The Impact of Knowledge Management Practices on Organizational Effectiveness in Sudanese Financial Sector: Mediating Role of Innovation Capabilities and Moderating Effect of Organizational Culture

أثر عمليات إدارة المعرفة على الفعالية التنظيمية في قطاع المؤسسات المالية في السودان: الدور الوسيط للقدرات الابتكارية والأثر المعدّل للثقافة التنظيمية

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"And Say:

My Lord, Increase me

In Knowledge"

Quran – Taha 20:114

Abstract

The purpose of this study is to investigate the relationship between knowledge management practices and organizational effectiveness, in addition to identifying the mediating effect of innovation capabilities and the moderating impact of organizational culture on this relationship in financial institutions sector in Sudan. In order to achieve the research aim and objectives, this study is preceded by a critical review of the relevant literature that leads to the development of a comprehensive theoretical model. Data collected from top management levels of 134 financial institutions in Sudan by using a survey questionnaire with a design based on previous studies, and analyzed using the Statistical Package for Social Sciences, SPSS V.23, and the Analysis of a Moment Structures, AMOS V.21. A total of 130 respondents from top management levels of the organizations have answered and filled out the questionnaires which created the response rate of 97 percent. This research in nature is quantitative and deductive and uses survey method by self-administered questionnaire.

The results of this study show that there is a positive relationship between knowledge management practices and organizational effectiveness, and that innovation capabilities are full mediators in the relationship between the two types of knowledge management practices and the two components of organizational effectiveness. Moreover, the findings of this study demonstrate that organizational culture is a partial moderator in the relationship between knowledge management practices and organizational effectiveness except for one dimension of organizational culture (i.e. Strategic Emphases).

This study makes several contributions one of which is the provision of a comprehensive framework which explains the importance and impact of innovation capabilities as a mediator and organizational culture as moderator on the relationship between knowledge management practices and organizational effectiveness. Moreover, this study provides a novel contribution to the growing literature on the relationship between knowledge management practices and organizational effectiveness in financial institutions sector, particularly for developing countries such as Sudan. Furthermore, the findings of this study provide meaningful managerial implications and can be used as a guide for managing knowledge appropriately to improve organizational effectiveness

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المستخلص

الغرض من هذه الدراسة هو دراسة العلاقة بين عمليات إدارة المعرفة والفعالية التنظيمية، بالإضافة إلى تحديد الدّور الوسيط للقدرات الابتكارية والأثر المُعدّل للثقافة التنظيمية على هذه العلاقة في قطاع المؤسّسات المالية في السّودان. من أجل تحقيق غاية البحث وأهدافه، قام الباحث بمراجعة الدراسات السابقة والأدبيات المتوفرة ذات الصلة بموضوع البحث بما مكّنهُ من تطوير نموذجٍ مفاهيميٍّ شامل. تمَّ جمعُ بيانات الدراسة على مستوى الإدارات التنفيذية العليا في 134 مؤسّسة مالية في السّودان باستخدام استبانة صُمّمت خصّيصًا لهذا الغرض واستندت إلى الدراسات السابقة، وتمّ تحليلها باستخدام كلٍّ من برنامجَي الحزمة الإحصائية للعلوم الاجتماعيةSPSS ، وAMOS. وقد أجاب على الاستبانة ما مجموعُهُ 130 مشاركًا من جُملة 134 وُزّعت عليهم من المستويات الإدارية العليا للمنظمات مجتمع الدراسة، أي بمعدل 97 في المئة. استخدم البحث المنهج التحليلي الكمي والمنهج الاستنتاجي.

أظهرت نتائج الدراسة أنّ هناك علاقة إيجابية بين عمليات إدارة المعرفة والفعالية التنظيمية، وأن القدرات الابتكارية تؤدي دورًا وسيطًا في العلاقة بين بُعدَيْ عمليات إدارة المعرفة [تطبيق المعرفة وحماية المعرفة]، ومُكوِنَيْ الفعالية التنظيمية [استبقاء الموظفين ورضا العملاء]. علاوة على ذلك، فإنّ نتائج هذه الدراسة أشارت إلى أنّ أبعاد الثقافة التنظيمية لها أثرٌ مُعدّلٌ [على نحوٍ جزئي] في العلاقة بين عمليات إدارة المعرفة والفعالية التنظيمية باستثناء بُعدٍ واحد (هو مجالات التركيز الاستراتيجي).

تقدّم هذه الدراسة عدّة مساهمات وتنجم عنها عدة انعكاسات، أحدها توفير إطار شامل يشرح أهمية وأثر القدرات الابتكارية كمتغيّرٍ وسيطٍ، والثقافة التنظيمية كمتغيّرٍ مُعدّلٍ في العلاقة بين عمليات إدارة المعرفة والفعالية التنظيمية. علاوة على ذلك، تقدم هذه الدراسة مساهمة جديدة في الأدبيات المتزايدة حول العلاقة بين عمليات إدارة المعرفة والفعالية التنظيمية في قطاع المؤسسات المالية، خاصة بالنسبة للدول النامية مثل السّودان. فضلًا عن ذلك، فإنّ نتائج هذه الدراسة توفر مساهماتٍ إدارية ذات مغزى ويمكن استخدامها كدليل لإدارة المعرفة على نحوٍ يُمكّن من تحسين الفعالية التنظيمية.

Dedication

This PhD thesis is dedicated to:

The souls of the martyrs of 19 December 2018 glorious revolution who sacrificed their lives for the sake of a better future to our nation,

My dearest brother/my best friend, KIMO, who has always been there for me when things look bleak. For his unconditional love and support,

My dearest wife, Adla, and my beloved children: Mutaman; Yamin, and Hotoun whom the look into their eyes inspire me with hope and strength.

Acknowledgements

In the Name of Allah, the Most Merciful, the Most Compassionate. All praise be to Allah, the Lord of the worlds; and prayers and peace be upon Mohamed His servant and messenger. First and foremost, I must acknowledge my limitless thanks to Allah, the Ever-Magnificent; the Ever-Thankful, for His help and bless. I am totally sure that this work would have never become truth, without His guidance. I owe a deep debt of gratitude to Sudan University of Science and Technology for giving me an opportunity to complete this work. I am grateful to some people, who worked hard with me from the beginning till the completion of the present research particularly my supervisor Dr. Siddig Balal, who has been always generous during all phases of the research, and I highly appreciate the efforts expended by Dr. Abdel Salam Adam Hamid Abakar, Head of Business Administration Department. I would like to take this opportunity to send warm thanks to all my beloved friends, who have been so supportive along the way of doing my thesis. I also would like to express my wholehearted thanks to my extended family for their generous support they provided me throughout my entire life and particularly through the process of pursuing the PhD degree. Because of their unconditional love and prayers, I have the chance to complete this thesis.

I owe profound gratitude to my wife, Adla, whose constant encouragement, limitless giving and great sacrifice, helped me accomplish my degree. I am very appreciative to the managers at the Sudanese financial institutions, who participated in this study whom without their support, this study would not have been possible.

Last but not least, deepest thanks go to all people who took part in making this thesis real.

Declarations

I declare that, to the best of my knowledge, no portion of the work referred to in this thesis has been submitted in support of an application for another degree, or qualification, to any other university, or institute of learning. The following publications have been produced as direct or indirect results of the research discussed in this thesis.

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

The rapidly changing and highly demanding business environment in the contemporary economy has imposed challenges on organizations as a reflection of the intense competition that shapes business marketplaces globally and at the domestic level.

Omotayo (2015) argued that the consequence of globalization, and the fast information transfer, is the evolution of knowledge-based economy where significance is placed upon effective management of human capital to assure that workers manage to continue creating the right value for the economy.

The need to knowledge management arises because of the fact that business organizations need to operate, survive and progress in a highly dynamic environment where change is the rule, not the exception (Grant 2008).

At the present time, organizations do not compete merely on the grounds of financial resources and tangible assets; rather knowledge is the new competitive advantage in business. According to Omotayo (2015), there is popular saying that knowledge is power. Depending on this claim, it can be said that knowledge management is the key to power.

In this context, knowledge management (KM) has become a pivotal point for research and studies that seek to devise approaches to help organizations acquiring a sustainable competitive advantage (Gaffoor and Cloette, 2010). From their point of view, Davenport and Prusak (1998) define knowledge management as "the process of identifying, managing and leveraging individual and collective knowledge to support the firm becoming more competitive". Nonaka (1991), Tiwana (2002), and Young (2010) define knowledge management as ''an established management methodology that has been successfully applied all-over corporate sectors by systematically generating, sharing, storing and optimallyapplying the wide knowledge in the company to achieve better performance and attain organizational goals''.

Regardless of the ambiguities encompassing knowledge management, more companies begin to understand

its vital potential for adapting to the turbulence of the new business environment. Within the knowledge age, it has become universally perceived that the intangible assets of a company will be critical to both its capability to achieve a competitive advantage, and to grow at a quickened pace (Sveiby et al, 2012). As indicated by Halawi et al (2005), this era is characterized by the movement of conventional elements of production, which used to be capital, labor or land, to the key asset that can drive the attainment of societal and financial results, which is knowledge. Therefore, more organizations are showing increased consideration to the value creation through utilizing of knowledge.

In the knowledge-based economies, organizations concentrate on issues of intellectual capital over the traditional resources and assets, and on their ability to exploit these intangible assets. Drucker (1993) stated that enhanced performance is shown in the form of more knowledgeable decision-making, organized processes, greater innovation, and more collaboration within the firm. As indicated by (Cong and Pandya, 2003), knowledge management contributes to cost efficiency and improved delivery of service.

As a consequence, financial firms are increasingly pressured to better harness knowledge-based resources in a way that enhances their effectiveness and accordingly sustains their competitive advantage. In this context, Knowledge Management and Innovation are viewed as key strategic options that can significantly enhance an organization's ability to effectively respond to changeful customer needs and ever-evolving technologies, thus boosting their organizational effectiveness in today's turbulent business environment (Damanpour et al., 2009; Chen et al., 2010; Andreeva and Kianto, 2011; Dahiyat, 2015).

The concept of organizational effectiveness has gained significance over the last few decades because research has proved that it is helpful for the modern organizations to manage and improve their overall performance and achieve the desired results (Becerra-Fernandez and Sabherwal, 2001). In the modern world, organizational effectiveness emphasises more the development of employee's skills because the knowledge, skills and capabilities of the employees are keys to business success and they are also very helpful in ensuring organizational effectiveness (Berson and Linton, 2005). Therefore, it requires firms to understand the necessity and importance of people and ensure their satisfaction at the workplace. It is particularly important because the satisfied workers are more capable of ensuring the customer satisfaction

and gain client loyalty (Christensen and Overdorf, 2000).

According to scholars such as Taylor (1911), Fayol (1916), and Mayo (1933), effectiveness is all about the goals the organization attains in terms of increasing production, reducing cost, and achieving higher performance of technology through maintaining an obvious objective-oriented approach. The later research have viewed effectiveness from the attainment of goals perspective. A number of researchers defined effectiveness on the basis of productivity and achievement of goals Etzioni, 1964; Price, 1968; Campbell, 1977). Other researchers defined effectiveness on the basis of the acquisition of resources (Yutchman and Seashore, 1967). Some researchers defined effectiveness on the basis of associated individuals satisfaction. Steers (1977) suggested that organizations are considered effective when satisfying their stakeholders.

Cameron and Whetten (1983) argue that as organizational effectiveness means different things to different people; it is like a theoretical concept that exists in people's minds. Therefore, there is no single best method of achieving organizational effectiveness. A study by Owens, et al. (1982) identified five distinctive features of the organization, stating that organizations are systems with interrelated components.

Hall (1972) stated that organizational effectiveness is the measurement of the success of the organization in achieving its goals. Since the goals of some organizations are considered to be subjective and biased, measurements such as financial position and volunteer commitment can be used to evaluate organizational effectiveness, (Knoke and Wood, 1981). However, the significance of the measurement dimensions is based on the organizational model used (Goodman and Pennings, 1980).

The linkage between knowledge management and organizational effectiveness originates, basically, from the intention of knowledge management to develop the organization's internal capacity to meet its current needs in light of its future objectives (McCann and Bruckner, 2004). According to (Kalling, 2003), knowledge management is considered as a significant approach to achieve better organizational performance in contemporary society.

On the other hand, the relationship between innovation and effectiveness has been considered as ambiguous and one that is studied by an existing literature characterized by conflicting and confusing results (Hashi and Stojcic, 2010), which calls for the need to conduct further studies in order to investigate the

relationships between process innovation and organizational effectiveness (Damanpour and Aravind, 2012). In particular, the impact of process innovation on the organizational effectiveness of financial institutions sector in Sudan is under-investigated (Abdallah et al., 2016). Furthermore, there is a lack of studies that attempt to investigate the linkages among KM, innovation and organizational effectiveness (Choi et al., 2008) so as to precisely describe process innovation that plays a crucial role in improving organizational effectiveness and enabling the organization to achieve its competitive priorities (Camison-Zornoza et al., 2004; Gunday et al., 2011).

Process innovation occurs as a result of incorporating new knowledge with existing knowledge to reconfigure organizational capabilities and competencies, resulting in value-added products and services. In this context, KM encompasses processes concerned with facilitating the creation and acquisition of new knowledge, integrating it with an organization's existing repository of knowledge, sharing it and applying it in value-added outputs. As such, KM is argued to significantly enhance an organization's innovation process (Cavusgil et al., 2003; Dahiyat and Al-Zu'bi, 2012; Dahiyat, 2015).

1.2 Research Background

The current state of growth of financial markets and fiscal systems, and the environmental developments in which they operate, have imposed a different perspective to cope with issues of economic changes generally, and particularly, in the financial industry (Ammar, 2009). Roghanian et al. argued that the financial sector plays a key role in allocating resources, driving economic growth, and the creation of job. They stated that the existence of efficient financial companies to enhance the economic growth is an essential requirement for all nations. They illustrated that it is imperative that companies emphasize similarly to the effectiveness and efficiency and maintaining their profit growth. Thus, it is so crucial that the financial institutions measure their effectiveness specifically determine where they stand.

It has been suggested that in service industries, such as financial services, w here competition can move very quickly and new players can easily enter, there is a constant need to align the organization's intangible assets with its overall strategy (Schmenner, 1995 as cited by Easa, 2012). This appears to be precisely what

financial institutions, in particular, have begun to do in recent years. As a result of the increasing complexity and change in the financial services industry, financial institutions have turned to adopt knowledge management as a strategic approach of doing business. According to (Grant, 2010), the relatively new trends toward knowledge management in financial institutions is viewed as a move designed not only to help them cope with their changing environment more effectively, but also to improve their financial performance as well.

The financial industry is one of the key contributors to most economies. It is worldwide characterized by intense competition, and also subject to the dynamics of global market trends.

The financial industry in Sudan - the focus of this study - is fast expanding, facilitating greater trade and investment in the country as well as providing greater financial access to the Sudanese public. The financial institutions sector represents a cornerstone of Sudan's financial system and is the key source of finance for the national economy.

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As indicated by (González, 2014), It is widely recognized that financial institutions sector can be categorized among knowledge-based industries. The study, based on this background, attempts to investigate knowledge management practices within the Sudanese financial institutions sector and analyze the factors - either internal or external – that influencing and shaping the implementation of knowledge management in Sudanese financial institutions.

According to Osman (2000), Sudanese financial industry is characterized by intense competition; as a result, financial institutions need to leverage their knowledge assets efficiently to gain competitive advantage and maintain a better capability to act and cope with the ever-changing preferences and demands of customers. To manage to achieve this competitive edge, it is of vital importance that Sudanese financial institutions must embrace the knowledge management philosophy as a strategic asset focal to production, services

delivery, operational innovation, managerial decision-making and organizational alteration and adaptation.

In the Sudanese financial sector environment, the financial companies' customers changing preferences and needs obligate financial institutions to innovate products and services on a continual basis, and this, accordingly, emphasizes the need to leveraging knowledge that resides within these financial institutions and thus achieving the desired performance. However, Sudanese financial institutions, like all other industries in Sudan, are faced with various challenges and barriers to effectively implement knowledge management. As argued by (Leidner, 1998), the organizational culture is regarded as one of the key factors supporting the realization of KM. Chmielewska-muciek et al (2013) refers to the organizational culture supporting KM as an integration of elements generating such environment in organization, in which knowledge will be actually created, shared and utilized. Hence, the study is aimed at addressing the impact of the organization's cultural factors on the KM practices within the Sudanese financial institutions. As well, it investigates whether or not the Sudanese cultural values are associated with the existing organizational practices of knowledge management in the Sudanese financial institutions.

1.3 Statement of the Problem

Today, knowledge drives business world (Hamid, 2012). Many studies considered knowledge as a primary source of input for value creation rather than the physical or traditional capital, such as land, equipment, and raw material (Gold et al., 2001; Zack et al., 2009, Wu and Chen, 2014). Prior research suggests that achieving outstanding performance outcomes is not only dependent on the effective placement of tangible assets but also on the management of knowledge resources and capabilities (Gold et al., 2001; Lee and Sukoco, 2007; Zack et al., 2009, Mills). According to Smith (2011), KM has emerged as an important concept over the last fifteen years; therefore, it builds upon the extension of resource based view (RBV) into knowledge-based view (KBV). Barney (1991) indicated that organizations are substantially investing in KM initiatives for the purpose of effective maintenance and flow of knowledge within and outside of the organization. Supporting this argument, Karkoulian et al. (2013) pointed out that KBV suggests that organizations have bundle of knowledge resources and capabilities, which are valuable, rare and non-

substitutable, used for achieving sustainable competitive advantage and superior performance standards.

The available literature shows that the importance of knowledge as a strategic valuable resource motivates the researchers to pay more attention towards KM and its relationship with different performance measures such as organizational efficiency, innovation, and effectiveness (Bhojaraju, 2005).

The correlations between knowledge management and organizational constructs have been the topic of several studies. However, based on the literature reviews, several gaps were identified as to why this research is needed. The relationship between knowledge management and organizational performance has been broadly recognized by a large number of researchers (Drucker, 1992; Spender, 1996; Davenport and Prusak, 1998; Teece 1998; Nonaka et al 2000; Omotayo, 2015). Also, the relationship between knowledge management and innovation was addressed by many studies (Darroch, ,Maqsood ,2002 ,Pang ;2006 ;2011 ,NumairYoung, 2016). Furthermore, a number of researchers investigated the role that knowledge ;2012 management plays in enhancing organizational learning (Hovland, ;King, 2009; Lim ;2003 ,Mera ;2011 ,Downes ;2012 .(2014

In this context, organizational effectiveness (OE) is one of the key performance measures. Rojas (2000) stated that organizational effectiveness has been one of the most extensively researched issues since the early development of organizational theory. However, in general, little empirical research has been conducted to investigate the relationship between KM and organizational effectiveness (Kalling, 2010; Zack, et al., 2015). Few researchers addressed the linkage between KM and OE from different perspectives. For example, Islam et al. (2008) and Islam et al. (2011) explored the dimensions of KM practices as a mediating effect between organizational context and organizational effectiveness. Mudor (2014) studied the relationship between organizational culture, knowledge management, and organizational effectiveness. He employed knowledge management as a mediator between organizational culture and organizational effectiveness. Abd Rahmann et al. (2013) addressed the interactions between the dimensions of knowledge management practices and training in improving the organizational effectiveness of manufacturing firms in Malaysia. The researchers used knowledge management processes (knowledge acquisition, knowledge conversion, knowledge application, and knowledge protection) as a moderating variable between training

skills and organizational effectiveness. However, in-depth search in the available literature shows that none of these previous studies employed KM as an independent variable when studying its relationship with OE. Hence, his study is intended to bridge this gap by investigating the impact of knowledge management on organizational effectiveness using KM as an independent variable and OE as a dependent variable.

Besides examining the relationship between KM and OE, this study takes into consideration the moderating effect of organizational culture on the relationship between KM and OE. Literature reviews show that organizational culture has been identified as the most significant determinant of knowledge management in organizations among KM success factors (Watson 1998). Delong & Fahey (2000) stated that efforts for knowledge management are often resisted by organizational culture and as a result they have limited impact. Supporting this, (Babiak, 2002) claimed that the biggest hindrance to manage Knowledge is the inability to change peoples' behavior. Pentland (1995) argued that the existence of a supportive culture in the organization is vital in developing the association between the KM and the business performance. The existing literature shows that organizational culture has been employed by many studies as a mediating or a moderating variable between knowledge management and different variables. However, despite that the positive impact of critical success factors of knowledge management has been conceptually suggested by many studies and a number of KM models (Nonaka and Takeuchi, 1995; Kalling, 2003, Hari et al., 2005), the moderating effect of organizational culture in the relationship between knowledge management and organizational effectiveness is empirically unidentified. Based on the literature reviews, very few studies in the existing literature addressed studies in the subject of knowledge management have provided an empirical evidence of the role of organizational culture as a moderator between KM and OE. For example, Al-Tit (2016) addressed the mediating role of knowledge management and the moderating part of organizational culture between HRM practices and organizational performance. Donate et al. (2010) investigated the effect of organizational culture on knowledge management practices and innovation. Durmusoglu et al. (2013) analyzed the quasi-moderating role of organizational culture in the relationship between rewards and knowledge shared and gained. Nguyen and Mohamed (2009) examined the relationships among leadership styles, organizational culture and knowledge management practices using

organizational culture as a moderating variable. Hence, this study is intended to fill this gap by investigating the moderating role that OC plays in the relationship between KM and OE.

On the other hand, the relationship between knowledge management, innovation and effectiveness has been considered as ambiguous and one that is studied by an existing literature characterized by conflicting and confusing results (Hashi and Stojcic, 2010), which calls for the need to conduct further studies in order to investigate the relationships between process innovation and organizational effectiveness (Damanpour and Aravind, 2012). In particular, the impact of process innovation on the organizational effectiveness of financial institutions sector in Sudan is under-investigated (Abdallah et al., 2016). Furthermore, there is a lack of studies that attempt to investigate the linkages among KM, innovation and organizational effectiveness (Choi et al., 2008) so as to precisely describe process innovation that plays a crucial role in improving organizational effectiveness and enabling the organization to achieve its competitive priorities (Camison-Zornoza et al., 2004; Gunday et al., 2011).

Process innovation occurs as a result of incorporating new knowledge with existing knowledge to reconfigure organizational capabilities and competencies, resulting in value-added products and services (Gunday et al., 2011). In this context, KM encompasses processes concerned with facilitating the creation and acquisition of new knowledge, integrating it with an organization's existing repository of knowledge, sharing it and applying it in value-added outputs. As such, KM is argued to significantly enhance an organization's innovation process (Cavusgil et al., 2003; Dahiyat and Al-Zu'bi, 2012; Dahiyat, 2015). While the theoretical literature emphasizes the crucial role of KM in facilitating process innovation, empirical literature is still immature with mixed results and measures (Hall et al., 2006; Andreeva and Kianto, 2011). Specifically, the expected effect of KM on process innovations needs more empirical studies to explore and clarify those relationships (Darroch, 2005). Importantly, most of the published studies were conducted in developed countries, which emphasizes the need to conduct a study in the context developing countries as financial institutions sector in developing countries such as Sudan have huge challenges to catch up with global competition. The current study contributes to the existing literature by investigating the proposed relationships in a developing country context, which is that of Sudan.

Moreover, the practice of KM is a recent phenomenon in Sudan. Thus, in comparison with other countries, relatively little work on this topic has been done in the Sudanese context. Specifically, limited local studies were conducted in the field of KM in financial institutions, especially financial institutions sector. For instance, Yassir (2017) studied the impact of knowledge management on the marketing innovation, making the financial institutions sector the focus of his study. Also, Zeinab (2015) investigated the Employees Attitudes towards knowledge Sharing in the Sudanese financial institutions sector. As well, Abugrain (2013) addressed the relationship between knowledge management and the quality of financial services. Accordingly, the available literature of knowledge management at the domestic level shows that there is a need for further studies, one of which is the present study.

Specifically, the main problem of the research can be stated as follows: "What are the significant relationships between knowledge management practices and organizational effectiveness in Sudanese financial institutions? Does the organizational culture moderate the relationship between knowledge management and organizational effectiveness? What are the significant relationships between organizational culture and organizational effectiveness? What are the significant relationships between organizational culture and knowledge management? Does the process innovation mediate the relationship between knowledge management and organizational effectiveness?".

