任公司
Firm 5	Laxmanbhai & Co. Sey Limited
Firm 6	VIJAY Construction (PTY) LTD

Appendix IV: Research Permit

**MINISTRY OF HABITAT, INFRASTRUCTURE & LAND TRANSPORT
SURVEYSECTION**
Independence House, P.O Box 199, Victoria, Mahe, Seychelles
Telephone (248) 4674444 – Fax (248) 4610178 Email: jalexis@mluh.gov.sc



Please address all correspondence to the Principal Secretary

The Director of Surveys,
Ministry of Lands and Housing,
P. O. Box 199,
Independence House,
Victoria,
Seychelles.
20th October, 2020.

To,
Whom it may concern,

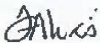
RE: ONIARE OUMA NICHOLAS

This is to certify that the above name individual is authorized to carry out his study and research in Seychelles on Organizational Performance.

Any assistance accorded to him will be appreciated.

Thank you.

Yours faithfully,


Julien Alexis,
Director of Surveys