1.4 Research Questions

To elaborate on the research problem, five (5) research questions were formulated as follows:

1. What is the impact of KM practices on organizational effectiveness?
2. Does organizational culture moderate the relationship between knowledge management practices and organizational effectiveness?
3. Do innovation capabilities mediate the relationship between knowledge management practices and organizational effectiveness?
4. What effect do knowledge management practices have on innovation capabilities?
5. Do innovation capabilities have an impact on the organizational effectiveness?

1.5 Research Objectives

Answering the research questions, the study seeks to achieve the following objectives:

1. To investigate the relationship between knowledge management practices and organizational effectiveness, particularly in the financial institutions sector;
2. To examine whether the organizational culture moderates the relationship between knowledge management practices and organizational effectiveness;
3. To examine whether innovation capabilities mediate the relationship between knowledge management practices and organizational effectiveness;
4. To identify the effect of knowledge management practices on innovation capabilities.
5. To identify the impact of innovation capabilities on the organizational effectiveness.

1.6 The Scope of the Study

This study focuses on the Sudanese financial institutions sector which consists of 7 sub sector consist of a total of 139 financial institutions. The choice of the financial industry as a setting for this research was considered particularly appropriate because this sector has a major impact on the Sudanese economy. The financial institutions sector is the backbone of the economic system in Sudan in terms of its contribution to the economic development as, for example, the total banking finance by the end of 2016 amounted for 53,457 million SDG (CBOS, 2017).

1.7 Significance of the Study

This research is significant in several aspects and contributes to the literature both in terms of theory and practice. The importance of this study is based on the pressure financial firms are facing to enhance their effectiveness.

1.7.1 Theoretical Contributions

By investigating the impact of knowledge management on organizational effectiveness, this study anticipates three theoretical contributions.

First, the study is expected to develop a critical awareness of the current context of knowledge management practices in Sudanese financial institutions sector in terms of identifying the key challenges of knowledge management practices, including; functioning, structure, and culture in Sudanese financial institutions; developing critical understanding of the different knowledge management tools and activities which the Sudanese financial institutions are utilizing; and how organizational culture can facilitate these processes in order to positively influence the financial institutions' organizational effectiveness.

Second, the research proposes a model which aims to make theoretical contributions especially relevant to the financial institutions sector. As a result, this study strives to expand the existing understanding of knowledge management and its relevance for the financial institutions sector from an academic view.

Third, the study will also identify the extent of knowledge management practices in Sudanese financial institutions sector. Taking into consideration that there is a lack of studies that empirically recognized the relationship between KM and OE, particularly in Sudan, and generally in the developing countries, the study can add considerable knowledge in this area and provide a reference for future research about the subject.

A number of practical contributions are anticipated to originate from the current study. These practical contributions are as follows:

1. This study will attempt to provide an operational framework for the relationship of societal knowledge management, organizational effectiveness, mediating role of innovation capabilities, and moderating effects of organizational culture in financial institutions work in developing countries in general and in Sudan, in particular. This framework can serve as a practical guide for knowledge managers by enhancing

their understanding of the mechanism of effectiveness orientation to create competitive advantage. Moreover, understanding the effects of its innovation capabilities by managers will enable the institution to be responsive to change and anticipate change over time. This approach enables them to maintain an obvious path to operate and grow.

2. This study will provide better information as input to knowledge-focused managers, who are responsible for strategy development, to encourage the financial institution's use of knowledge management strategies to fuel the overall strategy of the organization. This will benefit the financial institutions to formulate a knowledge-centered strategy, as well as accommodating the innovation capabilities and culture as critical success factors to this strategy.

1.8 Operational Definitions

The purpose of defining important terms is to help the reader understand the words used in the study. Words often assume operational meanings within the context of a research study:

Table 2: Operational Definitions of Variables:

Terms	Definition	Sources
Knowledge Acquisition	Processes oriented toward obtaining, acquiring, seeking, generating, creating, capturing knowledge. Two examples of these processes are benchmarking and collaboration.	Kimiz Dalkir (2011)
Knowledge Application	Conversion of results of projects, know-how, methods and other information into process, products or services.	O'Dell, and Grayson (1998)
Knowledge Protection	The degree to which a firm produces processes designed to protect the knowledge within an organization from illegal or inappropriate use or theft.	Porter-Liebsk (1997)
Process Innovation	Processes oriented to enhance customer service, methods for the leverage of services, methods for the production of services, development activities of employees, internal administration and operations.	OECD (2005)
Service Innovation	Improved services for existing market, providing services for new markets, extended services, lines of service, exclusive services, and services compared to a year ago.	OECD (2005)
Management of Employees	Management process includes all the activities needed to maintain a productive workforce, such as field service management, human resource management, performance and training management, data collection, recruiting, budgeting, forecasting, scheduling and analytics.	Cameron & Freeman (1991)

Organizational Leadership	An indication of the effectiveness and utilization of leadership styles and is mainly an expression of how the leadership outcomes are perceived by employees and middle management	Cameron & Freeman (1991)
Organizational Glue	The firm's adhesive substance of a partnership that promotes and sustains trust, communication, connectedness, and meaningful work efforts and products.	O'Dell, and Grayson (1998)
Customer Satisfaction	A comparison between the actual buying and the customer's expectations of buying.	(Hunt, 1977)
Retention of Employees	An Effectively implementing sufficient strategies of employees can not be overemphasized. So as to accomplish their goals, organizations put in place measures to retain their staff for enhanced performance.	(Mbachu, 2001)

1.9 Organization of the Study

The remainder of the study includes chapters that position the research within existing knowledge, provide arguments for proposed relationships between constructs based on theory, describe the chosen research design, present the analytical result, and discuss the implications. Chapter Two presents the theoretical perspectives of knowledge management practices, innovation capabilities, organizational culture, and organizational effectiveness through a detailed literature review. Chapter Three describes the development of research hypotheses and provide a theoretical foundation to justify the theory based on which these hypotheses were formulated. Chapter Four introduces the research design and methodology depicting the linkages among the study constructs. Data analysis and findings are presented in chapter five, with an analysis of the collected data from the survey and the presentations of the results. The study ends with Chapter Six which provides discussion of research findings, implications of the study, limitations of the study, directions for future research, and an overall conclusion.

CHAPTER TWO

LITERATURE REVIEW

2.0 Chapter Overview

This chapter focuses on the literature pertaining to knowledge management practices, innovation capabilities, organizational culture and organizational effectiveness. The discussion of each variable will be preceded by the review of the relevant literature. The related literature will also be used to explain the inter relationships between knowledge management practices, organizational effectiveness, and innovation capabilities. It will also explain the moderating effect of organizational culture on the relationship between knowledge management practices and organizational effectiveness.

2.1. Knowledge management practices

This section reviews the first concept, knowledge management practices. It includes philosophical foundation, definitions and the components of the concept. Further, it looks at different definitions of knowledge. Key concepts that contribute to the creation of knowledge are examined. It begins by highlighting the difference between data, information, and knowledge, and proceeds into defining three key differentiating characteristics of knowledge. In addition, the different perspectives that could be used to define knowledge are briefly discussed.

A need for a well-defined taxonomy with clear concepts and terms is essential for efficient knowledge management (Paulin & Suneson, 2012). Furthermore, Paulin and Suneson (2012) argue that the content of 'knowledge' has to be clear-cut and there must be no ambiguity about the objective when using the basic concepts.

The subject of defining each of data, information, knowledge, and the interrelationships between them has been the debate for a long time (Ipe, 2003).

According to (Zins, 2007 citing Haidar Moukdad), data are sets of characters, symbols, numbers and audio/visual bits that are represented and/or encountered in raw form. (Zins, 2007 citing Holmes, 2001)

defines data as a representation of facts or ideas in a formalized manner.

According to Ipe (2003), researchers like Davenport and Prusak (1998) and Nonaka and Takeuchi (1995) define information as a flow of messages, whereas knowledge is defined as the process of the interaction of the flow of messages with the beliefs and commitments of its holders. Ipe (2003) argues more that those researchers have determined three characteristics that differentiate information from knowledge. The first characteristic that distinguishes information from knowledge is that, "knowledge is a function of a specific perspective, intention or stance taken by individuals and therefore unlike information, it is about beliefs and commitment". The second characteristic is that knowledge is "always about some end, which means that knowledge is about action". The third characteristic is that "knowledge is context specific and relational and therefore it is about meaning" (Ipe, 2003).

Knowledge was defined by Nonaka and Takeuchi (1995) as a justifiable view that strengthens an organization's capability for effective action. Jennex (2008) expands on Nonaka and Takeuchi's (1995) definition that knowledge is context specific, and in order for it to have value within an organization, it must include elements of human context, experience and interpretation.

"Knowledge requires information, but information does not necessarily contain knowledge" (Mamaghani, Samizadeh & Saghafi, 2001). Chiran (2008) states that information builds on data and knowledge build on both data and information.

Gupta and Sharma (2004) define knowledge as a full utilization of information and data, coupled with the potential of people's skills, competencies, ideas, intuitions, commitments and motivations. The definition acknowledges the view that knowledge is stored in the individual brain encoded in organizational processes, documents, products, services, facilities and systems.

According to Becerra-Fernandez et al. (2011), knowledge is quite distinct from data and information. Knowledge is considered to be at the highest level in a hierarchy with the information at the middle level and data at the lower level. Based on this view Becerra-Fernandez et al. (2011) define knowledge as information that enables action, decisions, or information with direction. Alternatively, it could be stated that knowledge is an area justified as beliefs about relationships among concepts relevant to that particular

area.

O'Dell and Hubert (2017) argue that from a practical perspective, knowledge is defined as information in action. It was further noted that until people take information and use it, it is not knowledge. O'Dell and Hubert (2011) extend their argument that in a business context, knowledge is what employees know about their customers, each other, products, processes, mistakes and successes, whether that knowledge is tacit or explicit.

Ujwary-Gil, (2015) adds to previous scholars Nonaka and Takeuchi's (1995) and Davenport and Prusak's (1998) view that when one defines knowledge it is imperative to take the context into consideration. Ujwary-Gil (2015) further stipulates that knowledge be determined by organizational culture, language, visual symbols, beliefs and behaviours. Ujwary-Gil (2008) is of a view that when knowledge is passed to another person, its transfer and assimilation are affected by the experience of the receiver. Moreover, if the receiver cannot interpret knowledge, it becomes worthless (Ujwary-Gil, 2015).

Becerra-Fernandez et al. (2011) argues further that it is without a doubt that information is more useful than raw data but it does not directly help decision-makers make a well-informed decision, whereas knowledge provides decision-makers with useful information.

Figure 2.1 illustrates the hierarchy of knowledge, illustrating the view that knowledge is the highest level in hierarchy followed by information in the middle and data at the bottom.

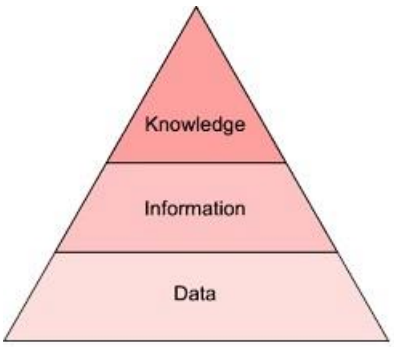


Figure 2.1: Knowledge hierarchy

Source: Adapted from Becerra-Fernandez et al. (2004, p.34)

Mamaghani et al. (2016) argue that it is essential, when defining knowledge to consider two categories

namely tacit and explicit knowledge. The authors are of a view that the management of knowledge in an organization happens when these two categories can convert interchangeably. Tacit knowledge can be defined as something that is in the thoughts and minds of people, this includes the cognitive and technical views of an employee (Mamaghani, et al., 2011). Explicit knowledge includes technical know-how presented in the form of information and knowledge that an employee of the organization owns (Mamaghani, et al., 2015).

2.1.1 SECI Model

Nonaka and Takeuchi's (1995) SECI model outlines the socialization, externalization, combination and internalization processes by which knowledge is transformed within and between tacit and explicit forms (Gorelick, Milton & April, 2004). The model explains knowledge management as a movement through four transitions, in which, the first movement tacit knowledge is converted to tacit knowledge, second movement tacit knowledge converts to explicit knowledge, third movement explicit knowledge is converted to explicit knowledge, and lastly explicit converts into tacit knowledge.

The SECI model (Nonaka & Takeuchi, 1995) processes are discussed below. It is essential to note that these processes do not work in isolation but together in different combinations (Gorelick et al, 2014).

 Socialization: This process includes the shared formation and communication of tacit knowledge between people. The process usually takes place in meetings or other forms of dialogue. Gorelick et al. (2004) emphasis that knowledge sharing is often done without ever producing explicit knowledge and to be most effective, should move between people who have a common culture and can work together effectively (Gorelick et al. 2014). Gorelick et al. (2014) concludes that thus tacit knowledge sharing occurs in teams and communities.

 Externalization: This is a process whereby tacit knowledge is turned into explicit knowledge. Gorelick et al. (2014) emphasizes that although tacit knowledge by its nature is difficult to convert into explicit knowledge, through conceptualization, elicitation and ultimately articulation, usually occurs in collaboration with others. Some proportion of a person's tacit knowledge may be captured in explicit forms.

Activities such as facilitating conversion include dialogue among team members responding to questions and elicitation of stories.

 Combination: This process looks at the movement of explicit knowledge to explicit knowledge. Explicit knowledge can be shared in meetings, via documents and emails or through education and training.

 Internalization: This process looks at the movement of explicit knowledge into tacit knowledge. In order to act on information, individuals have to understand and internalize it. The process of internalizing the knowledge makes it tacit.

According to Rodriguez and Edwards (2017) in the broader enterprise risk management the interaction among people, which correspond to the movements from tacit and explicit knowledge and tacit to tacit knowledge on the individual and organizational level is expressed through the following relating to SECI model:

 Socialization: social interaction among risk management employees and shared risk modeling experience

 Combination: merging, categorizing, reclassifying and synthesizing the risk reporting process

 Externalization: articulation of best practice and lessons learned in risk modeling process

 Internalization: learning and understanding from discussions and mathematical modeling review

The critical differences between tacit and explicit knowledge are found in three major areas, the first area is the codifiability and mechanisms for transfer, the second area is the methods for acquisition and accumulation and the third area is the potential to be collected and distributed (Ipe, 2003). In addition to the SECI model, Becerra-Fernandez et al. (2004) reiterate that there are alternatives that define what knowledge is; either a subjective or an objective stance.

2.1.2 Different Perspective of Knowledge

According to Becerra-Fernandez et al. (2011), knowledge can be viewed from a subjective or an objective stance. The subjective view represents knowledge using two possible perspectives and the objective view has three possible perspectives.

 Subjective View of Knowledge emphasizes that knowledge can be viewed as a reality that is socially constructed through the interactions with individuals. Two sub-categories of a subjective view are discussed below. The first view perceives knowledge as a state of mind and the second view perceives knowledge as a practice (Becerra-Fernandez et al., 2011).

[1] Knowledge as a state of mind: Promotes the view that knowledge is the state of an individual's mind and that an individual should be enabled to enhance their personal areas of knowledge so that they can be applied to best pursue organizational goals.

[2] Knowledge as practice: Promotes the view that knowledge is held by the group and is not decomposable into elements possessed by individuals (Becerra-Fernandez et al. 2011). Knowledge resides in practice; it is composed of beliefs, and is consistent with the definition that knowledge is a justified belief. These beliefs need to be collective instead of individual, and therefore are better reflected in organizational activities than in the minds of the organization's individuals.

 Objective View of Knowledge views knowledge in three different perspectives. The first perspective views knowledge as an object, the second view is that knowledge is access to information and the last view states that knowledge is a capability.

[1] Knowledge as objects: From this view, knowledge is something that can be stored, transferred and manipulated; in addition, this view promotes the perception that knowledge can exists in a variety of locations (Becerra-Fernandez et al., 2011).

[2] Knowledge as access to information: This perception views knowledge as a condition of access to information; knowledge is viewed as enabling access and utilization of information (Becerra-Fernandez et al., 2004).

[3] Knowledge as a capability: This perspective is consistent with the previous objectives views of knowledge; however, it differs in that knowledge can be applied to influence action and places an emphasis on knowledge as a strategic capability that can potentially be applied to seek competitive advantage (Becerra-Fernandez et al., 2011).

It can be concluded that irrespective of how knowledge is perceived, the essence of what it constitutes and the fundamental principles of what knowledge is cannot be undermined.

This study perceived knowledge as a state of mind and it is acknowledged that in order to implement knowledge management within an organization, it is imperative to acknowledge that knowledge is a state of mind, and therefore attention needs to be focused on the enablers and barriers that could hinder or promote knowledge management.

Figure 2.2 outlines two different perspectives that knowledge can be viewed from. Two main views namely subjective and objective are outline in the diagram.

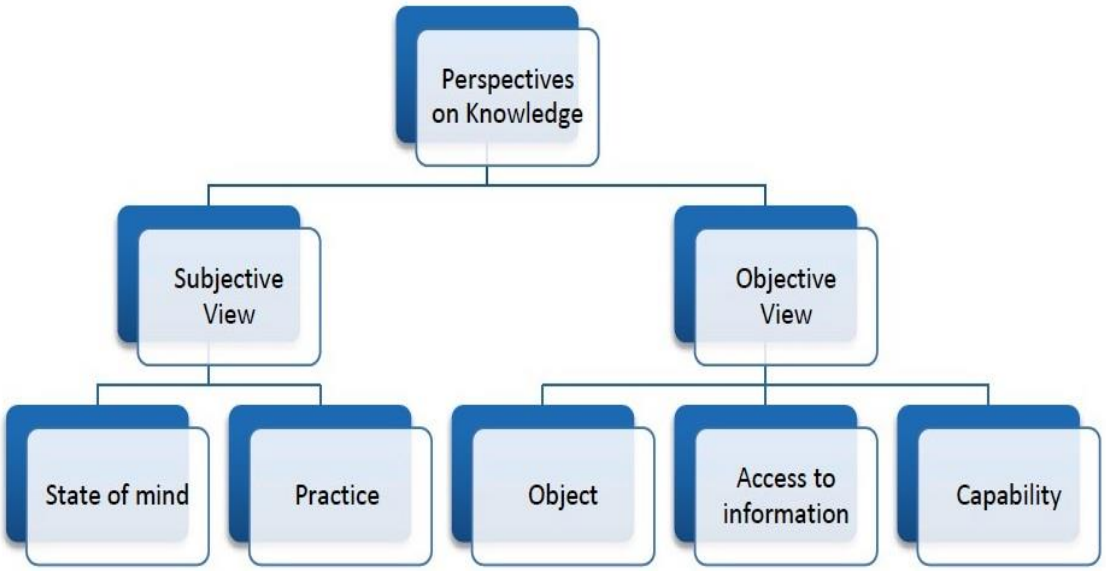


Figure 2.2: Knowledge perspectives adopted

Source: Adapted from Becerra-Fernandez et al. (2011, p.117)

2.1.3 Types of Knowledge

Organizations need to distinguish between various types or categories of knowledge contents. One reason why it is necessary to categorize knowledge according to type is that it may be used to indicate which type of knowledge is more suitable to management than others. Every task or skill also has a specific type of knowledge associated with it. Many different categorizations of knowledge are possible. Nonaka (1994: 17) and Wiig (1993: 148) distinguish between various types of knowledge, namely personal knowledge,

public knowledge, shared knowledge and organizational knowledge. The various types of knowledge are discussed here.

 Personal Knowledge is the combination of an individual's experiences and expertise.

An organization cannot create knowledge without individuals. According to Nonaka (1994) organizations have to support creative individuals and have to provide a context for such individuals to create, develop and share their knowledge. Personal knowledge exists in an individual's mind and is used unconsciously in work and daily life. According to Allee (1997) personal knowledge is seen as a "web" of knowing where many thoughts, feelings, concepts, ideas and beliefs are woven together. Personal knowledge is arranged according to a person's mental models of how the world is working. If this sorting mechanism does not operate efficiently "information overload" is experienced - the pressure of having too much to absorb and understand.

In contrast, information can also be "hard to find" and somehow difficult to retrieve. Personal or tacit knowledge is the most basic form of knowledge. In most cases, it is detailed, complete and integrated knowledge. Wiig (1993) indicates that the two other types of knowledge - public knowledge and shared knowledge - are derived from personal knowledge through long-term knowledge acquisition and codification.

 Public Knowledge is generally available in the public domain. Polanyi (cited in Wiig, 1993: 148-150) describes public knowledge as articulated knowledge. Public knowledge is shared broadly and taught routinely. Public knowledge is more general and abstract and less detailed than personal knowledge. It often requires extensive personal interpretation and personal knowledge before it can be used. At times it may be even incomplete and incongruent (e.g. newspaper stories).

 Shared Knowledge consists of knowledge of all types and is more detailed than public knowledge. It is knowledge that is shared among individuals or professionals in a specific domain or field. Shared knowledge is of great importance in business and in industry (Wiig, 1993) Shared knowledge often deals

with how a particular type of work should be performed and is structured as the “know-how” of organizations. This knowledge form also includes knowledge that is embedded in technology, work practices and patents. According to Wiig (1993) shared knowledge and embedded knowledge constitute the major knowledge assets of any organization.

 Organizational Knowledge is a combination of shared and personal knowledge. Organizational knowledge is embodied in two main forms – in products and processes. One of the challenges facing those who lead knowledge initiatives in their organizations is how to classify and codify knowledge. Theorists offer many classifications. For example, Wiig (1993) lists four main types:

• Factual knowledge – facts, data, observations

• Conceptual knowledge – concepts, intuition, insights

• Expectational knowledge – judgement, hypotheses, expectations

• Methodological knowledge – procedural knowledge

 Explicit Knowledge and Tacit Knowledge**:** Explicit knowledge is the codified, concrete, systematic, standardized, formal, transferable and learnable knowledge, which is also called leaked knowledge for the potentiality of running out of the organization, represented in policies, procedure, regulation or rules and work routine that are documented by the organization (Dalkir, 2005). Tacit knowledge is the informal, non-transferable and non-learnable knowledge that is difficult to be stated in words, as existing in the minds of the individuals, so that it is the adjoining knowledge and it is the accumulated experience, mind thinking maps and the groups of acquired knowledge of individuals that no one can know without permission from its holder. This categorization of explicit and tacit knowledge is still one of the most common and widely used (Hjazi, 2005).

2.2 Definition of Knowledge Management

Knowledge management is now widely recognized as a competitive advantage, and an increasing number of organizations are incorporating the knowledge management strategy (Davenport & Volpel, 2001). Many

firms have reached the conclusion that effective knowledge management is the only way to lever their core competencies and achieve competitive advantage (Arora, 2002; Bhatt, 2001; Demarest, 1997; Hlupic, et al., 2002). Thus, organizations are interested in knowledge management to boost the efficiency of their organization, increase productivity and quality of their services, and acheive innovative solutions and products for their customers. Managers are concerned with developing knowledge management strategies for taming the knowledge of people associated with the organizations. Within the research community, however, knowledge management is considered as a catalyst for understanding the role of knowledge in an organization (Moffett, et al., 2003a). The meaning of the term knowledge management, therefore, has been debated, defined and redefined repeatedly.

Knowledge management is often viewed as multidimensional and multidisciplinary, which may sometimes lead to a fragmented dialogue on the topic. According to Tiwana (2000), knowledge management, in the simplest terms, means "management of knowledge". It can be extended to management of organizational knowledge for creating business value and generating competitive advantage. "Knowledge management enables the creation, communication, and application of knowledge of all kinds to achieve business goals" (Tiwana, 2000). Wiig (1999), the likely founder of knowledge management, defined it as "the systematic and explicit management of knowledge-related activities, practices, programs, and policies within the enterprise" (p. 3). Quintas, Lefrere, and Jones (1997) hold that knowledge management is "the process of continually managing knowledge of all kinds to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities" (p. 387). Martinez (1998) considers knowledge management as encouraging individuals to communicate their knowledge by creating environments and systems for capturing, organizing, and sharing knowledge throughout the company. Various other definitions abound in the literature (Al-Ghassani, Kamara, Anumba, & Carrillo, 2004; Bassi, 1997; Beijerse, 1999; Bhatt, 2001; Darroch, 2003; Davenport & Prusak, 1998; C. Davidson & Voss, 2002; Demarest, 1997; Horwitch & Armacost, 2002; Jones, 2006; Koch, 2003; O'Dell, et al., 1998) as shown in Table 2.2.

It is evident that the wide range of definitions reflects that people who work in the field of knowledge management come from a wide range of disciplines, such as management science, organizational science, production engineering, and so on (McAdam & McCreedy, 2013). For example, management information systems researchers and practitioners tend to define knowledge as an object that can be recognised and controlled in a computer-based information system (Bassi, 1997; Bennett & Gabriel, 1999; Fowler, 2006; Ruggles, 2012); management theory researchers, on the other hand, address knowledge as being process based on individual and organizational competencies, such as skills and know-how (Davenport & Prusak, 1998; Kogut & Zander, 1997; Nonaka & Takeuchi, 1995; Quinn, et al., 1996; Wiig, 2014). Knowledge management, therefore, is considered to be the management of people, which does not necessarily accommodate the capabilities of information systems.

Table 2.1: Definitions of knowledge management

Source	Definition
O'Dell et al. (1998, p. 6)	Knowledge management is a conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that strive to improve Organizational performance.
Quintas, Lefrere & Jones (1997, p. 387)	Knowledge management is the process of continually managing knowledge of all kinds to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities.
Bhatt (2001, p. 71)	Knowledge is process of knowledge creation, validation, presentation, distribution and application.

Blake (1998, p. 12)	Knowledge management is the process of capturing a company's collective expertise wherever it resides, and distributing it wherever it can help produce the biggest payoff.
Martinez (1998, p. 89)	Knowledge management is about encouraging individuals to communicate their knowledge by creating environments and systems for capturing, organizing and sharing knowledge throughout the company.
Horwitch & Armacost (2002, p. 28)	Knowledge management is the practice of creating, capturing, transferring and accessing the right knowledge and information when needed, to make better decisions, take actions, and delivery results in support of underlying business strategies.
Jones (2006, p. 117)	Knowledge management is a process of acquiring knowledge from the organization or other sources and turning it into explicit information that employees can use to transform into their own knowledge, allowing them to create and increase organizational knowledge.
Beijerse (1999, p. 102)	Knowledge management is achieving organizational goals through strategy-driven motivation and the facilitation of knowledge workers to develop, enhance and use their capability to interpret data and information (by using available sources of information, experience, skills, culture, characters, personality, feeling, etc.) through a process of giving meaning to these data and information.

Wiig (1999, p. 3)	Knowledge management is the systematic and explicit management of knowledge-related activities, practices, programs, and policies within the enterprise.
Donate & Pablo (2016, p. 40)	Knowledge management is a systematic and integrative process of co-coordinating organization-wide activities of acquiring, creating, storing, diffusing, developing and deploying knowledge by individuals and groups in pursuit of major organizational goals.
Hislop et al. (2018, p. 25)	Knowledge management is all about promoting communication among individuals to exchange their knowledge by generating ecosystems in order to capture, organize and share knowledge across the organization.

2.2.1 Knowledge Management Process Capabilities

Researchers have identified many key aspects of the knowledge management process, including creation, transfer, and use (Skyme & Admidon, 1998; Spender, 1996); capture, transfer, and use (DeLong, 1997); and identification, acquisition, development, sharing/distribution, utilization, and retention (Probst, Raub, & Romhardt, 2000). Avai and Leidner (2001) examined these various characteristics and produced four broad dimensions of process, namely, creation, storage/retrieval, transfer, and application. Shin, Holden, and Schmidt (2001) integrated different terminologies used by various authors in describing the knowledge management processes and then categorized the knowledge management process as acquisition, application, and protection.

Knowledge Acquisition capability

Organizational knowledge acquisition is the process of developing new content and replacing existing content within the organization's tacit and explicit knowledge base (Pentland, 1995). Many terms also have been used to describe this process: capture, creation, construction, identification, and generation. In 2000, Nonaka, Toyama and Konno suggested that the essential question for knowledge acquisition is establishing an organization's "ba" (defined as a common place or space for creating knowledge). The authors identify four types of ba: originating ba, interacting ba, cyber ba, and exercising ba. Originating ba is a common place where individuals share experiences primarily through face-to-face interaction. Interacting ba is associated with the externalization mode of knowledge creation and refers to space where tacit knowledge is converted to explicit knowledge and shared among individuals through dialogue and collaboration. Cyber ba refers to a virtual space of interaction and corresponds to the combination mode of knowledge creation. Finally, exercising ba involves the conversion of explicit to tacit knowledge through the internalization process.

Knowledge Protection capability

Alavi (2000) asserted that creating new knowledge is not enough; people and organizations forget, and mechanisms are needed to store acquired knowledge and to retrieve it when needed. The concept of organizational memory aims for the same goal. Organizational memory includes knowledge residing in various component forms that may include written documentation, structured information stored in electronic databases, codified human knowledge stored in expert systems, documented organizational procedures and processes, and tacit knowledge acquired by individuals and networks of individuals (Tan et al., 1998). Organizational memory includes individual memory (a person's observations, experiences, and actions) as well as shared knowledge and interactions, organizational culture, transformations (production processes and work procedures), structure (formal organizational roles), ecology (physical work setting) and information archives (both internal and external to the organization) (Walsh & Ungson, 1991). Probst, Raub, and Romhardt (2000) found that organizations wishing to manage their knowledge for accessibility

in the future must master at least three basic processes of knowledge management. First, the organization must select from the many organizational events, persons and processes those that are worth retaining. Second, the organization must store experience in a suitable form. Finally, the organization must ensure that organizational memory is updated.

Knowledge Application capability

The most essential point in knowledge management is to make sure that the knowledge present in an organization is applied productively to benefit the organization (Probst, Raub, & Romhardt, 2000). Davenport and Klahr (1998) noted that the effective application of knowledge helps companies increase efficiency and reduce costs. In most of the literature, organizations assume that knowledge will be applied effectively once created (Gold et al., 2001). Unfortunately, successful identification and distribution of important knowledge does not guarantee its utilization in the company's every day activities. Grant (1996) identified three mechanisms to use to integrate knowledge into an organization. First there are directives, seen in sets of rules, standards, procedures and instructions and converted from tacitly held specialist knowledge into explicit forms for communication to non-specialists. Then there are organizational routines related to patterns for task performance and coordination, interaction protocols, and process specifications. Last there are self-contained task teams that refer to the creation of teams to attend to tasks where a high degree of uncertainty exists and where group synergy can be exploited.

Knowledge Management and Intellectual Capital

While knowledge management is concerned with knowledge generation, transfer and application processes and the organizational environment that facilitates those processes, intellectual capital (IC) focuses on the value perspective from harnessing a firm's intellectual capacity (Zhou & Fink 2003). It has been suggested by Sveiby (2001) that knowledge management and IC are two branches of the same tree, where IC can be defined as intellectual material gained from knowledge, information, intellectual property and experience that has been formalised, captured and leveraged to create a valuable organizational asset (Edvinsson & Sullivan 1996; Klein 1998). The delineation between the terms knowledge management and IC is at times

unclear, but knowledge management may be viewed as the management of the IC controlled by an organization, so that knowledge management, as a function, describes the act of managing the object IC (Petty & Guthrie 2000).

2.3 Innovation Capabilities

To developing innovation capabilities, a firm need to create new ways to "develop substitutional routines for discontinued innovations which can sit together with those for stable state 'do better' innovation" (Bessant et al., 2005). One of the presumptions in this context is that innovation capabilities are skills that can be evolved, or farmed in order to create innovation. It is a capacity that takes proficiency, vision and knowledge, and translates it into a perception that allows creation, development and spreading of innovative products, not randomly, but constantly and consistently.

innovation Capabilities have gained more importance recently (Trott and Hartmann, 2009; Van de Vrande et al., 2010; Lichtenthaler, 2011).

Innovation Capabilities are defined as the ability to convert knowledge and ideas into new products, processes and systems on a continuing basis for the good of the company and its stakeholders.

The term "capabilities" places emphasis on the key function of strategic management in conveniently adapting, incorporating and reformulating organizational skills, resources and competencies to meet the prerequisites of an evolving environment. In high-speed business industries, the ability to re-establish competencies to respond to the ever-changing business environment is highly significant, referred to as innovation capabilities (Lichtenthaler, 2011).

The notion of the developing innovation capability also comes comparatively close to the perspective of Pettigrew and Whipp (1991) on the management of strategic change, which, again, is tightly related to the view that the strategic perspectives, methods of thinking (principles, perceptions, mental models, and objectives) and decisions of firm management play a major role in the implementation of strategic innovation and processes of change.

Previous studies (Leyman, 2005; Doer, 2011; Bill, 2016) suggest that innovation capabilities, in the financial service firms in particular, are portrayed in the form of two capabilities: process innovation, and service innovation.

2.3.1 Process Innovation

Process innovation is defined as the application of a new or improved production or delivery methods which consist of important changes in techniques, equipment and software (OECD, 2005). Process innovation enhances the efficiency and the productivity of production activities, increases quality and reduces unit cost of production (Abdallah and Phan, 2007). Process innovation involves either improvements in the production and logistic methods or improvements that include several activities such as accounting, computing, purchasing and maintenance (Polder et al., 2010). Organizations that use process innovation aim at producing innovative products and new products as well (Hassan et al., 2013). This may require the adoption of new methods which have never been used before (Polder et al., 2010).

Damanpour (1991) pointed to two main stages of process innovation which included initiation and implementation. He asserted that initiation stage involves what is called "openness to the innovation" which is determined by the willingness of organizational members to adopt or resist innovation. Recent literature re-emphasized the importance of process innovation stages and reconfigured them (Lendel et al., 2015). These stages include identifying customer needs and innovation opportunities, search for new ideas, idea conversion, diffusion and generation (Hansen and Birkinshaw, 2007; Laursen and Salter, 2006; Bernstein and Singh, 2006). Another aspect is the creation a strong combination between internal and external sources to yield superior results (Krishnan and Jha, 2011). Throughout the process innovation, the way that an organization uses both knowledge and ideas of external partners is considered to be the core of the innovation (Laursen and Salter, 2006). It is important to establish an effective control system in order to evaluate deviations and failures of different stages of process innovation so that to assure successful implementation (Tidd and Bessant, 2011).

2.3.2 Service Innovation

Traditionally, services are represented as components that cannot be touched; intangible. Because of its intangible character, a service cannot be viewed as an object and therein isn't duplicatable (Gronroos,2000). According to the previous study, a service is viewed as an activity or process and no transfer of possession takes place. Moreover, service is understood as heterogeneous ideas, each service is exclusive and can't utterly be reproduced. Production and consumption of services takes place at the same time in co-operation with the purchasers, it's hardly attainable to separate these components or turn out them before and store them till they're requested (Gronroos,2000).

Recently however, researchers begin to question the distinctive characteristics of service (Lovelock, 2004). These researchers suggest that it's possible to store service request handled at machine-driven helpdesks. Times have transformed and because of the employment of recent techniques and ICT applications, new service choices occur. Since the controversy continues to be in progress it's not expressly enclosed in this report (Lovelock, 2004).

As a results of the infinite character of services and also the discussion that's still happening, there's not only one clear wide accepted definition out there. Academic researchers have understood service in a approach that most closely fits their research interests and paradigms. One of the earliest research attempts to systemize services is to define what services aren't (Lovelock, 2004).

“Services , in fact, are all those economic activities within which the first output is neither a product nor a construction” (Quinn & Gagnon, 1986 cited in Lovelock, 2004).

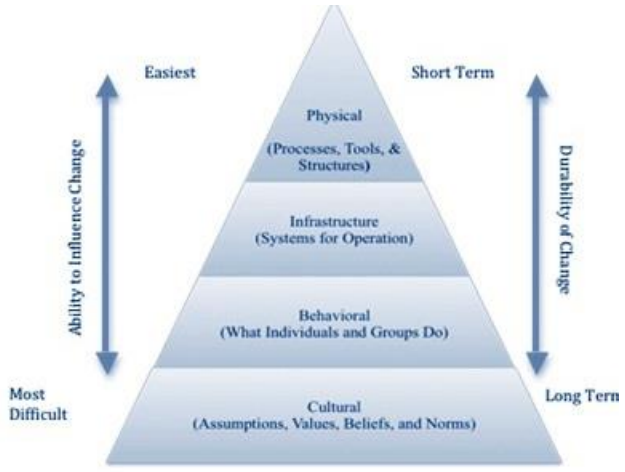
A later attempt points attention to the employment of capabilities and competences so as to make an answer, “To manufacture a service is to arrange to provide an answer to a problem (a treatment, an operation) that doesn't in the main involve supply a good. it's to position a bundle of capabilities and competences (human, technological, organizational) at the disposal of a customer and to provide an answer, which can tend to varied degrees of precision” (Gadrey, Gallouj, & Weinstein, 1995 cited in Ali, 2010).

2.4. Organizational Culture

Schein (1990) identified culture as a pattern of values, assumptions and artifacts which is deeply rooted and embedded. Schein conceives that the values provide a psychosocial and physiological provision for symbolizing preferences of an alternative outcome. Assumptions are intangible and taken for granted. Behavioral manifestations are deeply seated, structured and embedded in human nature and present in the sub-consciousness. Whereas, the artefact is a tangible symptom of a culture that only symbolizes through customs, myths, stories, slogans and rituals (Sharimllah Devi et al., 2007; Biloslavo and Prevodnik, 2016). Trice and Beyer (1993) argue that organizational culture is the "paradigm of common meaning in an organization." Schein (1992) defines organizational culture as "a paradigm of common primary assumptions and incorporation that has functioned reasonably well to be regarded valid and accordingly to be explained to new individuals as the proper method to understand, think, and feel with regard to these issues." These definitions underline the energetic impact and significance of organizational culture and its position as part of the inner functioning of an organization. across this perspective, organizational culture is both a product and a process. As a product, it represents wisdom built up from experience. As a process, it is renovated and re-created as newly-arrived individuals learn the long-standing ways and ultimately become teachers themselves (Bolman and Deal, 2008).

Understanding how culture fits into the organizational structure will provide valuable perspective for developing and implementing an organizational culture assessment.

Figure 2.1 shows how culture fits into the bigger context of the organization by illustrating the basic configuration of most organizations (Russell Consulting, 2005).



Adapted from Russell Consulting (2005, p.115).

2.4.3 The Organizational Culture Assessment Instrument (OCAI)

The 'Organizational Culture Assessment Instrument' (OCAI) was developed by Cameron and Quinn is a validated study method to assess organizational culture. A great deal of research adopted the OCAI tool to measure organizational culture (Sharimllah Devi et al., 2007; Biloslavo and Prevodnik, 2010; Bolman and Deal, 2008; Russell Consulting, 2005; King & Byers, 2014; Bollisani, 2015; Wildner et. al, 2018). The OCAI tool suggests that four measures are used to assess organizational culture; management of employees, organizational leadership, organizational glue, and strategic emphases.

Management of Employees

A business' success will depend considerably on its staff (Drucker, 1996). The National Federation of Independent Businesses states that "employees at business organizations carry a lot of the company's weight on their shoulders than those working at other public sectors". Consequently, the failure of an individual member of the staff will have a bigger impact at a business organization than at a public corporation.

Employee management is a way to assist switch an underperforming employee around or stop high-performing staff from turning into weak employees (Doer, 2018). The idea of employee management is

more than simply ensuring that individuals do their jobs; it's a range of strategies and procedures that may assist you measure, follow up, and interoperate with the staff that plays a massive role in the company. According to (Morris, 2017), "employee management depends upon thoughts and approaches designed to strengthen employees' motivation, productivity, and performance". Morris suggested that employee management must play a role in each part of the employee lifecycle, starting from the recruitment of employees and their training. A crucial factor of this process, as per the latter researcher, is establishing a relationship with the company's employees. This includes embracing a number of pivotal approaches to allow the company's staff understand their entire capacity. Good management of employees is a skill every manager can acquire (MCcquire, 2012). According to (Ammar, 2015), the manager may understand that poor employee performance is bad, but to what extent is it bad exactly? Sullivan (2014) conducted a comparative study from which he came up with six steps to assist determine the amount of money a poor employee can cost the company, as follows:

- Specify what a standard employee is worth.
- Specify the distinction between a standard and a weak employee in the exact job.
- Determine the value of the "weak employee distinction" percentage.
- Specify the "weak employee distinction" for different jobs.
- Add other "weak employee costs" to the estimation, such as absenteeism and costly mistakes.
- Specify whether weak employees can get better speedily and economically.

As per Sullivan's study (2014), the differentiation in the value of a weak staff member and a standard one can vary from three quarters of their salary to almost seven times the salary of an extremely bad staff member. Sullivan's latter study concluded that the empowerment of employees and rooting out those who just don't demonstrate any possibility for advancement enables not just to make the company more effective, but also to save the company from continuing costs attributable to poor performance.

On the other hand, Ali (2009) argued that employee management is not only a one-manager job. It can consist of several components which can consume considerable time and effort, including reviews of performance, establishing a grievance system, and so on.

- **Organizational Leadership**

Stogdill (1974 cited in Eisa, 2015) stated that "there are nearly as several definitions of leadership as there are people who have tried to define it". However, there are key determinative factors of organizational leadership (Lee et al., 2013) which have some agreement in the literature and produce a cohesive perspective for the notions provided here. This study adopts the definition of organizational leadership as it is defined by some scholars as follows:

Organizational leadership includes processes and proximate outcomes (such as employee commitment) which contribute to the growth and accomplishment of organizational objective Ali (2009). However, Stogdill (1974 cited in Eisa, 2015) argued that organizational leadership is defined by the application of nonroutine impact on organizational life. On the other hand, Porter (1995) considered that the leader impact is based on cognitive, social, and political processes.

Roy (2005), however, viewed organizational leadership from a different perspective. He defined it as a dual concentrated management approach that functions toward what is best for individuals and what is best for the organization at large simultaneously. It is also an approach and a job ethics which enable an individual in different roles to lead from the head, medium, or bottom of the organization.

According to the OCAI tool, the leaders are considered coordinators and organizers. They have more traits: hard drivers, producers and competitors.

- **Organizational glue**

Organizational glue has been defined as "a dynamic process that is displayed in the tendency for the organization members to stick together and stay cohesive in the pursuit of its fundamental goals and/or for the fulfillment of members' affective needs" (Eys et al., 2003). Robbins (2000) considers organizational

glue as the extent to which the organization members are attracted to one another and have a motivate to remain in the organization. Gibson et al., Donnelly (1994) label organizational glue as the power of desires of the organization members' to stay in the organization and their commitment to the organization.

The perception of organizational glue has been empirically associated with a variety of organizational and individual variables including: a positive relationship with organizational performance, organizational effectiveness, and organizational norms (Eys et al, 2003). As per Spector (2000), a high level of organizational glue has significant effects for the organization's behavior. Organizational glue was conceptualized in previous studies as the interpersonal attraction connecting organization members together. Nelson and Quick (2003) concur with Spector (2000) that organizational glue empowers an organization to practice Efficacious control on its members with regard to its behavioral norms and standards. Cohesiveness is the sense of oneness that holds an organization together willingly. Employees work better as individual persons if they regard themselves as part of an effectively-functioning encouraging group to which they all are happy to be members of. As dedicated members in the organization, they are more constructive, communicative, confident, motivated and loyal (Zea, 2001). Robbins (2000) suggests that organizations differ in their glue, that is, the extent to which individuals are attracted to one another and are motivated to remain in the organization. organizations high in glue are very attractive to their staff; organizations low in glue are not very attractive to their staff (George and Jones, 2000). Organizations seem to have commonness of attitude, behavior and performance. This commonness which is referred to as glue, is, in general, considered as a power encourages the individuals to stay in an organization. This force is stronger than the forces drawing the individuals away from the organization (Gibson, Ivancevich and Donnelly, 1994).

Strategic Emphases

Strategy represents one of the major pillars which have crucial impacts on the organization's business, structure, relations, market and performance (Valos and Bednall 2010). Developing an obvious strategy enables the organizations to create solutions to existing and potential problems, innovate new capabilities,

and enhance the organizational performance (Sarker and Palit, 2015). This is through serving as a facilitator for both organizations and managers to obtain and allocate resources, identify opportunities for the provision of valuable services and products (Al-Ansaari et al. 2015). Embracing the appropriate strategy requires the business organizations to integrate their approaches in building sector positions and/or by depending upon its resources, capabilities, and competences in an endeavor to attain alignment with their internal and external environments and on the other hand realize a sustained competitive advantage and improved business effectiveness. With the purpose of achieving these objectives, organizations are required to concentrate on their strategic emphases since strategic emphases guides the direction that an organization aims to pursue in order to monitor its activities for better business performance (Gao et al. 2007). As a result, strategic emphases of the company accommodates its operational, marketing, and entrepreneurial attitude. In this way, an organization realizes its objectives in markets by accepting risk taking, involving in innovation systems and programs, tending to become proactive, and establishing a prospective foresight (Kumar et al. 2012).

Strategic emphases has received widely-used awareness from scholars of management, marketing, and entrepreneurship. However, no globally-recognized definition of strategic emphases exists (Mansour, 2017). The very essence of emphases is a subject of debate, and varied streams of literature have provided diverse concepts. Merriam-Webster Online Dictionary defines emphases as: it refers to the overall or lasting direction of thoughts, tendency, or interest. Strategic emphases refers to the approach in which an organization accommodate its external environment (Avci, 2011). That is to say it refers to the paradigm of responses which an organization makes to its environment with the purpose of improving performance and achieving competitive advantage (Kumar et al. 2012). Other researchers view strategic emphases as a characteristic of organizational culture. Organizational culture is a type of intangible resources and the introduction of these resources, i.e. strategic emphases, will make different effects on the organization. Strategic emphases allocates resources to attain intended objectives (Grawe, 2009). Balodi et al. (2014) support this and state that strategic emphases demonstrates in the organization's culture and acts as a

background to organizational practices and processes linked with allocation of resources and pursuit of opportunities.

2.5 Organizational Effectiveness

Defining organizational effectiveness would appear to be the net satisfaction of all resources in the process of gathering and transforming inputs into output in an efficient manner which combined utility of all parties in acquiring and transforming a product or service. It is also important to note that organizational effectiveness is value based and time specific for its goals attainment (Roy and Dugal, 2005). Organizations should encounter as well a learning impact in which it enhances over time in its competences for making value (Gold, Malhotra and Segars, 2001; Galunic and Rodan, 1998; Bohn, 1994; Dutton and Thomas, 1985). Moreover, Organizational effectiveness is different for different constituents (for example: equity owners, staff, and customers) (Roy and Dugal, 2005; Tsui, 1990; Vandenberg, 1999) and can be goal oriented approach that views an organization as successful if the goals of the dominant alliance are satisfied (Roy and Dugal, 2005; Perrow, 1961; Simon, 1964 cited in Cameron, 2011), resource munificence approach the ability to attract the needed resources from the environment to produce its output. Self-managing systems in organizations, conduct knowledge-intensive work such as designing new products, developing innovative technologies, and delivering professional services to clients (Haas, 2010; Hackman, 2002; Manz & Sims, 1993 cited in Ali 205; Mohrman, Cohen, & Mohrman, 1995 cited in Ali, 2005) effectively if they obtain and use external knowledge, in the form of task-related information, know-how, and feedback from sources outside the teams (Haas, 2010; Ancona & Caldwell, 1992; Hansen, 1999; Reagans, Zuckerman, & McEvily, 2004). At the organization level, differentiation refers to adaption and integration of activities and resources refers to the extent to which they coordinate their activities with each other as they obtain and use more knowledge from other units (Haas, 2010; Tsai, 2001; Gupta & Govindarajan, 2000; Brickleyet al., 2015).

To realize these objectives, demonstrating competition over the time through learning organization will establish systems that broaden capability in relation to innovation, such it will guide and monitor the

tangible and intangible knowledge assets of organizations with the purpose of exploitation existing knowledge within and outside of those organizations to empower the generation of new knowledge and create value innovation and enhancement out of it (Jafari et al. 2007; Wunram 2000). Reconciling the insights and suggestions of existing literature within knowledge management with effectiveness-based assessment of the strategic management literature; researcher sought to identify the major contributions of knowledge management practices, which could involve enhanced ability to initiate, enhanced coordination of endeavors, and fast exploitation of new products and services. Knowledge management literature demonstrates as well emphasis in terms that it innovates a new workplace environment where knowledge and expertise could smoothly be shared and as well empowers information and knowledge to integrate and flow to the proper individuals at the proper time in order that they can make actions in a more efficient and effective manner (Jafari et al. 2007; Smith 2001). As a result, grounding this base, it is identified that there is a significant contribution of knowledge management practices upon organizational effectiveness (Gold et al., 2001).

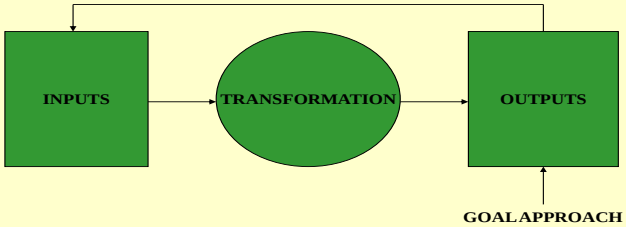
2.5.1 Organizational Effectiveness Approaches

A number of authors have attempted to decrease the complexity inherent in the effectiveness theory by narrowing the perspective from which effectiveness is viewed and/or measured (Cameron, K. and Whetten, D.A.,1983 cited in Murry, 2001; Quinn, & Rohrbaugh, ,1981 cited in Murphy, 2009; Pfeffer, 1977 cited in Whitney, 2013; Selden, & Sandfort, 2004; Connolly et al, 1980 cited in Mertinz, 2017). Those different approaches of organizational effectiveness could be incorporated within five various approaches. Academians have proposed four approaches to measure organizational effectiveness including: goal attainment model, system-resources model, internal processes model, and multiple-constituents model (Chelladurai, 1987 cited in Bechai, 2010; Yuchtman & Seashore,1967 cited in Murry,2001).

Goal Attainment Approach

The first-ever approach is the goal attainment approach and is featured by determining of goals to measure effectiveness. The goal attainment model defines effectiveness as the extent to which the organization has realized its intended goals (Price, 1968 cited in Murry, 2001).

Figure 2.5: Goal Attainment Approach



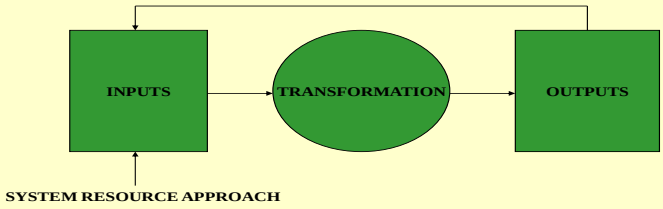
Adapted from: Price (1968 cited in Murry, 2001)

The goal approach is the most significantly used, as per Weese (1997). It evaluates the effectiveness of an organization in terms of its succeeding in achieving its goals. It is considered as the "most rational approach" to study organizational Effectiveness (Chelladurai, 1991 cited in). The goal approach, in spite of that, has some weaknesses. Most clear weakness is the fact that the organization can name several goals which may be contradictory with each other. Furthermore, an organization's goals may transform in the long run, particularly its short-time operative goals (Chelladurai, 1987 cited in Bechai, 2010; Yuchtman & Seashore,1967 cited in Murry,2001). Goal transformation may derive from an organization's interrelations with its environment, from inner changing, or from external pressing forces. When an organization's goals are "uncertain, unsteady, and contradicting with one another", it becomes very difficult to measure organizational effectiveness using the goal approach (Chelladurai, 1991 cited in Bechai, 2010).

System Resources Approach

The second approach is the system resource approach, Yuchtman and Seashore (1967 cited in Murry,2001), the system resources model defined effectiveness as "the ability of the organization, in either definite or relative terms, to utilize its environment in the obtainment of uncommon and valuable resources. (Yuchtman, 1967 cited in Murry,2001). In similarity to the case of systems theory generally, this perspective of organizational effectiveness concentrated on the organizational ability to captivate resources to secure sustainability. Captivating imperative resources and preservation of a harmonized relationship with the environment is crucial to applying the system resources model.

Figure 2.5: System Resource Approach

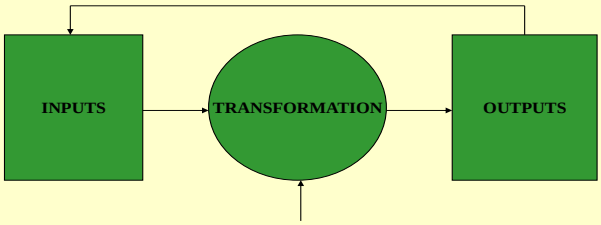


Adapted from: Price (1968 cited in Murry, 2001)

Internal Process Approach

The third approach is the internal process approach (Chelladurai, 1991). On the basis of this model, organizations which could provide a harmonized and effective internal environment are seen as efficient operations. Nevertheless, the weakness of this model resides not jsut in the unbalanced view of effectiveness (as significant components such as resources, outcomes and customer satisfaction are ignored), but also in determining the valuable internal processes and in initiating ways to assess them. Elements such as trust, incorporated systems, and easy functioning are seen as more accurate measures of organizational effectiveness compared with, for instance, the goal attainment approach.

Figure 2.6: Internal Process Approach



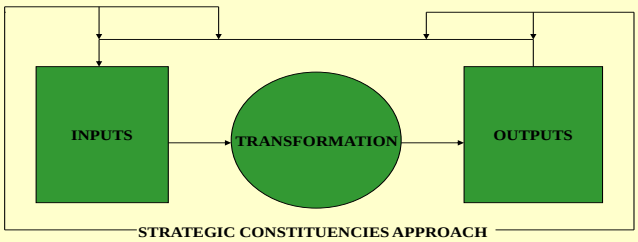
Adapted from: Price (1968 cited in Murry, 2001)

The internal process model highlights the internal rationale and consistency amidst the capacity processes of the organization as they transform the organization's inputs into intended outputs (Chelladurai, 1991 cited in Bechai, 2010). The main assumption of this approach is that there is an obvious relation among the internal processes (i.e. decision making and employment) and intended outputs. Despite the mentioned concerns, another issue that is shared among the goal attainment, systems resource, and internal process models of organizational effectiveness is the failing of these approaches to consider the political nature of organizations.

- **Strategic Constituencies Approach**

The concentration on human resources results in the fourth approach, known as the strategic constituencies approach. Originating from the research of Connolly, Conlon, and Deutsch (1980 cited in Bari, 2014), the determining of the major stakeholder's perspective of organizational effectiveness is regarded paramount. In other words, the strategic constituencies model, as per Connolly et al., is based on a perspective of organizational effectiveness in a way that s potentially many various effectiveness statements can be made on the central organization, reflecting the standard sets of various individuals and groups we may refer to as constituencies (Connolly, 1980 cited in cited in Bari, 2014).

Figure 2.7: Constituency Approach



Adapted from: Price (1968 cited in Murry, 2001)

A number of researchers emphasize on attention to political perspective of organizational effectiveness and suggest the multiple-constituency approach as an applicable alternative for examining organizational effectiveness in both a profit and a non-profit organizational context (Shilbury, 2006; Kanter,1987; Mendelow; 1983 cited in Murry, 2001).

The approach of organizational effectiveness adopted in this study is the constituencies approach. Mansour (2010) argued that the effectiveness of financial services firms is measured in terms of considering all their stakeholders. Based on this assumption, three measures were adopted from previous studies (King & Byers, 2007; Bollisani, 2008; Wildner et. al, 2009) to assess organizational effectiveness: corporate image, customer satisfaction, and retention of employees.

2.5.2 Corporate Image

Howard (2016) stated that "the groundwork of corporate image is the assumption that “everything the company does, and does not do, influences the picture of that company and its performance, products it makes and services and it delivers. This perception influences its ability to attract the financial resources, talents and alliances it needs to realize its objectives”. Leaders of any profitable business need to understand that this corporate image can promptly impact the company’s success, and that these companies are required to integrate it into all levels of work, starting from the top (Howard 2016).

As per Moawia (2012), corporate image is understood as a mental picture of the company. As a result, there is a strong positive relationship between stakeholders' understanding and pro-corporate supportive behavior. This mage affects the responses of the stakeholders to specific corporate processes.

Rayner (2003) suggested that corporate image adds definite benefits and advantages to organizations. It is proven to be hard to imitate, on the other hand, it generates responsibilities. While, the commitments which managers and the company owe have to meet the individual criterion of the employees, the quality criteria of customers, the moral standards of the society and standards of profitability of the equity owners. As a result, companies gain their corporate image by establishing powerful and supportive relationship with all of their stakeholders- i.e. clients, suppliers, equity owners, society, government, etc.

A company's corporate image translates its vision, mission, and capabilities of staff, professionalization and talks about staff commitment, customers, competitors, partners and public perception. To building it, an advantageous demonstration of the company, this image requires attention from marketing officers and eventually the organization's leaders themselves (Rayner 2003).

2.5.3 Customer Satisfaction

Customer satisfaction does not have a globally recognized definition as its meaning relies upon various circumstances and different perspectives and is eventually regarded as the outcome of individual customer judgment (York, 2009). Scholars who studied customer satisfaction have suggested a variety of concepts and several views of the outcome of the organizational performance. Wilson (2002) states that customer satisfaction is confusing and complicated in its nature, and it usually comprises of different factors which are measured with a variety of means based on various conditions. Edvardsson (1996 cited in Nour, 2015) suggests that customer satisfaction is an individual category since the customer understands it by implication from his own unique perspective. This implies that customer satisfaction can be understood as a combination of psychological, social and physical variables that associate with the concept of satisfying customers. Parasuraman et al. (1988) and O'Neill (2004) view customer satisfaction as an intellectual setting and as a psychological condition. Anderson et al. (1994) state that customer satisfaction is basically

a psychological condition, and the result of the long-run relationship among customers and providers of services or products. Ning-jun Zhang et al (2007) illustrate that the psychological reliance of staff engances their endeavors to make customers satisfied. Parasuraman et al. (1988 cited in Campell, 2013) correlate customer satisfaction to qualitative and quantitative factors of the services and/or products, and view it as a association between customer satisfaction, and understood expectations of customer service performance (Oliver, 1997). Zeithaml & Bitner (2000) suggest a definition of customer satisfaction based upon the extent of satisfaction of customers' needs and expectations, where the latter affects the extent of dissatisfaction of customers. Customer satisfaction measures predictions of potential customers in terms that it indicates what the customer needs to expect from the service provider henceforth. The results of the two mentioned measures are the correlation between predictions and performance (Bolton and Drew 1991; Parasuraman; Zeithaml, and Berry 1988 cited in Andy, 2006). Empirical research has illustrated that, both the practical behavior of employees and their morality are central for the delivery of high quality service, and they both influence customer satisfaction (Schneider and Bowen, 1993 cited in Andy, 2006). Depending upon intense research over a period of time, there are two types of definitions of customer satisfaction that have arisen. Customer satisfaction, according to the first type, is an output of a purchase experience (Westbrook and Reilly, 1983 cited in Andy, 2006). The second type of customer satisfaction definition defines it as a comparison between the actual buying and the customer's expectations of buying of (Hunt, 2008). This is the why it is so crucial that the service company primarily management consider the customer's perspective towards the company's strengths that lead to deliver the satisfactory service which meets the customer's expectations in relation to service quality. Service companies are required to consider customer satisfaction as a major advantage factor to distinguish themselves from other companies (Gillespie et al, 2007). Jamieson (1994 cited in Andy, 2006) and (Mackey (2005) argue that customer satisfaction is the output of the customer's requirements and expectations that affect the interaction with service companies and other customers. As per Andy (2006), the degree of quality of this interrelationship influences decisions of the customer towards repurchasing the service, the customer retention with the same company, the customer intention to recommend the company to other potential customers and finally to spread helpful information

regarding the quality and delivery of service. Customer satisfaction is linked to various ways of the interaction with the environment. A positive suggestion is the societal interaction, which is affirmatively relating to customer retention, decreasing costs of transactions and enhancing long-run profitability. On the other hand, the consequences of negative perception are dissatisfied customers, who highly not expected to decide to duplicate purchases of the service from the same company (Newman and Werbel, 1973 cited in Andy, 2006).

2.5.4 Retention of Employees

Research has shown that one of the key issues of any organization in a fast-growth industry is retention of employees (Peterson, 2005). This can be as a result of that the human resource is the most precious asset in any organization (Adebayo, 2001; Ejiofor and Mbachu, 2001). Thus, for the goals and objectives of any company to be accomplished, the significance of effectively implementing sufficient strategies of employees can not be overemphasized. So as to accomplish their goals, organizations put in place measures to retain their staff for enhanced performance. However, one of the major issues facing companies is about the way to retain competent workforce for improved performance. This problem has impoverished many companies of retaining their capable workforce required to attain their intended objectives (Cascio, 2003; Heneman and judge, 2003). The matter of retaining qualified staff is arising from applicable recruitment strategies of a company, also regular labor replacement arising from non provision of sufficient strategies of retention of employees that have made it nearly not possible for companies to possess their employment competent employees to carry out the work of those companies (Cascio, 2003). To settle this negative development, companies pay lots of resources to place in situ incentives and appropriate operating environment to empower these staff to contribute effectively towards the achievement of their goals. As per Andy (2006), in spite of these measures, the matter still remains in some companies. What are the potential reasons for this matter? One of the explanations that informed this study must do with the distinctive role undertaken by qualified employees regarding the achievement of the objectives of companies. In thus far as qualified staff are necessary for organizational effectiveness, there's the necessity

thus to identify and investigate the best ways to retain these qualified staff for the realization of the objectives of companies.

2.6. Knowledge Management and Organizational Effectiveness

Knowledge is a systemized set of data, comparable with a group of rules, processes, and operations taught by experience and practicing (Keskin, 2005). There are two crucial components to understanding knowledge in an operational, organizational context. Firstly, knowledge resides in individual, group, and organizational levels. Secondly, knowledge exists in the forms of explicit or tacit (De Long and Fahey, 2000). Explicit knowledge is defined as the type of knowledge that can easily be documented and formed. Explicit knowledge can be acquired, written, converted, or transformed between organizational parts orally or using computer devices, charts, graphs and information technologies (Choi and Lee, 2003; Perez and Pablos, 2003). Companies exploiting explicit oriented knowledge strategy can attain scale economies and organizational efficacy through re exploiting codified knowledge. Tacit knowledge is what we know but cannot explain (De Long and Fahey, 2000). This type of knowledge: 1) is contained in mental processes; 2) originates from practices and experience; 3) is expressed through applications of ability; and 4) is converted in the style of teaching by doing and learning by viewing (Choi and Lee, 2003).

Liu (2007) argued that in the area of knowledge management, the most important challenge for managers is how to manage the knowledge assets of an organization effectively. The pressure takes place in a number of forms: (1) the knowledge with distinct competitive prevalence often is categorized into "tacit knowledge", since it cannot be converted easily, has an ambiguity, and is incorporated in workforce or work routine of organization; (2) unlike conventional management, managers of a team of extremely independent and self-directed knowledge workers; and (3) managers are required to capture full dominance of the outside environment to realize key sources of knowledge and enhance the advantage of inter-organizational learning. Consequently, an organization is required to foster its "knowledge base" by utilizing the improvement of a knowledge conversion mechanism and apply effective exploitation to increasing

organizational effectiveness. In other word, knowledge management is a significant driver leads to strengthen organizational effectiveness.

Chen's (2006) study showed that knowledge management boosts the organizational effectiveness. The study was conducted with the purpose of investigating the relationship among knowledge sharing and the organizational marketing effectiveness. The study suggested that knowledge-sharing practices are essential to improving organizational marketing effectiveness, both inside the organization and across organizations. The findings show that: (1) knowledge sharing, except for the outside organization knowledge sharing with strategic alliance organizations, is positively linked to the organizational marketing effectiveness in the strategic alliance context, and (2) the external organizational marketing effectiveness is mainly influenced by knowledge sharing in the strategic alliance context (cited from Kaweevisultrakul and Chan, 2007).

2.6. Moderating Role of Organizational Culture between Knowledge Management Practices and Organizational Effectiveness

Organizational culture is a potential vehicle for improving organizational effectiveness (Kilmann et al. 1986 cited in Andy, 2006). Organizational culture is socially incorporated, formulated and replicated over the long term (Schein, 1993 cited in Shawn, 2016), and can be viewed as an organizational asset or liability; as an asset, it mitigates communication, eases organizational decision making and monitor and can create higher levels of collaboration and commitment. It can lead to efficacy due to the fact that practices are achieved with a lower investment of resources. As a liability, it can restrain operational and process efficacy, and may be even strategy. There are a number of frameworks suggested to understand organizational culture. It has been generally regarded by researchers as a group of cognitions that shared among members of a social group (Martin and Siehl, 1983; Sathe, 1985; Weick, 1987; Schein, 1993 cited in Andy, 2006).

Some researchers argue that managers in the organization generate the culture (Pettigrew, 1979; Schein, 1993 cited in Andy, 2006). Whereas other studies, deriving from a social perspective (Smircich, 1983 cited in Shawn, 2016), symbolic (Geertz, 1973; Pettigrew, 1979 cited in Shawn, 2016) and cognitive perspective

(Gregory, 1983; Wilkins and Ouchi, 1983 cited in Shawn, 2016) argue that organizational staff members have a role to play in making their organization's culture. This research adopts culture as defined as the shared values, beliefs and assumptions that shape and guide social systems, group relations and communication processes (Schein, 1983, 1985 cited in Shawn, 2016). Few organizational researchers have derived and applied thoughts directly from Schein's definition of culture, while other researchers have questioned his method. For instance, subculture studies have challenged Schein's hypothesis that organizational cultures are consolidated (Gregory, 1983; Riley, 1983 cited in Shawn, 2016). While other researchers, moving from a symbolic interpretive perspective, pursued paths Schein ignored (Smircich, 1983; Hatch, 1993 cited in Shawn, 2016). Despite the lack of agreement on the highlighted assumptions of culture, most researchers agree that organizational culture has an impact on behavior.

Furthermore, some researchers state that organizational culture as an element affects the effectiveness of operations. As supported by Zammuto (2008) who investigated how organizational culture influences an organization’s ability to deal with uncertainty linked with the implementation of computer-based technologies. They explored that an organization featured by more flexible culture demonstrated a higher level of effectiveness with implementing computer based technologies than these organizations featured as more control-oriented.

Denison (1990 cited in Shawn, 2016) explained in his comprehensive framework on the cultural theory of organizational effectiveness that effectiveness is a function of values and belief (culture) held by organization members as well as policies and procedures (behavior). Moreover, in some of Denison’s general notions are adopted in marketing like in depth research explores the particular behaviors related to market strategy and their impact on varied fields of organizational effectiveness. Hence, organizational culture and organizational effectiveness has some associated aspects. According to Zheng, Yang and Mclean (2010), organization culture in the forms of flexibility, harmony, coherence and engagement has direct impact on organizational effectiveness.

In the same way, Samad (2007) provided details on organizational social characteristics and psychological empowerment. His study showed that the leaders need to make sure about the social characteristics of their workforce.

He further made it obvious, the workforce connected with creating high level of staff' psychological empowerment is required to focus their attention on the provision of wide self- esteem, distribution of power, sharing of information, reward system, and fine leadership.

CHAPTER THREE

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

3.0 Chapter Overview

In this chapter, the research hypotheses are developed, which are theoretically related to each other by describing the dependent, independent, and moderating variables used in this study, based on the discussion in the previous chapter related to knowledge management, organizational culture, and organizational effectiveness.

The main purpose of this chapter is to develop a general and comprehensive theoretical model that explains the relationship between knowledge management practices, the various types of organizational culture (as a moderator), the different components of innovation capabilities (as a mediator), and organizational effectiveness. Its additional purposes are to present hypotheses based on this theoretical framework and to investigate the relationship between knowledge management practices, organizational culture, innovation capabilities, and organizational effectiveness in financial institutions sector.

3.1 Theoretical Base of the Study

The knowledge-based view (KBV) provides the basis for this study of knowledge management practices, process innovation, and organizational effectiveness. Knowledge-based view considers knowledge as the most strategically significant resource of a firm. Its proponents argue that because knowledge-based resources are usually difficult to imitate and socially complex, heterogeneous knowledge bases and capabilities among firms are the major determinants of sustained competitive advantage and superior corporate performance Alavi & Leidner (2001).

The relationships between knowledge management practices, organizational culture, and organizational effectiveness have their origins in the literature of organizational studies. However, despite the growing number of studies in the field of these constructs, there has been very little empirical work done on the relationship between all of these factors (Islam et al., 2008; Kalling, 2010; Zack, et al., 2015; Mudor, 2014).

Few researchers addressed the linkage between KM and OE from different perspectives. For example, Islam et al. (2008) and Islam et al. (2011) explored the dimensions of KM practices as a mediating effect between organizational context and organizational effectiveness. Mudor (2014) studied the relationship between organizational culture, knowledge management, and organizational effectiveness. He employed knowledge management as a mediator between organizational culture and organizational effectiveness. Abd Rahmann et al. (2013) addressed the interactions between the dimensions of knowledge management practices and training in improving the organizational effectiveness of manufacturing firms in Malaysia. The researchers used knowledge management processes (knowledge acquisition, knowledge conversion, knowledge application, and knowledge protection) as a moderating variable between training skills and organizational effectiveness. However, in-depth search in the available literature shows that none of these previous studies employed KM as an independent variable when studying its relationship with OE. Hence, his study is intended to bridge this gap by investigating the impact of knowledge management on organizational effectiveness using KM as an independent variable and OE as a dependent variable.

Besides, examining the relationship between KM and OE, this study takes into consideration the moderating effect of organizational culture on the relationship between KM and OE. Literature reviews show that organizational culture has been identified as the most significant determinant of knowledge management in organizations among KM success factors (Watson 1998). Delong & Fahey (2000) stated that efforts for knowledge management are often resisted by organizational culture and as a result they have limited impact. Supporting this, (Babiak, 2002) claimed that the biggest hindrance to manage Knowledge is the inability to change peoples' behavior. Pentland (1995) argued that the existence of a supportive culture in the organization is vital in developing the association between the KM and the business performance. The existing literature shows that organizational culture has been employed by many studies as a mediating or a moderating variable between knowledge management and different variables. However, despite that the positive impact of critical success factors of knowledge management has been conceptually suggested by many studies and a number of KM models (Nonaka and Takeuchi, 1995; Kalling, 2003, Hari et al., 2005), the moderating effect of organizational culture in the relationship between knowledge management and

organizational effectiveness is empirically unidentified. Based on the literature reviews, no previous studies in the subject of knowledge management have provided an empirical evidence of the role of organizational culture as a moderator between KM and OE. For instance, Al-Tit (2016) addressed the mediating role of knowledge management and the moderating part of organizational culture between HRM practices and organizational performance. Donate et al. (2010) investigated the effect of organizational culture on knowledge management practices and innovation. Durmusoglu et al. (2013) analyzed the quasi-moderating role of organizational culture in the relationship between rewards and knowledge shared and gained. Nguyen and Mohamed (2009) examined the relationships among leadership styles, organizational culture and knowledge management practices using organizational culture as a moderating variable. Hence, this study is intended to fill this gap by investigating the moderating role that OC plays in the relationship between KM and OE.

Therefore, this study aims to improve on prior research by providing empirical validation of the relationship between knowledge management practices and organizational effectiveness focusing on organizational as a moderator.

3.2 Development of Framework

The correlations between knowledge management practices, innovation capabilities, organizational culture and organizational effectiveness have their origins in the theory of organizational studies. However, despite the increased number of studies in the field of knowledge management practices, innovation capabilities, organizational culture and organizational effectiveness, there has been very few empirical studies conducted to investigate the relationships among all of these constructs (Van den Berg, and Wilderom, 2004; Schimmoeller, 2010; Tojari et al., 2011). In particular, there is a lack in the existing literature with regard to studying the mediating or moderating impact of different variables on the relationship between knowledge management practices and organizational effectiveness (Drucker, 1992; Spender, 1996; Davenport and Prusak, 1998; Teece 1998; Nonaka et al 2000; Rojas, 2000; Darroch, 2002; Hovland, 2003; Bhojaraju, 2005; Maqsood, 2006; King, 2009; Lim; 2011; Mera, 2012; Pang,

2011; Numair, 2012; (Downes, 2014; Omotayo, 2015; Young, 2016; Zeinab, 2017). There are very little studies that provided empirical evidence on the possible mediators that have an effect on the relationship between knowledge management practices and organizational effectiveness. Therefore, this study intends to improve on previous research by providing empirical evidence of the knowledge management model by determining its influence on innovation capabilities and organizational effectiveness focusing on organizational culture as a moderator.

3.3 Theoretical Model

The theoretical framework serves as a guide and provides a foundation on which the study is to be built (Sekaran, 2003). The conceptual framework explains the suggested relationships between the variables that are included in the research problem. Moreover, it describes how the problem or problems under research raise testable hypotheses. The conceptual framework of this study has its origins in knowledge management Nonaka and Takeuchi's, 1995; Davenport and Prusak's, 1998; Becerra-Fernandez et al., 2004; Gorelick et al, 2004; Ujwary-Gil, 2008; Mamaghani et al., 2011), organisational culture (OC) (Cameron and Quinn, 2011; Hofstede, et al., 2010), innovation capabilities (IC(Bessant et al., 2005; Trott and Hartmann, 2009; Van de Vrande et al., 2010; Lichtenthaler, 2011), and organisational effectiveness (OE) (Quinn and Rohrbaugh, 1981, 1983; Dension, 1990) literature.

The conceptual framework for this study contains twelve constructs including the moderating and mediating variables. These constructs are: Knowledge Acquisition, Knowledge Application, Knowledge Protection (as independent variables) (IV), Corporate Image, Customer Satisfaction, Retention of Employees (as dependent variables) (DV), while Organizational Leadership, Management of Employees, Organizational Glue, and Strategic Emphases are being analyzed as moderating variables, in addition to Process Innovation, and Service Innovation as mediating variables. The main theoretical framework for this study is proposed in Figure 3.1 below:

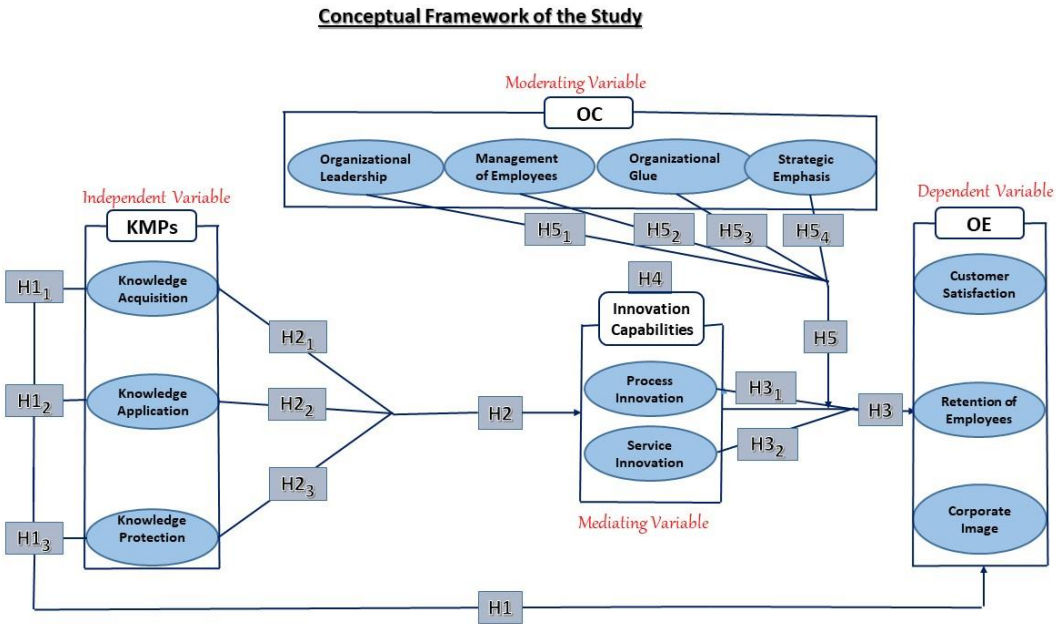


Figure 3.1: Theoretical Framework of the Study

3.4 Hypotheses Development

Based on the theoretical framework of the study, five main hypotheses, in addition to some sub-hypotheses, are formulated to reflect the relationships illustrated in the framework, as follows:

3.4.1 The Relationship between knowledge management practices and organizational effectiveness

This study assumes that there is a significant relationship between knowledge management practices and organizational effectiveness. As indicated in chapter two, Knowledge is an organized combination of data, assimilated with a set of rules, procedures, and operations learnt through experience and practice (Keskin, 2005). There are two critical dimensions to understanding knowledge in a practical, organizational context. First, knowledge exists at individual, group, and organizational levels. Second, knowledge is either explicit or tacit (De Long and Fahey, 2000). Explicit knowledge is the type of knowledge that can be easily documented and shaped. It can be created, written down, transferred, or transmitted among organizational units verbally or through computer programs, patents, diagrams and information technologies (Choi and Lee, 2003; Perez and Pablos, 2003). Firms using explicit oriented KM strategy can achieve scale economies

and organizational efficiency through reusing codified knowledge. Tacit knowledge is what we know but cannot explain (De Long and Fahey, 2000). This form of knowledge: 1) is embodied in mental processes; 2) has its origins from practices and experiences; 3) is expressed through ability applications; and 4) is transferred in the form of learning by doing and learning by watching (Choi and Lee, 2003).

According to Liu (2007) mentioned that within the area of knowledge management, the most important challenge for managers is how to manage the knowledge assets of an organization effectively. The pressure occurs in several aspects: (1) the knowledge with unique competitive superiority usually belongs to "tacit knowledge", as it cannot be transferred easily, possesses ambiguity, and is embedded in staff or routine work of organization; (2) dissimilar to traditional management, managers belong to a team of highly independent and autonomous knowledge workers; and (3) managers have to grasp full control of the external environment to achieve major sources of knowledge and strengthen the superiority of inter-organizational learning. Therefore, an organization must strengthen its "knowledge base" through the development of a knowledge transfer mechanism and exert effective leverage in order to increase organizational effectiveness. In other word, knowledge management is an important factor lead to enhance organizational effectiveness. Chen's (2006) study showed that KM enhances an organization's effectiveness. The study was conducted to see whether there is a relationship between knowledge sharing and the organization's marketing effectiveness. The study proposed that knowledge-sharing activities are prerequisites to enhancing organizational marketing effectiveness, both within the organization and between organizations. The findings show that: (1) knowledge sharing, except external organization knowledge sharing with strategic alliance organizations, is positively related to the organizational marketing effectiveness in the strategic alliance setting, and (2) the external organization's marketing effectiveness is mostly affected by knowledge sharing in the strategic alliance setting (cited from Kaweevisultrakul and Chan, 2007). Thus, the study hypothesizes that:

H1: There is a positive relationship between knowledge management practices and organizational effectiveness.

From this general hypothesis, six sub-hypotheses can be formulated as follows:

H1.1: There is a positive relationship between Knowledge Application and retention of employees
H1.2: There is a positive relationship between Knowledge Application and customer satisfaction
H13: There is a positive relationship between Knowledge Application and Corporate Image
H14: There is a positive relationship between knowledge protection and retention of employees
H1.5: There is a positive relationship between knowledge protection and customer satisfaction
H1.6: There is a positive relationship between Knowledge protection and Corporate Image

3.4.2 The moderating Effect of Organizational Culture on the relationship between Knowledge Management Practices and Organizational Effectiveness

Organizational culture as mentioned by McDermott and O'Dell (2001) referred to the shared values, beliefs and practices of people in an organization. Culture is reflected in the visible aspects of the organization, like its mission and espoused values. But culture exists on a deeper level as well, embedded in the way people act, what they expect of each other and how they make sense of each other's actions. Finally, culture is rooted in the organization's core values and assumptions. Often these are not only unarticulated, but so taken for granted that they are hard to articulate and invisible to organizational members (cited from Chan, 2007).

According to Delong and Fahey (2000), culture influences knowledge-related behaviors in four ways. First, culture, and particularly subcultures, heavily influences what is perceived as useful, important, or valid knowledge in an organization. Culture shapes what a group defines as relevant knowledge, and this will directly affect the type of knowledge a unit focuses on.

Wiig (1997) stated that subcultures consist of distinct sets of values, norms, and practices exhibited by specific groups or units in an organization. Subcultures have characteristics that distinguish them from the firm's overall culture, as well as from other subcultures. Second, culture is that it mediates the relationship between levels of knowledge. It dictates what knowledge belongs to the organization and what knowledge remains in control of individuals or subunits. Third, culture creates a context for social interaction. It represents the rules and practices that determine the environment within which people communicate. These cultural ground rules shape how people interact and have a major impact on knowledge creation, sharing, and use. Finally, culture shapes creation and adoption of new knowledge. According to (Chan, 2007),

knowledge ultimately assumes value when it affects decision-making and is translated into action. New knowledge is either adopted wholesale from external sources, often in the form of structured knowledge, such as a new software-driven manufacturing process, or is created internally by taking information from the external environment and interpreting it in the context of the firm's existing knowledge to create new knowledge that becomes a basis for action.

With respect to knowledge management as mentioned by Wiig (1997) proposed knowledge management is the fact that organizations systematically and clearly implement exploration and application knowledge thoroughly to improve work efficiency relevant to knowledge and research the maximized remuneration (cited from Chang and Lee, 2007). Along the same line, Tsai and Chen (2007) clarify knowledge-based resources are embedded in multiple entities of organization such as organizational culture, routines, policies, system and documents.

Many studies attempt to give details about the relationship between organizational culture and knowledge management. As point out by Alavi and Leidner (1999) mentioned in Chang and Lee (2007), investigate the applications of knowledge management. Result indicated that the experience of knowledge share in organization and the success of knowledge management are mostly associated with organizational culture. Hence, successful knowledge management must depend on the coordination on level of culture, management and organization. Knowing from academic statement, organizational culture is intimately related to organizational culture.

According to Chang and Lee (2007) investigated whether organizational culture has signifiant influence on knowledge management mechanism. The finding indicates the significant correlation between organizational culture and knowledge management mechanism. As supported by the canonical correlation coefficient was 0.829. Thus, it shows that organizational culture and knowledge management mechanism are positively correlated: namely, the higher recognition of organizations toward organizational culture, the higher knowledge management mechanism could occur. As supported by Zheng, Yang and Mclean (2010), organizational culture has greater positive contribution impact to knowledge management.

On the other hand, Kaweevisultrakul and Chan (2007) elaborated organizational culture is important to lead knowledge management to be successful, since one of the key drivers to a successful KM strategy is ensuring that an organization embeds a rich cultural environment into organization's vision and mission.

Thus, the study hypothesizes that:

H2: Organizational culture has a moderating effect on the relationship between Knowledge Management Practices and Organizational Effectiveness.

From this general hypothesis, the study hypothesizes that:

H2.1: Management of Employees has a moderating effect on the relationship between Knowledge Application and Retention of Employees

H2.2: Management of Employees has a moderating effect on the relationship between Knowledge Application and Customer Satisfaction

H2.3: Management of Employees has a moderating effect on the relationship between Knowledge protection and Retention of Employees

H2.4: Management of Employees has a moderating effect on the relationship between Knowledge protection and Customer Satisfaction

H2.5: Organizational Glue has a moderating effect on the relationship between Knowledge Application and Retention of Employees

H2.6: Organizational Glue has a moderating effect on the relationship between Knowledge Application and Customer Satisfaction

H2.7: Organizational Glue has a moderating effect on the relationship between Knowledge Protection and Retention of Employees

H2.8: Organizational Glue has a moderating effect on the relationship between Knowledge Protection and Customer Satisfaction

H2.9: Organizational Leadership has a moderating effect on the relationship between Knowledge Application and Retention of Employees

H2.10: Organizational Leadership has a moderating effect on the relationship between Knowledge Application and Customer Satisfaction

H2.11: Organizational Leadership has a moderating effect on the relationship between Knowledge Protection and Retention of Employees

H2.12: Organizational Leadership has a moderating effect on the relationship between Knowledge Protection and Customer Satisfaction

H2.13: Strategic Emphasis has a moderating effect on the relationship between Knowledge Application and Retention of Employees

H2.14: Strategic Emphasis has a moderating effect on the relationship between Knowledge Application and Customer Satisfaction

H2.15: Strategic Emphasis has a moderating effect on the relationship between Knowledge Protection and Retention of Employees

H2.16: Strategic Emphasis has a moderating effect on the relationship between Knowledge Protection and Customer Satisfaction

3.4.3 The Mediating Effect of Innovation Capabilities on the relationship between Knowledge Management Practices and Organizational Effectiveness:

To developing innovation capabilities, a firm need to create new ways to "develop substitutional routines for discontinued innovations which can sit together with those for stable state 'do better' innovation" (Bessant et al., 2005). One of the presumptions in this context is that innovation capabilities are skills that can be evolved, or farmed in order to create innovation. It is a capacity that takes proficiency, vision and knowledge, and translates it into a perception that allows creation, development and spreading of innovative products, not randomly, but constantly and consistently.

Innovation Capabilities have gained more importance recently (Trott and Hartmann, 2009; Van de Vrande et al., 2010; Lichtenthaler, 2011).

Innovation Capabilities are defined as the ability to convert knowledge and ideas into new products, processes and systems on a continuing basis for the good of the company and its stakeholders.

The term "capabilities" places emphasis on the key function of strategic management in conveniently adapting, incorporating and reformulating organizational skills, resources and competencies to meet the prerequisites of an evolving environment. In high-speed business industries, the ability to re-establish competencies to respond to the ever-changing business environment is highly significant, referred to as innovation capabilities (Lichtenthaler, 2011).

The notion of the developing innovation capability also comes comparatively close to the perspective of Pettigrew and Whipp (1991) on the management of strategic change, which, again, is tightly related to the view that the strategic perspectives, methods of thinking (principles, perceptions, mental models, and

objectives) and decisions of firm management play a major role in the implementation of strategic innovation and processes of change.

Thus, the study hypothesizes the general hypothesis:

H3: Innovation Capabilities mediate the relationship between Knowledge Management Practices and Organizational Effectiveness

From which four sub hypotheses can be proposed as follows:

H3.1: Process Innovation mediates the relationship between Knowledge Application and Retention of Employees

H3.2: Process Innovation mediates the relationship between Knowledge Application and Customer Satisfaction

H3.3: Process Innovation mediates the relationship between Knowledge Application and Corporate Image

H3.4: Service Innovation mediates the relationship between Knowledge Protection and Retention of Employees

H3.5: Service Innovation mediates the relationship between Knowledge Protection and Customer Satisfaction

H3.6: Service Innovation mediates the relationship between Knowledge Protection and Corporate Image

3.4.4 The Relationship between Knowledge Management Practices and Innovation Capabilities

Innovation Capabilities are defined as the ability to convert knowledge and ideas into new products, processes and systems on a continuing basis for the good of the company and its stakeholders.

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objectives) and decisions of firm management play a major role in the implementation of strategic innovation and processes of change.

Based on this discussion, the study proposes the following hypothesis:

H4: Knowledge Management Practices has a positive impact on Innovation Capabilities
Four sub hypotheses were derived from this hypothesis as follows:

H4.1 Knowledge Application has a positive impact on Process Innovation.
H4.2: Knowledge Application has a positive impact on Service Innovation.
H4.3: Knowledge Protection has a positive impact on Process Innovation.
H4.4: Knowledge Protection has a positive impact on Service Innovation.

3.4.5 The Relationship between Innovation Capabilities and Organizational Effectiveness

Process innovation has gained more importance recently (Trott and Hartmann, 2009; Van de Vrande et al., 2010; Lichtenthaler, 2011). It is defined as the application of a new or improved production or delivery methods which consist of important changes in techniques, equipment and software (OECD, 2005). Process innovation enhances the efficiency and the productivity of production activities, increases quality and reduces unit cost of production (Abdallah and Phan, 2007). Process innovation involves either improvements in the production and logistic methods or improvements that include several activities such as accounting, computing, purchasing and maintenance (Polder et al., 2010). Financial institutions that use process innovation aim at producing innovative products and new products as well (Hassan et al., 2013). This may require the adoption of new methods which have never been used before (Polder et al., 2010).

Thus, the study proposes the following hypothesis:

H5: There is a positive relationship between Innovation Capabilities and Organizational Effectiveness
From this general hypothesis, there were six sub hypotheses derived as follows:

H5.1: There is a positive relationship between Process Innovation and Retention of Employees
H5.2: There is a positive relationship between Process Innovation and Customer Satisfaction
H5.3: There is a positive relationship between Process Innovation and Corporate Image
H5.4: There is a positive relationship between Service Innovation and Customer Satisfaction
H5.5: There is a positive relationship between Service Innovation and Retention of Employees
H5.6: There is a positive relationship between Service Innovation and Corporate Image

3.5 Control Variables

Consistent with past research, control variables were used to control for other factors that can influence the relationship between the research constructs (Breda, 1985). Armstrong & Shimizu (2007) argued that studies without a control variable for industry can be misleading, such as support for opposite relationships, or unsupportable relationships at best. The aspects that are considered to be important to the study are type of ownership, size, and market share.

3.5.1 Type of ownership

Type of ownership is an appropriate metric due to its fundamental role in the value generation of the company (Bergström, 2011). There are many types of ownership: public, private…etc.

3.5.2 Size

The size of the assets on the balance sheet could be an important control variable in this study. A bigger bank with a higher value of total assets could have more resources to handle a tougher business environment than a small bank (McCune, 2008).

3.5.3 Market Share

An obvious definition of a firm's market share might be "that share of the market commanded by a firm's product (or brand)" (Cooper & Nakanishi, 1997). The company's market share indicates its capabilities of survival and growth (Porter, 1995).

Summary of the Chapter

This chapter illustrates the relationships under study in this research as well as the theoretical base of the study. Based on previous research conducted on the subject, the chapter shows that knowledge management practices have an impact on organizational effectiveness as well as two dimensions of innovation capabilities. Furthermore, the chapter illustrates that innovation capabilities have an impact on organizational effectiveness. The chapter further describes the mediating effect of innovation capabilities between knowledge management practices and organizational effectiveness, in addition to investigating the moderating effect of organizational culture between knowledge management practices and organizational effectiveness. The succeeding chapter presents the research methodology.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

In the previous chapter, the theoretical framework for this study was developed and research hypotheses were proposed. The subject of this chapter is to explain the methodology used to justify the research paradigm, questionnaire design, sampling, and data collection. This chapter will discuss the research instrument development, in addition to the pilot study results. Furthermore, this chapter briefly introduces the strategy of analysis used to test hypotheses of the study. Finally, ethical considerations are discussed and conclusions are drawn.

In this chapter, the empirical research methodology including data collection and analysis is discussed.

4.2. Research Approach

Based on the research problem that addressed and reviewing the existing literature and previous studies, the positivist approach has been selected. As described by Hirschheim and Klein (1992), the positivist approach determines the grounds for a problem depending on a deductive process. In the positivist/deductive research method, there are three fundamental principles which are described by Bryman and Bell (2011) and Creswell (2009) as developing the hypotheses/framework or the relationship and the performing of quantitative methods and value-free description introduced by the researcher regarding the research problem. It could be perceived from the wroks of Alveson andSkoldberg (2009), Bryman and Bell (2011) and Creswell (2009) in explaining the methodological paradigm that they deemed a specific study as positivist if this study analyzed the relationship among constructs through quantitative measures while implementing hypotheses testing on a specific sample to generalize the findings to a bigger population. The main objective of this study is to investigate the impact of knowledge management practices on organizational effectiveness taking innovation capabilities as a mediator in this relationship, with organizational culture as a moderator. Since investigating cultural factors is included in this study, then a

positivist approach is recommended. According to Orlikowski and Baroudi (1991), when conducting study through the positive approach, the researcher's duty is to determine the physical and social reality of the objective by the use of utilizing appropriate instruments which will determine these specific characteristics of reality which are under investigation by the researcher. The present study also employs positivist epistemology as suggested by Chua (1986), who considered knowledge to be either true or false based on empirical findings and the deductive approach. Therefore, to realize the objective, a theoretical framework has to be formed obviously demonstrating the variables and their relationships including dependant, independent, mediating and moderating variables. The development of the theoretical framework is grounded on the literature review displayed in chapter two where the existing literature linked to knowledge management practices, innovation capabilities, organizational culture and organizational effectiveness was reviewed (see chapter 2 and 3). Accordingly, the theoretical framework is developed utilizing rationales (e.g., Cameron and Quinn, 2011) in order to achieve the objectives of the study. As opposed to other research methods (i.e. post-positivist method) which concentrates on determining the differences among the phenomena for the purpose of identifying the casual relations (Guba and Lincoln, 1994), the present study focuses on determining the behavior of common variables as regards a particular phenomena; namely, knowledge management practices, innovation capabilities, organizational culture and organizational effectiveness of managers in financial institutions sector in Sudan.

4.3 Research strategy

There are two kinds of research strategies: deductive "theory–then-research" and inductive "research-then-theory"‘‘‘‘ (Bryman and Bell, 2011; May, 2011). Both deductive and inductive strategies are accepted as appropriate business research strategies (Saunders et al., 2009).

In deductive research, theories are established which are then tested through empirical evidence (May, 2011). This strategy focuses on studying theories by reviewing the literature then it deduces hypotheses which are subjected to empirical study. The findings will confirm or reject the hypotheses, and based on that, new theories are formed (Bryman and Bell, 2011; Saunders et al., 2009).

In inductive research, research comes before theory and the researcher looks to discover a theoretical proposition (Bryman and Bell, 2011; May, 2011).

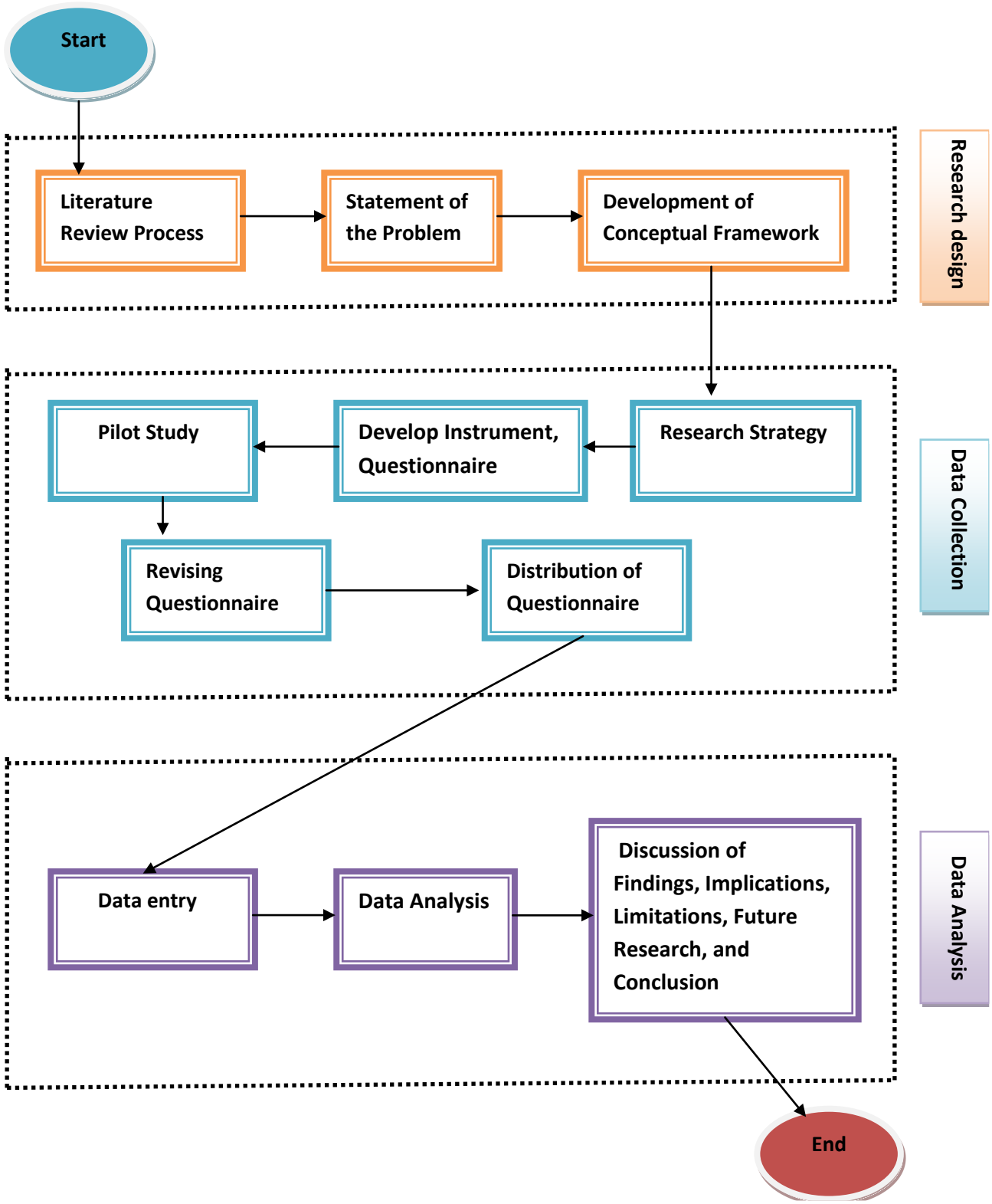
To realize the goals of this research, it was decided to use a deductive approach. The study does not aim to create new theories but to revise an existing theory by studying the impact of knowledge management practices on the organizational effectiveness in the Sudanese financial institutions sector (Bryman and Bell, 2011). A deductive approach will boost the researcher's attempts to build up a theoretical background for the relationships between KMPs and OE to identify research gaps (refer to Chapters 1 and 2). Based on these gaps, the research questions and hypotheses are formulated, and to test these hypotheses, data collection techniques and samples are identified (Chapter 3). In Chapter 5, the collected data are analyzed and the research hypotheses are tested. Chapter 6 is a discussion of the research findings. Then, the conclusion and research implications are suggested.

4.4 Research Design

Research design is viewed as the same as the overall structure of any research. The research design enables readers to obtain information and a model concentrating upon the way of collecting and analyzing data in any study. Bryman (2012) identified five key research designs which are widely used in any research including: qualitative, experimental, case study, survey research, and action. The decision to choose the most appropriate research design can include many determinants such as sampling, population type, format and content of questioning, rate of response, cost, and finally the period of time the gathering of information takes (Aaker,et al., 2010). To achieve the objectives of this study and to test the relationships between the different variables of the study, this study used survey research and data which was collected using a questionnaire developed uniquely for this study. The data was collected using questionnaires filled up by top management levels of the organizations. Like other survey research, the main purpose of the study was to investigate the relationship between knowledge management practices and organizational effectiveness, and the mediating effect of innovation capabilities on that relationship, as well as the impact of organizational culture as a moderating variable on this relationship. The researcher collected information

regarding the variables identified for this study and the extent of their relationships with each other. The logic behind choosing survey research for this study is that when it comes to research conducted on individuals in different organizations, the survey approach is preferred (Dwivedi, 2010). Surveys could be considered specifically convenient for matters such as cost, time, and availability (Gilbert, 2005). With the aim of justifying why choosing survey method for this study, it can be argued that since the number of financial institutions operating in Sudan is so large, the process of collecting more original data was, practically speaking, impossible because of the schedule and framework of the researcher. Choosing the top managers of the financial institutions and to measure their perceptions had many advantages, such as reduced time, lower cost and effort, and less researcher bias.

Figure 4.1: Research Strategy



Source: Developed by the researcher for the purpose of this study

4.5 Data collection

The previous section discussed the research design employed in this study. In this section, the population and sampling will be shown. The first subsection is a discussion of the population of the study, followed by discussing sampling.

4.5.1 Population

A population is the whole set of people that the researcher wants to learn about (Stangor, 2011). Punch, (2005) stated that any combination of people or things that have at least one common characteristic or a target group who would be the subject of the research, and about whom one is trying to say something.

The population for the study was 139 financial institutions (Central Bank of Sudan, 2018; Khartoum Exchange Market, 2018), and the researcher did include the whole population in the study despite that this means it would have been time consuming and costly to collect data from 139 companies. According to Powell (1997) the population should be selected with great care bearing in mind the selection criteria, the desired size and the parameters of the survey. In light of the above, this study selected the managers of financial institutions sector of Sudan specifically in Khartoum state, whose number amounted to 139 as population.

4.5.2 Sampling

According to Ngulube (2005), the choice of studying the sample enables to achieve valid conclusion regarding the larger group. As mentioned previously, the entire population of top managers of Sudanese financial institutions, specifically in Khartoum state whose number amounts to 139, was considered.

4.6 Development of Questionnaire

According to Kumar et al. (2001), there are five steps in developing a questionnaire including: planning what to measure, developing the questionnaire, question wording, questionnaire layout, pretesting, correcting problems and its implementations. These steps are discussed in detail, in the following sections of this chapter.

Step 1: Planning what to measure

This step is dependent on the research objectives, problem statement, and the research issues. The survey questions were designed accurately to give obvious ideas about the problems for the target respondents to answer. The questions on the research instrument were divided into the following: (1) question on personal information (2) questions on knowledge management practices covered three dimensions: knowledge acquisition, knowledge application, and knowledge protection. (3) questions on organizational culture covered the four dimensions of organizational culture. (4) questions on organizational effectiveness concentrated on the different measures and criteria of organizational effectiveness. All the responses, except on the personal information, were elicited on 5-point scale, (1 = strongly disagree 5 = strongly agree), Likert scale had been chosen for its clarity and ease of use.

Step 2: Formatting of the questionnaire:

This step involves the conversion of the research objectives into information required to obtain the necessary output of the questionnaire. All the research constructs in this study had been converted into the relevant questions and clearly stated, and since Sudan common language is Arabic, therefore, the questionnaire had been written in Arabic language to achieve its objectives.

Step 3: Question wording:

This step examines whether the questions are clearly understandable to all respondents. Thus it is necessary to use simple terminologies to avoid un-clearness, confusion, or elusiveness in the meaning. It is important to avoid misleading and confusing questions. Beside the phrasing and length of questions, it is also designed to obtain ideas and answers from target respondents. In the process, the instrument was revised by: Prof. Ahmed Ibrahim Abu Sin – Sudan University of Science and Technology, Dr. Fikri Kabbashi – Al-Neelain University, Prof. Salahuddin Mohamed Ali - International University of Africa, Dr. Diauddin Abdul Basit Abdul Majid, University of Shaqra (Saudi Arabia), Dr. Mohamed Mubarak Mustafa Al Imam - Emirates College of Science and Technology,

Moreover, to make sure that the questionnaire will be obvious enough for the respondents, five bankers were asked to review the questionnaire wording. The final version of the instrument was simplified by

removing or replacing some questions to reduce the time required to answering the questionnaire. The time required to answer the questionnaire was tested with the help of ten Students from Sudan Academy for Banking and financial Sciences. The estimated time to answer the questionnaire ranges from 10 to 15 minutes.

Step 4: Questionnaire Sequence and layout:

This step is about the sequence and flow of the statements for achieving the respondent's cooperation. The instrument should start with easy questions flow from general to specific questions. The sensitive or difficult questions should be avoided or not placed at the questionnaire beginning.

Step 5: Pre-testing a questionnaire:

According to Powell and Connaway (2004), it is necessary to conduct a pre-test or pilot study of a questionnaire after it has been informally evaluated in order to refine the questions. This step involves conducting a pilot test on the questionnaire to ensure that the questions meet the researcher's expectations with no ambiguities, appropriateness in the length of the questions, and erasing or modifying the un-clear questions. The objective of the pilot test is to eliminate confusing statements and checking the reliability of the variables. Pre-testing the research instrument also enabled the researcher to fine tune the questions in line with the research objectives. The responses that were obtained after pre-testing the research instrument showed that the participants understood the questions and the participants provided relevant answers needed in the study.

4.7 Data analysis and presentation

According to Yin (2003), data analysis relates to what is done with the information collected from the research process in order to make sense of it. Leedy and Omrod (2005) suggested steps for data analysis, including: the logical arrangement of the details of the issue being studied, data categorization, data examination, data analysis for underlying themes and patterns and, finally, the synthesis of results and generalizations arising thereafter. To analyze the collected data and test the hypotheses, Statistical Package for Science (SPSS) Version 22.0 and AMOS were used.

Chapter summary

This chapter addressed the research design and the methodology used in this study. The chapter consists of several sections including: discussing the research approach, research strategy, research design, data collection was also described and the explanation on population and sampling technique used was justified. In addition, development of questionnaire was discussed and data analysis and presentation was illustrated

CHAPTER FIVE

DATA ANALYSIS AND FINDINGS

5.1 Chapter overview

The chapter was organized into four sections. The first section concerns with data cleaning, response rate, and the characteristics of both financial institutions and respondents, followed by the goodness of measures which discusses the validity and reliability of the measurement. The third section shows the descriptive analysis of the study variables. The last section focuses on the results of path analysis and hypotheses testing.

5.2 Data Cleaning

Data cleaning deals with detecting and removing errors and inconsistencies from data in order to improve the quality of data. The need for data cleaning is centered on improving the quality of data to make them "fit for use" by users through reducing errors in the data and improving their documentation and presentation (Chapman, 2005).

Data quality problems are presented in single data collections due to misspellings during data entry, missing information or other invalid data. When multiple data sources need to be integrated, or analysis programs need to be used, the need for data cleaning increases significantly. Thus, in this study data cleaning is used to manipulate missing data, unengaged responses, and outliers.

5.2.1 Missing Data

Missing data is common and always expected in the process of collecting and entering data due to lack of concentration and/or the misunderstanding among respondents, and missing information or other invalid data during the entry of data. Missing data can cause several problems. The most apparent problem is that there

simply won't be enough data points to run the analysis and particularly in structural equation model (SEM).

Both exploratory and confirmatory factor analysis and path models require a certain number of data points in order to compute estimates. Additionally, missing data might represent bias issues. Some people may not have answered particular questions in survey because of some common issues. If missing data is more than 10% of the responses on a particular variable, or from a particular respondent, that variable or respondent may be problematic. In this study, the proportion of missing data is lower than 10% therefore, there was no need to remove any of responses.

5.2.2 Outliers

It's very important to check outliers in the dataset. Outliers can influence the results of analysis. If there is a really high sample size, the need for removing the outliers is wanted. If the analysis is running with a smaller dataset, you may want to be less liberal about deleting records. However, outliers will influence smaller datasets more than largest ones. However, in this dataset outliers were checked but no change was made because it is seemed logic to find some of the respondents are extreme in their ages and gender among all the respondents of the study.

5.3 Response rate

It was previously mentioned that the population of this study was the financial institutions located in Khartoum area. The researcher employed convenient sample where self-administrated survey questionnaire was used to distribute 134 questionnaires to the institutions. The survey started on the 1st of November 2018 and by the end of November 2018, a total of 130 out of 134 questionnaires were received from respondents, the overall response rate was 99%, this was considered a very high rate due to questionnaires given one by one to respondents and in research used a self–administrated survey (Sekaran, 2003).

Those who didn't responded to fill the questionnaire were not transparent in their justifications. Below is Table (5.2) which shows the summary of questionnaires response rate.

Table (5.2) Response rate of questionnaire

Total distributed questionnaires	134
Total questionnaires received from respondents	130
Valid questionnaires received from respondents	130
Partially filled questionnaires -	0
Invalid questionnaires	0
Not filled-up questionnaires -	0
Questionnaires not received	4
Overall response rate	99%
Useable response rate	99%

Source: prepared by researcher from data (2018)

5.4 Profile of respondents

Based on the descriptive statistics using the frequency analysis, this part investigates the profiles of respondents who participated in the survey on the light of the demographic variables gender, age category, academic degree, and length of service with current company, job rank. The SPSS output presented shows that (76%) of the respondents were males, where (24%) were females, and (19.5%) of respondents were within the age category from 27 to 35 years, and (36%) were from 36 to 45 years, and (38.5%) were from 46 to 55 years and (6%) of respondents were more than 55 years. The Academic degree was (30.5%) Bachelor Degree, (50%) Master's Degree, (19.5%) Doctorate Degree. Length of service with current company of respondents were (39.2%), were from 6 to 10 years (36.5%) were from 1 to 5 years, (14.2) were from 11 to 15 years, and (7.1%) of respondents were for more than 15

years and (3%) were less than 1 year. With regard to the job rank, (35%) of respondents were General Managers, (27%) were Deputy General Managers, (38%) were Assistant General Managers.

Below is table (5.3) which shows the descriptive analysis for demographic variables.

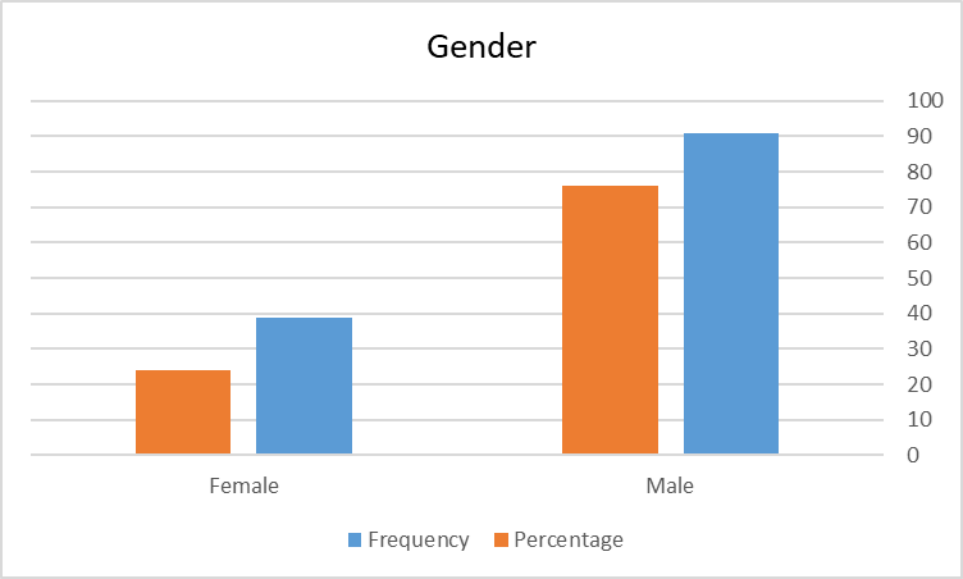
Table (5.3) frequency tables:

Statistics						
		Gender:	Age Category	Academic degree	Length of service with my current company	job rank
N	Valid	130	130	130	130	130
	Missing	0	0	0	0	0

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Male	91	76.0	76.0	76.0	
	Female	39	24.0	24.0	24.0	
	Total	130	100.0	100.0	100.0	

Chart 5.1: Gender of Respondents

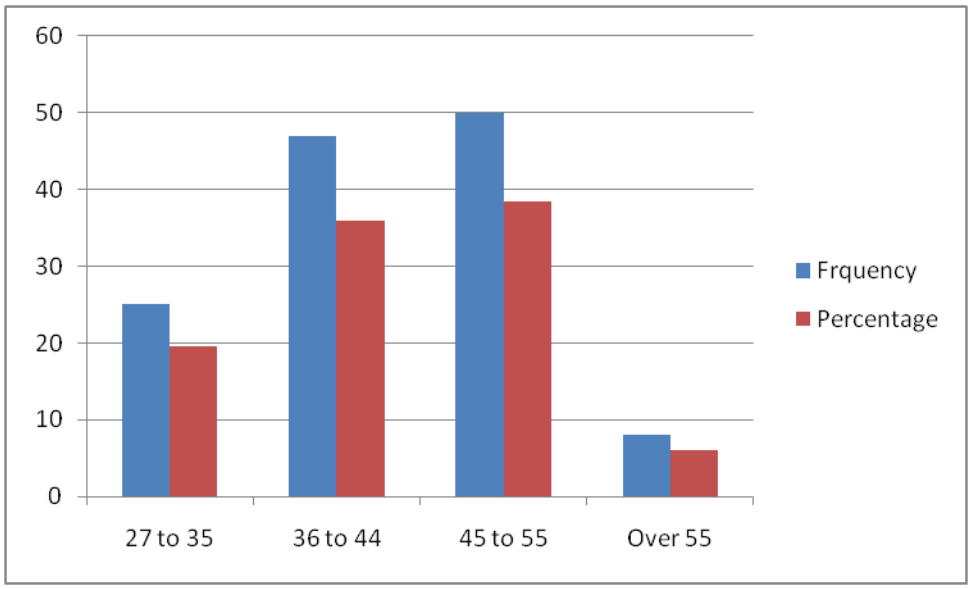


Source: Developed by the researcher from the data analysis

Age Category					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
	27 to 35	25	19.5	32.5	32.5
	36 to 44	47	36	61	61
	45 to 55	50	38.5	65	65
	Over 55	8	6	10.5	10.5
	Total	130	100.0	100.0	100.0

Source: Developed by the researcher from the data analysis

Chart 5.2: Age Category of Respondents

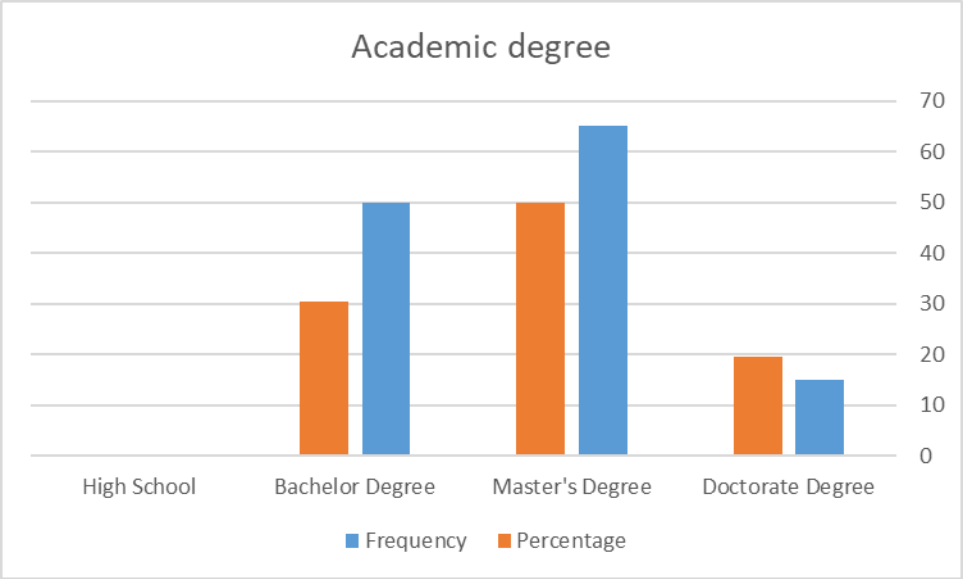


Source: Developed by the researcher from the data analysis

Academic degree		Frequency	Percent	Cumulative Percent
Valid	Doctorate Degree	15	19.5	19.5
	Master's Degree	65	50	50
	Bachelor Degree	50	30.5	30.5
	High School	0	0	0
	Total	130	100.0	100.0

Source: Developed by the researcher from the data analysis

Chart 5.3: Academic degree of Respondents

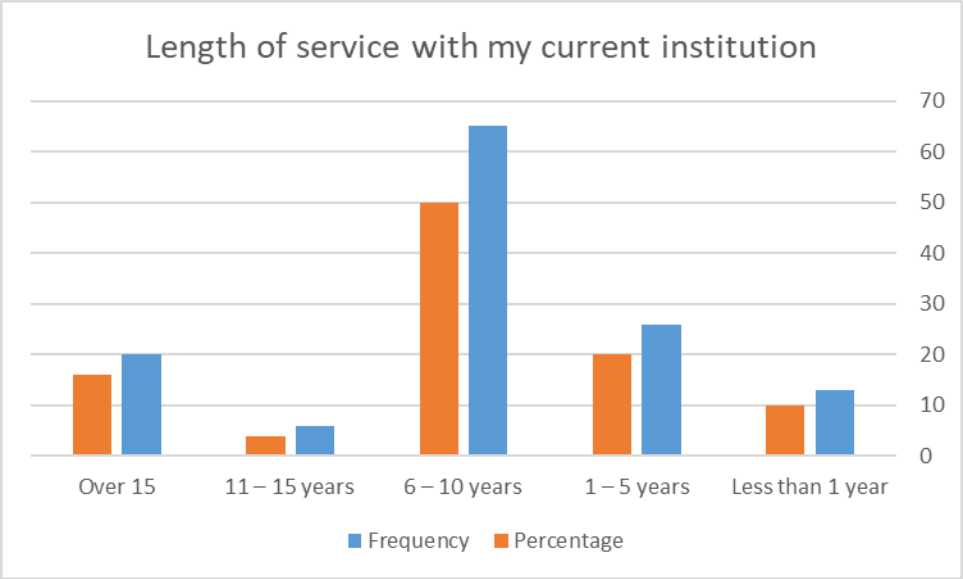


Source: Developed by the researcher from the data analysis

Length of service with my current institution					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Less than 1 year	13	10	10	10
	1 – 5 years	26	20	20	20
	6 – 10 years	65	50	50	50
	11 – 15 years	6	4	4	4
	Over 15	20	16	16	16
	Total	130	100.0	100.0	100.0

Source: Developed by the researcher from the data analysis

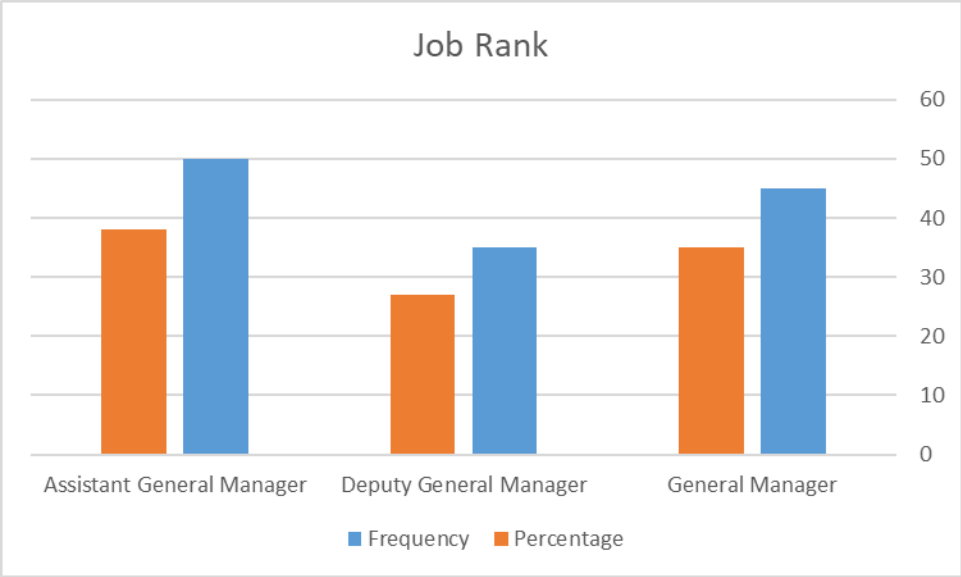
Chart 5.4: Length of service of Respondents



Job Rank					
		Frequency	Percentage	Valid Percent	Cumulative Percent
Valid	General Manager	45	35	35	
	Deputy General Manager	35	27	27	
	Assistant General Manager	50	38	38	
	Total	130	100.0	100.0	

Source: Developed by the researcher from the data analysis

Chart 5.5: Job Rank of Respondents



Source: prepared by researcher from data (2018)

5.5 Goodness of Measures:

This section examines the goodness of measures through exploratory factor analysis for testing the validity and UN dimensionality of measures of all variables under study, and reports the results of validity and reliability tests as means to assess the goodness of measures in this study constructs (Sekaran, 2003). The study used exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The following are the detailed information of each and reliability tests (Cronbach Alpha) to measure the internal consistency of the items used by the questionnaire.

However, in principal components analysis of the original variables are transformed into a smaller set of linear combinations, with all of the variance in the variables being used. In factor analysis however, factors are estimated using a mathematical model, where only the shared variance is analyzed (Tabachnick & Fidell, 2007).

There are three main steps in conducting factor analysis:

1) Assessment of suitability of the data for factor analysis:

There are two main issues to consider in determining whether a sectionicularly data set is suitable for factor analysis: sample size and strength of the relationship among the variables (or items). Comrey & Lee (1992) provided the following guidance in determining the adequacy of sample size: 100= poor, 200 = fair, 300 = good, 500 = very good, 1,000 or more = excellent. Guilford (1954) argued that N should be at least 500. The second issue to be addressed concerns the strength of inter-correlations among the items. Two statistical measures are generated by SPSS to help assess the factorability of the data: Bartlett's test of Spherecity (Bartlett, 1954) and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1970, 1974). The Bartlett's test of Spherecity should be significant ($P<.05$) for the factor analysis to be considered appropriate. The KMO index ranges from 0 to 1, with .6 suggested as the minimum value for a good factor analysis (Tabachnick & Fidell, 2007).

2) **Factor extraction:**

Factor extraction involves determining the smallest numbers of factors that can be used to best represent the inter-relations among the set of variables. The most commonly used approach is principal components analysis. Tabachnick & Fidell (2007) recommend that researchers adopt an exploratory approach experimenting with different numbers of factors until a satisfactory solution is found.

3) Factor Rotation:

There are two main approaches to rotation, resulting in either orthogonal (uncorrelated) or oblique (correlated) factor solutions. This study used orthogonal approach because the goal of the research is to reduce the number of original variables to small set of uncorrelated variables for subsequent use in regression (Hair et al. 2010). Also, it is easier to interpret and report (Tabachnick & Fidell, 2007). However, the most commonly used orthogonal approach is the Varimax method, which attempts to minimize the number of variables that have high loadings on each factor. The results of factor and reliability analyses are described as follows:

5.5.1 Exploratory factor analysis (EFA)

Exploratory Factor Analysis (EFA) is a statistical approach for determining the correlation among the variables in a dataset. This type of analysis provides a factor structure (a grouping of variables based on strong correlations). In general, an (EFA) prepares the variables to be used for cleaner structural equation modeling (SEM). This means the (EFA) will be able to spot problematic variables much more easily than the (CFA). Therefore, this study used exploratory factor analysis for testing the validity and uni-dimensionality of measures to all variables under study, followed the assumptions recommended by (Lowry, 2014) as follow:

¬There must be a clean pattern matrix.

¬ Adequacy.

¬ Convergent validity.

¬ Discriminant validity.

¬ Reliability.

Fifty six items were used to measure the model variables were subjected to exploratory factor analysis using principal component, the summary of results was shown in Table (5.4). As shown in Table (5.4) below, all the remaining items have more than recommended value of at least 0.5 in measure of sample adequacy (MSA) with (KMO) value of 0.903 (above the recommended minimum level of 0.60), and Bartlett's test of sphericity is significant ($p<.01$). Thus, the items are appropriate for factor analysis.

5.5.1.1 Exploratory factor analysis for independent variable: knowledge management practices (EFA)

Exploratory Factor Analysis (EFA) is a multivariate technique for analyzing the structure of interrelationships among a large number of variables by defining sets of variables that are highly interrelated (Hair et al., 2009). These groups of variables are known as factors and are assumed to represent dimensions

within the data. In this way, EFA is able to determine whether the information derived from the dataset could be summarized in a smaller set of components (factors). EFA has an exploratory character because the researcher has little control over the specification of the structure (Hair et al., 2009). EFA is primarily used when the relationships between the observed and the latent variables (factors) are unknown or uncertain (Gounaris et al., 2004). In this section of our study, EFA will be used twofold. First, our aim is to derive a preliminary factorial structure of knowledge management practices. Secondly, as previously shown in the Methodology (chapter 3), the variables scales of questions were adapted from previous studies. EFA will be applied in order to refine the latent constructs of the variables examined and guarantee convergent and discriminant validity. The EFA results will be confirmed through Confirmatory Factor Analysis (CFA) in the next section of the study, and then the derived factors will be included in the structural model for the examination of the relationships between the variables.

We used Maximum Likelihood, the summary of results was shown in Table (5.5) and the SPSS output attached as appendix. As shown in Table (5.4) below, all the remaining items have more than recommended value of at least 0.45 in measure of sample adequacy (MSA) with (KMO) (above the recommended minimum level of 0.60), and Bartlett's test of sphericity is significant ($p<.01$). Thus, the items are appropriate for factor analysis.

Factor analysis was done on the 20 items which were adopted from previous studies was used to measure (knowledge management practices) and subjected to principal components analysis (PCA) using AMOS version 21.

Table (5.4) shows the summary of results of factor analysis on (knowledge management practices) and the SPSS output is shown in Appendix B4.1. All the remaining items had more than recommended value of at least 0.50 in MSA with KMO value of 0.661 (above the recommended minimum level of 0.60), and Bartlett's test of spherecity is significant ($p<.00$). Thus, the items are appropriate for factor analysis. Table 5.6 shows that the items for knowledge management practices loaded on two components/factors with eigen values exceeding 1.0. These two factors explain 68.314% of variance in the data (above the recommended level of 0.60). All the remaining items also had the factor loading values above the minimum values of

0.50, with value of cross loading less than .50. The first factors of knowledge management practices capture all the items of the A) Knowledge Protection and second factor captures all the items of Knowledge Application. Thus, the items are appropriate for factor analysis. Variables loaded significantly on factor with Coefficient of at least 0.5, * Items deleted due to high cross loading.

Table (5.4): Exploratory factor analysis for independent variables (knowledge management practices)

Rotated Component Matrix		
Items:	Component	
A) Knowledge Protection	1	2
The company has processes to protect knowledge from inappropriate use inside the organization.	.875	-.073-
The company has incentives that encourage the protection of knowledge.	.778	.179
The Company has technologies that restrict access to some sources of knowledge	.655	.388
Knowledge Application		
The Company has processes for using knowledge in development of new products/services.	.022	.843
The Company is able to locate and apply knowledge to changing competitive conditions.	.217	.818
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.661
Bartlett's Test of Sphericity		333.003
Total Variance Explained		68.314

Source: prepared by researcher from data analysis (2018)

5.5.1.2 Exploratory factor analysis for moderating variable: Organizational Culture (EFA)

Factor analysis was done on the 16 items which were adopted from previous studies was used to measure Organizational Culture and subjected to principal components analysis (PCA) using AMOS version 21. Table (5.5) shows the summary of results of factor analysis on (Organizational Culture) and the SPSS output is shown in Appendix B4.1. All the remaining items had more than recommended value of at least 0.50 in MSA with KMO value of 0.661 (above the recommended minimum level of 0.60), and Bartlett's test of spherecity is significant (p<.00). Thus, the items are appropriate for factor analysis. Table 5.6 shows that the items for Organizational Culture loaded on five components factors with Eigen values exceeding 1.0. These five factors explain 65.545 % of variance in the data (above the recommended level of 0.60). All the remaining items also had the factor loading values above the minimum values of 0.50, with value of cross loading less than .50. The first factors Organizational Culture captures all the items of the Management of Employees and second factor captures all the items of Organizational Glue, and third factor captures all the items of Organizational Leadership, and fourth factor captures of Strategic Emphases. Thus, the items are appropriate for factor analysis. Variables loaded significantly on factor with Coefficient of at least 0.5.

***Table 5.5: EFA for* Organizational Culture**

Rotated Component Matrix[a]					
	Component				
Management of Employees	1	2	3	4	5
The management style in the Company allows encourages employees to be innovative.	.780	.053	.219	.033	.007
The management style in the Company emphasizes teamwork values.	.735	.082	.213	.124	.100
The Company is a dynamic and entrepreneurial place. People are willing to take risks.	.627	.338	-.025-	.233	.094

The Company is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	.507	.308	-.067-	.143	.429
Organizational Glue					
The glue that holds the Company together is loyalty and mutual trust. Commitment to this Company runs high.	.055	.772	.270	.102	.130
The glue that holds the Company together is commitment to innovation and development. There is an emphasis on being on the cutting edge.	.291	.723	-.027-	-.004-	.169
Organizational Leadership					
The leadership in the Company is generally considered to exemplify coordinating, organizing, or smooth-running efficiency	.307	-.102-	.740	.129	.114
The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk taking	.015	.231	.710	.012	.257
The Company is a very personal place. It is like an extended family.	.161	.462	.565	.189	-.118-
Strategic Emphases					
The Company emphasizes human development. High trust, openness, and participation persist.	.183	-.047-	.094	.850	.110
The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.	.097	.185	.097	.837	-.009-

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.807
Bartlett's Test of Sphericity	980.704
Total Variance Explained	65.545

5.5.1.3 *EFA* Exploratory factor analysis for mediating variable: Innovation Capabilities

Factor analysis was done on the 6 items which were adopted from previous studies was used to measure Innovation Capabilities and subjected to principal components analysis (PCA) using AMOS version 21. Table (5.7) shows the summary of results of factor analysis on Innovation Capabilities and the SPSS output is shown in Appendix B4.1. All the remaining items had more than recommended value of at least 0.50 in MSA with KMO value of 0.715 (above the recommended minimum level of 0.60), and Bartlett's test of spherecity is significant (p<.00). Thus, the items are appropriate for factor analysis. Table 5.6 shows that the items for Innovation Capabilities loaded on two components/factors with eigenvalues exceeding 1.0. These two factors explain 75.862 % of variance in the data (above the recommended level of 0.60). All the remaining items also had the factor loading values above the minimum values of 0.50, with value of cross loading less than .50. The first factor of Innovation Capabilities captures all the items of Process Innovation and second factor captures all the items of Service Innovation. Thus, the items are appropriate for factor analysis. Variables loaded significantly on factor with Coefficient of at least 0.5.

Table 5.6: EFA for Process Innovation

Rotated Component Matrix		
	Component	
	1	2
Process Innovation		
The Company has new or improved methods for the leverage of services such as: hardware, software and outsourcing.	.860	.284

The Company has new or improved methods for the production of services such as: systems, license for know-how and other forms of knowledge.	.847	.075
The usually improves processes by utilizing sophisticated technologies on a continual basis.	.785	.257
Service Innovation		
The Company has new or improved activities for customer service such as: information inquiry and consultation.	.166	.863
The Company has new and improved services on a continual basis.	.227	.857
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.715	
Bartlett's Test of Sphericity	607.066	
Total Variance Explained	75.862	

Source: prepared by researcher from data analysis (2018)

5.5.1.4: Exploratory factor analysis for dependent variable: Organizational Effectiveness

Factor analysis was done on the 12 items which were adopted from previous studies was used to measure Organizational Effectiveness and subjected to principal components analysis (PCA) using AMOS version 21. Table (5.7) showed the summary of results of factor analysis on Organizational Effectiveness and the SPSS output is shown in Appendix B4.1. All the remaining items had more than recommended value of at least 0.50 in MSA with KMO value of 0.609 (above the 130 recommended minimum level of 0.60), and Bartlett's test of spherecity is significant (p<.00). Thus, the items are appropriate for factor analysis. Table 5.7 shows that the items for Organizational Effectiveness loaded on three components/factors with eigenvalues exceeding 1.0. These two factors explain 63.475 % of variance in the data (above the recommended level of 0.60). All the remaining items also had the factor loading values above the minimum values of 0.50, with value of cross loading less than .50. The factors of Organizational Effectiveness capture all the items of Customer Satisfaction and Retention of Employees. Thus, the items are appropriate for

factor analysis. Variables loaded significantly on factor with Coefficient of at least 0.5, * Items deleted due to high cross loading.

Table: 5.7: Factor analysis for Organizational Effectiveness

Customer Satisfaction	Component
	1
Employees are well equipped with the right resources to deliver customer service.	.873
Employees are always motivated to deliver on the Company's service promised to customers.	.829
The customer service goal of our Company is to meet the customers' expectations.	.675
Retention of Employees	2
There is an environment of openness and trust in the Company.	.789
Employees in the Company are treated with fairness and respect.	.698
The Company leadership has a style that empowers people to take responsibility and authority.	.819
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.609
Bartlett's Test of Sphericity	225.018
Total Variance Explained	63.475

Source: prepared by researcher from data analysis (2018)

5.5.2 Convergent validity for mediator variable: -

Convergent validity means that the variables within a single factor are highly correlated. This is evident by the factor loadings. Sufficient/significant loadings depend on the sample size of dataset. Generally, the smaller the sample size, the higher the required loading.

Since the population size used in analysis for this study was 130, therefore the sufficient factor loading was 0.30 indicating sufficient convergent validity of the measurement instrument.

5.5.3 Reliability Analysis

This study used Cronbach's alpha as diagnostic tool to assess the degree of internal consistency between multiple measurements of variables. (Hair et al, 2010) stated that the lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research. While Nunnally (1978) considered Cronbach's alpha values greater than 0.60 are taken as reliable. Given that Cronbach's alpha has been the most widely used measure (Sharma, 2000), table (5.8) presents the summary of the results for reliability analysis. Confirmed that all the scales display the satisfactory level of reliability (Cronbach's alpha exceed the minimum value of (0.60). Therefore, it can be concluded that the measures have acceptable level of reliability.

Table (5.8) Reliability for study variables after EFA

Variable	***N of items***	***Alfa***
Knowledge Application	*3*	*.621*
Knowledge Protection	*3*	*.696*
Management of Employees	*4*	*.717*
Organizational Glue	*3*	*.699*
Organizational Leadership	*3*	*.689*
Strategic Emphasis	*3*	*.683*
Process Innovation	*3*	*.722*

Service Innovation	*3*	*.744*
Customer Satisfaction	*3*	*.744*
Retention of Employees	*3*	*.711*

Source: prepared by researcher from data analysis (2018)

5.5.4 Confirmatory factor analysis *for all variables*

Confirmatory Factor Analysis (CFA) is the next step after exploratory factor analysis to determine the factor structure of dataset. In the (EFA), we explore the factor structure (how the variables relate and group based on inter-variable correlations); in the (CFA) we confirm the factor structure we extracted in the (EFA). All the items in Table (4.4) were used to conduct confirmatory factor analysis with maximum likelihood and promax.

In order to examine the relationship between the constructs, indicator variables and their relationships, Confirmatory Factor Analysis (CFA) was used to create a measurement model. CFA is a statistical technique that is used to verify the factor structure of a set of observed variables. It allows the researcher to confirm the hypothesis that a relationship between observed variables and their underlying latent. Constructs exist CFA provides quantitative measures of the reliability and validity of the constructs and also gives suggestions as to how well the model was a fit to the data.

5.5.5 Model fit

Model fit refers to how well the proposed model accounts for the correlations between variables in the dataset. If the accounting for all the major correlations inherent in the dataset (with regards to the variables in the model), then the model will have a good fit. If not, then there is a significant "discrepancy" between the correlations proposed and the correlations observed, and thus have poor model fit. There are specific measures that can be calculated to determine goodness of fit. The thresholds listed in the table (4.8) below are simply a guideline.

Table (5.9): measures to determine goodness of model fit

Measure	Threshold
Chi-square/degree of freedom(cmin/df)	< 3 good; < 5 sometimes permissible
P-value for model	>.o5
CFI	>.95 great; >.90 traditional; >.80 sometimes permissible
GFI	>.95
AGFI	>.80
SRMR	<.09
RMSEA	<.5 good; .05-.10 moderate;> 10 bad
P Close	>.05

***Source**: Adopted from* (Gaskin, 2017)

Model fit refers to how well our proposed model (in this case, the model of the factor structure) accounts for the correlations between variables in the dataset. If we are accounting for all the major correlations inherent in the dataset (with regards to the variables in our model), then we will have good fit; if not, then there is a significant "discrepancy" between the correlations proposed and the correlations observed, and thus we have poor model fit.

Several of the commonly used fit indicators were used to judge the model fit for the measurement model as recommended by Hairet al (2006). These include:

Chi-Square (CMIN)

The chi-square test is a goodness-of-fit measure, which evaluates the expected and observed values to determine how well a theoretical model fits the data.
The results showed that the chi-square value *(x2)* value was 444.729 with 216 degrees of freedom (df). The probability statistic was significant (p-value = 0.00), suggesting that the model was not a good fit to the data. However, since the (x:) statistic is sensitive to sample size for observations greater than 200 (Hoe,

2008), a low ratio of(x2)/df is also indicative of good model fit (Joreskorg & Sorbom, 1993). Therefore, the (x2)/df value of 2.059 that was obtained would suggest that the model is a good fit to the data.

Comparative Fit Index (CFI)

The comparative fit index is a recommended index of overall fitness (Gerbing and Anderson, 1993). It represents the improvement of fit of the specified model over a baseline model in which all the variables are constrained to be uncorrelated. The comparative fit index values close to 1 indicate a very good fit while values close greater than 0.90 indicate and acceptable fit (Bentler, 1992). The result was 0.909 also suggesting that the model was a reasonable fit to the data.

Normed fit index (NFI)

The normed fit index measures the proportion by which a model is improved in terms of fit compared to the base model (Hair et al., 2010). Values of 0.90 or greater indicate an adequate model fit (Bentler, 1992). The result was .841, suggesting inadequate fit and indicating that this model can be improved (Bentler&Bonett,1980).

Root Mean Square Error of Approximation (RMSEA)

RMSEA represents the degree to which lack of fit is due to misspecification of the model tested versus being due to sampling error. According to Browne and Cudock (1993), an RMSEA value of 0.05 would indicate a close fit and a value of between 0.06 and 0.08 would indicate a reasonable error of approximation.
The RMSEA value was 0.056 indicating that the model fit was not satisfactory.
Table 5.10 summarizes the results of model fit and the conclusion is that the result was mixed showing that the model needed to be further improved in order to obtain better fit to the data.

Figure (5.1): Path diagram for all variables

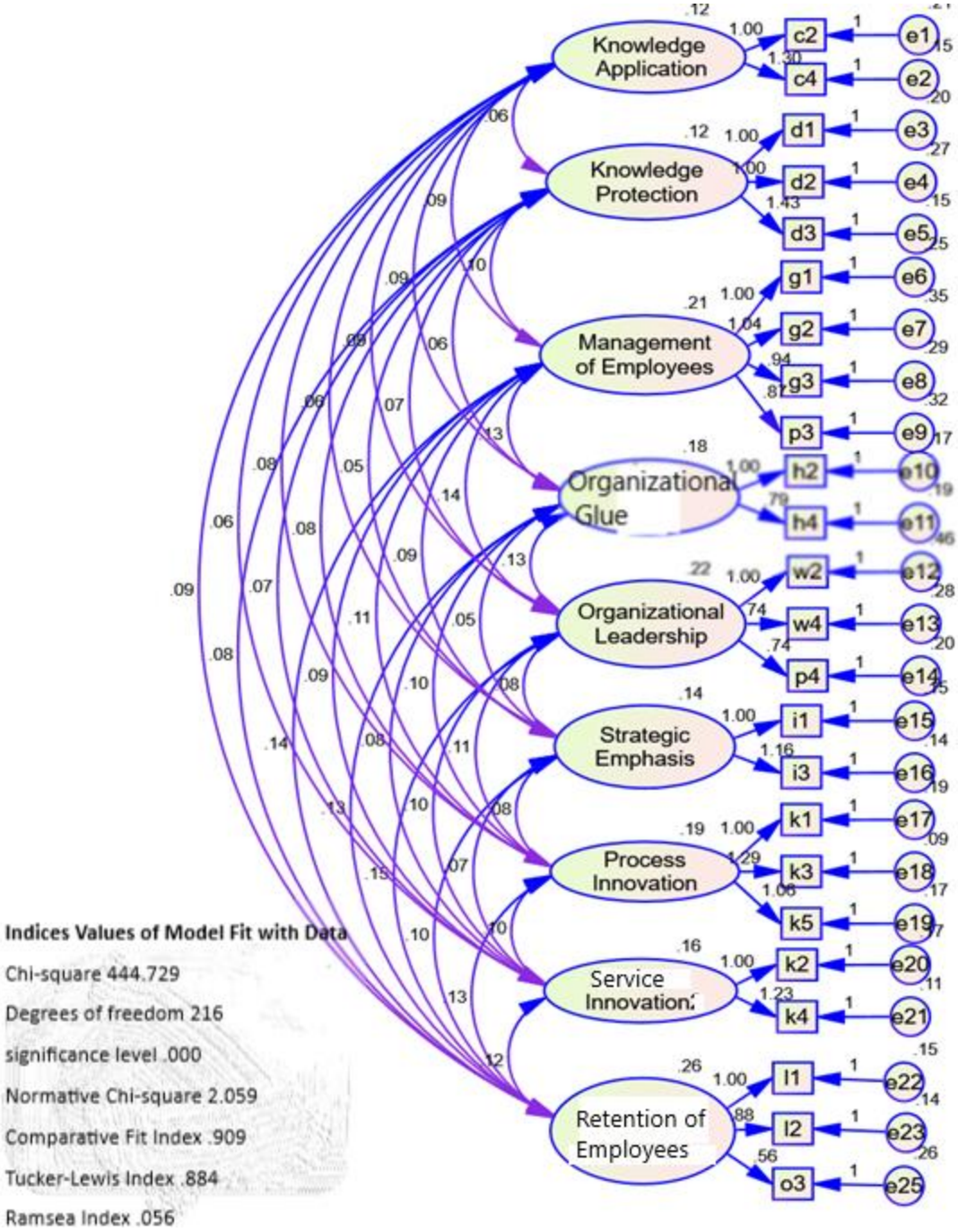


Table (5.11) Model Fit Measures of independent variable

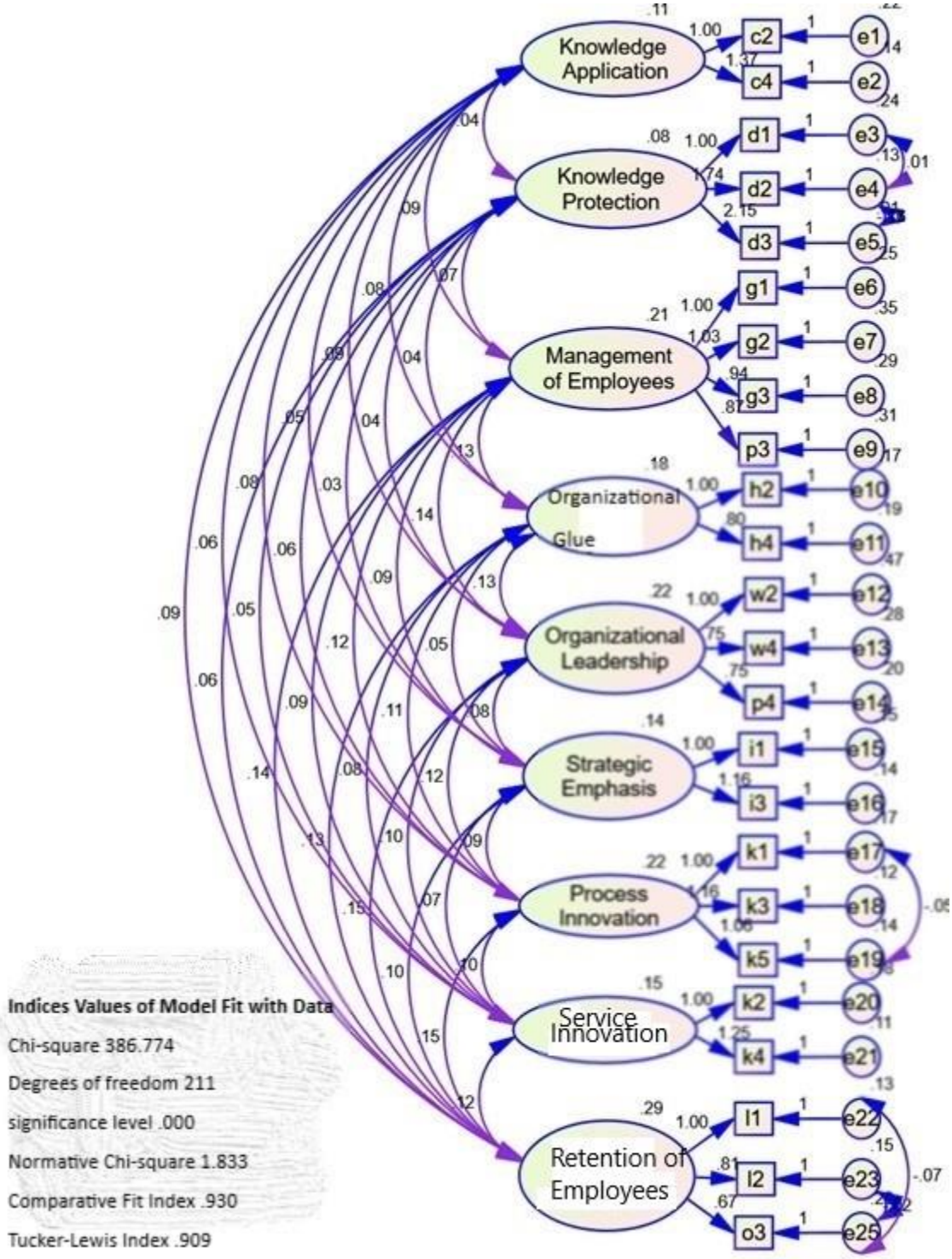
Measure	Estimate	Threshold	Interpretation
CMIN	444.729	--	--
DF	216	--	--
CMIN/DF	2.059	Between 1 and 3	Excellent
CFI	0.909	>0.95	Acceptable
NFI	0.841	>0.95	Terrible
RMSEA	0.056	<0.08	Excellent
P Close	0.086	>0.05	Acceptable

Source: prepared by researcher from data analysis (2018)

After correcting the model, the quality indicators were as shown in Table (5.11) and Figure (5.1) which explained that the study variable after the modification of the model has given good quality standards,

Table (5.12): Model Fit Measures of all variables after correcting the model

Measure	Estimate	Threshold	Interpretation
CMIN	386.774	--	--
DF	211	--	--
CMIN/DF	1.833	Between 1 and 3	Excellent
CFI	0.930	>0.95	Acceptable
RMSEA	0.050	<0.08	Excellent
GFI	0.917	>0.95	Acceptable
PClose	0.50	>0.05	Acceptable


Knowledge Application
Knowledge Protection
Management of Employees
Organizational Glue
Organizational Leadership
Strategic Emphasis
Process Innovation
Service Innovation
Retention of Employees
c2
c4
d1
d2
d3
g1
g2
g3
p3
h2
h4
w2
w4
p4
i1
i3
k1
k3
k5
k2
k4
l1
l2
o3
e1
e2
e3
e4
e5
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e21
e22
e23
e25
Indices Values of Model Fit with Data
Chi-square 386.774
Degrees of freedom 211
significance level .000
Normative Chi-square 1.833
Comparative Fit Index .930
Tucker-Lewis Index .909

5.6 Reliability Analysis after CFA:

Reliability is an assessment of the degree of consistency between multiple measurements of variables (Hair et al., 2010). To test reliability this study used Cronbach's alpha as a diagnostic measure, which assesses the consistency of entire scale, since being the most widely used measure (Sharma, 2000). According to Hair et al., (2010), the lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research. While Nunnally (1978) considered Cronbach's alpha values greater than 0.60 are to be taken as reliable. The results of the reliability analysis summarized in table (5.13) confirmed that all the scales display factory level of reliability (Cronbach's alpha exceed the minimum value of (0.6). Therefore, it can be concluded that the measures have acceptable level of reliability. The full SPSS outputs are displayed in appendix B7.

Table (5.13): Cronbach's Alpha for Study Variables:

Construct	**Variable**	**Number of items**	**Cronbach's alpha**
Knowledge Management	Knowledge Application	*3*	*.621*
	Knowledge Protection	*3*	*.696*
Organizational Culture	Management of Employees	*4*	*.717*
	Organizational Glue	*3*	*.699*
	Organizational Leadership	*3*	*.689*
	Strategic Emphasis	*3*	*.683*
Innovation Capabilities	Process Innovation	*3*	*.722*
	Service Innovation	*3*	*.744*
Organizational Effectiveness	Customer Satisfaction	*3*	*.744*
	Retention of Employees	*3*	*.711*

Source: prepared by researcher, (2018).

5.7 Modification of Research Framework and Hypotheses

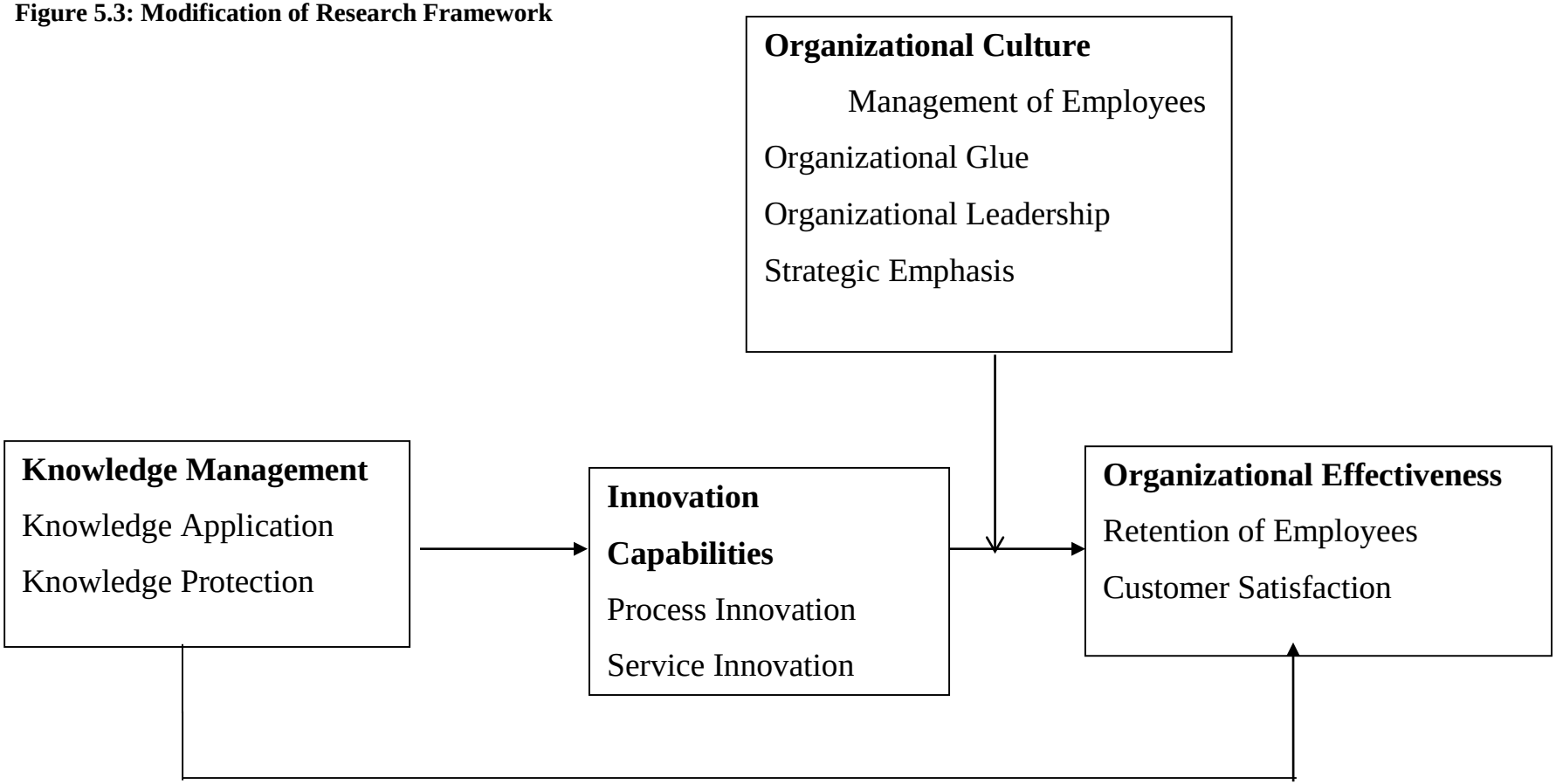
From the results of factor analysis, organizational culture, and innovation capabilities variables remained unchanged. However, knowledge management practices items, and organizational effectiveness was factored as follows:

Knowledge management practices were factored into two components, instead of the three conceptualized components.

Organizational effectiveness was factored into two components, instead of the three conceptualized components.

Accordingly, there is a need to a modification on the theoretical framework to reflect this change. The Figure 5.3 below presents the modified theoretical framework.

Figure 5.3: Modification of Research Framework



5.7.1 Modified Research Hypotheses

Based on the modified theoretical framework, the hypotheses related to the relationship between Knowledge Management practices and Organizational Effectiveness were restated as shown in table 5.14:

Table: 5.14: Restated Research Hypotheses:

NO.	**Hypotheses**
H1	**H1: There is a positive relationship between Knowledge Management Practices and Organizational Effectiveness**
H1.1	H1.1:There is a positive relationship between Knowledge Application and retention of employees
H1.2	H1.2:There is a positive relationship between Knowledge Application and customer satisfaction
H1.3	H1.3: There is a positive relationship between knowledge protection and retention of employees
H1.4	H1.3: There is a positive relationship between knowledge protection and customer satisfaction

H2.	**H2: Knowledge Management Practices has a positive impact on Innovation Capabilities**
H2.1	H2.1 Knowledge Application has a positive impact on Process Innovation.
H2.2	H2.2: Knowledge Application has a positive impact on Service Innovation.
H2.3	H2.3: Knowledge Protection has a positive impact on Process Innovation.
H2.4	H2.4: Knowledge Protection has a positive impact on Service Innovation.

H3	**H5: There is a positive relationship between Innovation Capabilities and Organizational Effectiveness**
H3.1	H5.1: There is a positive relationship between Process Innovation

	and Retention of Employees
H3.2	H5.2: There is a positive relationship between Process Innovation and Customer Satisfaction
	H5.3: There is a positive relationship between Process Innovation and Corporate Image
H3.3	H5.4: There is a positive relationship between Service Innovation and Customer Satisfaction
H3.4	**H5.5:** There is a positive relationship between Service Innovation And Retention of Employees
	H5.6: There is a positive relationship between Service Innovation and Corporate Image

H4	**Innovation Capabilities mediate the relationship between Knowledge Management Practices and Organizational Effectiveness**
H4.1	Process Innovation mediates the relationship between Knowledge Application and Retention of Employees
H4.2	Process Innovation mediates the relationship between Knowledge Application and Customer Satisfaction
H4.3	Service Innovation mediates the relationship between Knowledge Protection and Retention of Employees
H4.4	Service Innovation mediates the relationship between Knowledge Protection and Customer Satisfaction

H.5	**Organizational culture has a moderating effect on the relationship between Knowledge Management Practices and Organizational Effectiveness.**
H5.1	Management of Employees has a moderating effect on the relationship between Knowledge Application and Retention of Employees

H5.2	Management of Employees has a moderating effect on the relationship between Knowledge Application and Customer Satisfaction
H5.3	Management of Employees has a moderating effect on the relationship between Knowledge protection and Retention of Employees
H5.4	Management of Employees has a moderating effect on the relationship between Knowledge protection and Customer Satisfaction

H5.5	Organizational Glue has a moderating effect on the relationship between Knowledge Application and Retention of Employees
H5.6	Organizational Glue has a moderating effect on the relationship between Knowledge Application and Customer Satisfaction
H5.7	Organizational Glue has a moderating effect on the relationship between Knowledge Protection and Retention of Employees
H5.8	Organizational Glue has a moderating effect on the relationship between Knowledge Protection and Customer Satisfaction

H.5.9	Organizational Leadership has a moderating effect on the relationship between Knowledge Application and Retention of Employees
H5.10	Organizational Leadership has a moderating effect on the relationship between Knowledge Application and Customer Satisfaction
H5.11	Organizational Leadership has a moderating effect on the relationship between Knowledge Protection and Retention of Employees
H5.12	Organizational Leadership has a moderating effect on the relationship between Knowledge Protection and Customer Satisfaction

H.5.13	Strategic Emphasis has a moderating effect on the relationship between Knowledge Application and Retention of Employees

H5.14	Strategic Emphasis has a moderating effect on the relationship between Knowledge Application and Customer Satisfaction
H5.15	Strategic Emphasis has a moderating effect on the relationship between Knowledge Protection and Retention of Employees
H5.16	Strategic Emphasis has a moderating effect on the relationship between Knowledge Protection and Customer Satisfaction

5.8 Descriptive Analysis of the model

The following Table (5.15) presents the level or perceptions of 130 of the top management of the Sudanese financial institutions sector, using (Likert scale: 1 indicates "Strongly disagree" and 5 strongly agree).

Thus, for each level or perceptions, table 5.18 presents the mean, standard deviation, of those managers who answered the statements of the variables measures.

Table 5.15: Descriptive Analysis of the model

	Mean	Std. Deviation
Knowledge Application	4.3249	.49753
Knowledge Protection	4.2740	.47675
Management of Employees	4.3212	.51803
Organizational Glue	4.2982	.48421
Organizational Leadership	4.2018	.50934
Strategic Emphasis	4.3501	.48392
Process Innovation	4.3482	.54016
Service Innovation	4.2715	.51584
Customer Satisfaction	4.4283	.47997
Retention of Employees	4.5269	.48442

Note: *All variables used a 5-point likert scale (1= strongly disagree, 5= strongly agree)*

5.9 Correlation Analysis

The zero-order correlation was conducted for all dimensions of the constructs operationalized in this study using bivariate correlations. These bivariate correlations allow for preliminary inspection of hypothesized relationships.

Table 5.16 presents that all the hypothesized relationships are in positive correlations. Based on the bivariate correlations there was some expectation that these coefficients would be significant. The full AMOS output is in attached in Appendix.

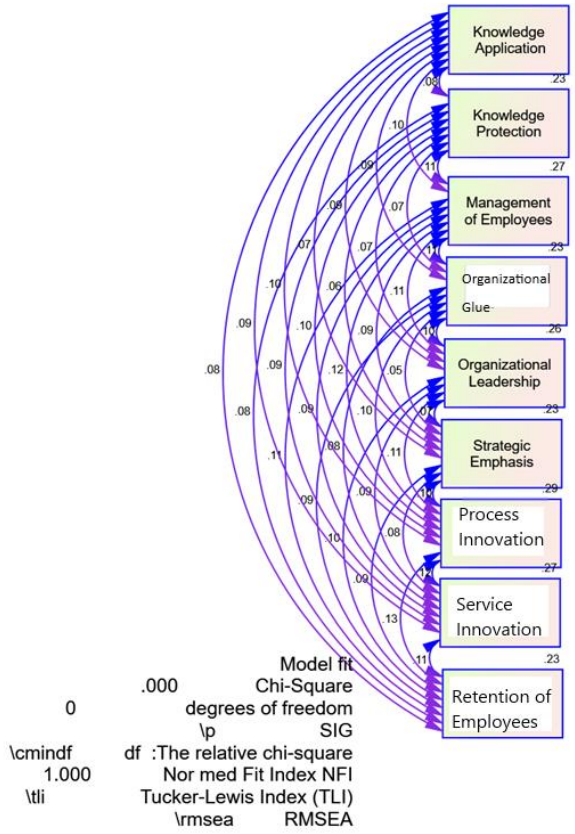


Table (5.16): Person's correlation coefficient for all variables.

	Correlations									
	MEANC	MEAND	MEANG	MEANH	MEANW	MEANI	MEANK	MEANKK	MEANL	MEAND
Knowledge Application	1									
Knowledge Protection	.335**	1								

Organizational Culture	.408**	.439**	1							
Organizational Glue	.384**	.292**	.446**	1						
Organizational Leadership	.357**	.289**	.413**	.389**	1					
Strategic Emphasis	.305**	.241**	.359**	.214**	.278**	1				
Process Innovation	.379**	.398**	.444**	.393**	.391**	.399**	1			
Service Innovation	.334**	.350**	.352**	.318**	.338**	.339**	.448**	1		
Customer Satisfaction	.346**	.341**	.459**	.409**	.407**	.390**	.519**	.440**	1	
Retention of Employees	.364**	.337**	.486**	.418**	.475**	.309**	.572**	.428**	.465**	1

*Source: prepared by the researcher from data (2018). ** Correlation is significant at the 0.01 level (2-tailed*

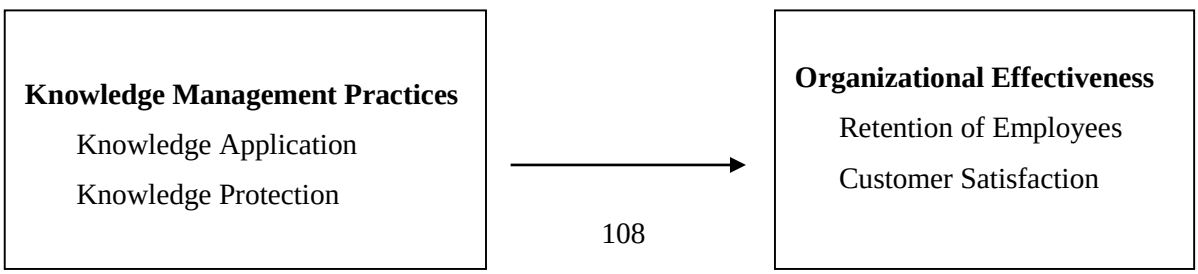
As shown in table (5.16) above, the correlation analysis provides strong indicators of associations, thus for more examination of the proposed relationships path analysis through structural equation model (SEM) was conducted to give the best predictive model of the relationship between the variables. In the following section, the hypotheses testing which represents last part of data analysis and findings.

5.10 Hypotheses testing

5.10.1 The relationship between Knowledge Management Practices and Organizational Effectiveness

This section deals with the first hypotheses in the study which predicts that two components (Knowledge Application and Knowledge Protection) of Knowledge Management Practices have positive relationship with the two components of Organizational Effectiveness (Customer Satisfaction and Retention of Employees)**.**

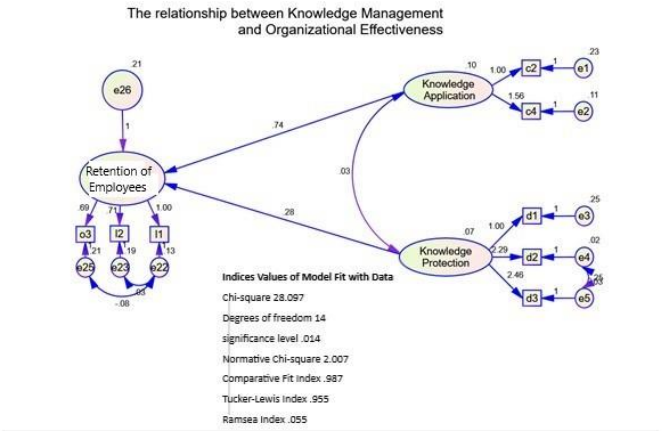
As shown in figure (5.3) below.



5.10.1.1 Multiple Regression Result: The Relationships between Knowledge Management Practices and Organizational Effectiveness:

Path Analysis Using the AMOS 23 program, supported by AMOS.23 software, was used to verify the average impact of Knowledge Application and Knowledge Protection on both Retention of Employees and Customer Satisfaction. The results of the path analysis indicate the quality of the model; the required measurements are as they are close to full matching as in the table below.

The method of path analysis was used to identify the relationship between independent study variables (Knowledge Application and Knowledge Protection) on the dependent variables (Retention of Employees and Customer Satisfaction). The weights of the regression coefficients indicate a decrease in the influence of the independent variable Knowledge Protection on the two of dependent variables. We can observe the direct effect based on the multiple correlation coefficients (2R). The slope coefficients were relatively high: 0.07and 0.10 respectively. Knowledge Application factor was 0.74 and 0.28 was the difference. Knowledge Protection factor was 0.28 and 0.21 was the difference as shown in Fig.5.4 In the analysis, there is a significant relationship between Knowledge Application and Retention of Employees as the value of square (28.097), which is not statistically significant at the level (0.000) and the value of (RMR) is less than 0.13. (GFI) and CFI are greater than 0.90. In view of Table 5.17, which shows the values of the path coefficients, the dimensions of the both dimensions of Knowledge Management Practices were indicative of the two dimensions of Organizational Effectiveness, which reach the level of significance At the level of (0.05) less.



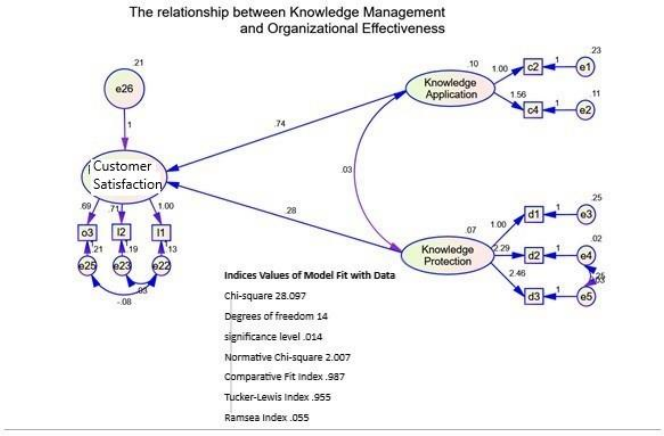


Table (5.17) Regression Weights: The relationship between Knowledge Management Practices and Organizational Effectiveness

Estimate	**Estimate**	**S.E.**	**C.R.**	**P**	**Label**
Knowledge Application<---Organizational Effectiveness	.252	.051	4.973	***	Supported
Knowledge Protection<--- Organizational Effectiveness	.256	.053	4.833	***	Supported

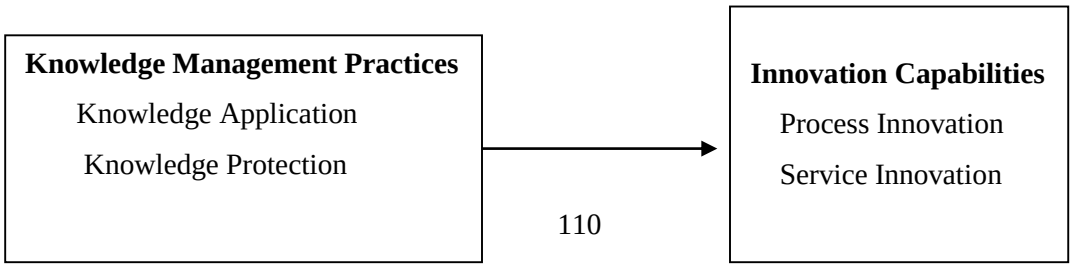
Source: prepared by the researcher from data (2018).

Note: Level of significant: *p<0.10, **p<0.05, ***p<0.01

5.10.2 The Relationship between Knowledge Management Practices and Innovation Capabilities.

This section deals with the second hypotheses in the study which predicts that the two components (Knowledge Application and Knowledge Protection) have positive relationship with the two dimensions of Innovation Capabilities (Process Innovation, Service Innovation)**.**

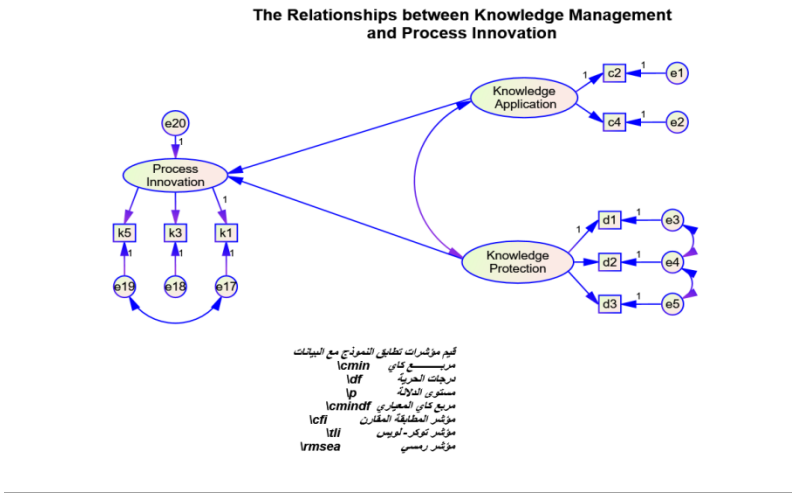
As shown in figure (5.4) below.



5.10.2.1 Multiple Regression Result: The Relationships between Knowledge Management Practices and Innovation Capabilities:

Path Analysis Using the AMOS 23 program, supported by AMOS.23 software, was used to verify the average impact of Knowledge Application and Knowledge Protection on both of Process Innovation and Service Innovation. The results of the path analysis indicate the quality of the model; the required measurements are as they are close to full matching as in the table below.

The method of path analysis was used to identify the relationship between independent study variables (Knowledge Application, and Knowledge Protection) on the mediating variable Innovation Capabilities with its dimensions (Process Innovation and Service Innovation). The weights of the regression coefficients indicate a decrease in the influence of the independent variable Knowledge Protection on both of the two dimensions. We can observe the direct effect based on the multiple correlation coefficients (2R). The slope coefficients were relatively high: 0.31 and 0.66 respectively. Knowledge Application factor was 0.66 and 0.09 was the difference. Knowledge Protection factor was 0.31 and 0.08 was the difference as shown in Fig.5.5. In the analysis, there is a significant relationship between Knowledge Application and both of Process Innovation and Service Innovation as the value of square (24.471), which is not statistically significant at the level (0.000) and the value of (RMR) is less than 0.12. (GFI) and CFI are greater than 0.90 In view of Table 5.18 which shows the values of the path coefficients, both Knowledge Application and Knowledge Protection were indicative of the Process Innovation and Service Innovation, which reach the level of significance at the level of (0.05) less.



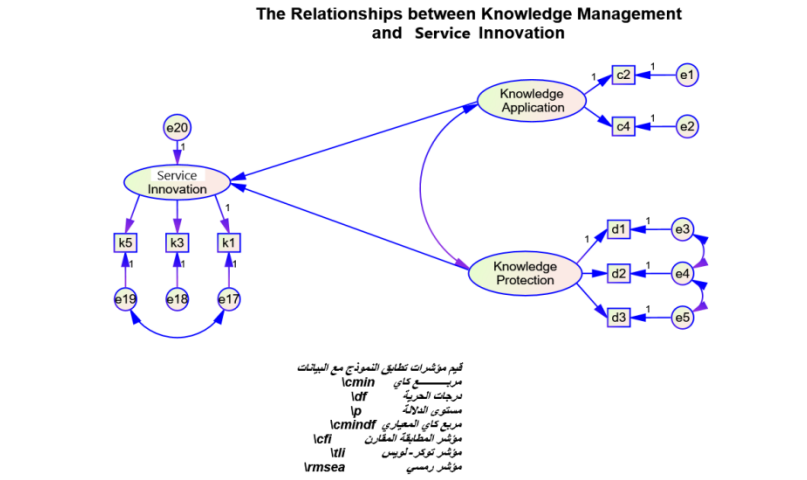


Table (5.18) Regression Weights: The relationship between Knowledge Management Practices and Process Innovation

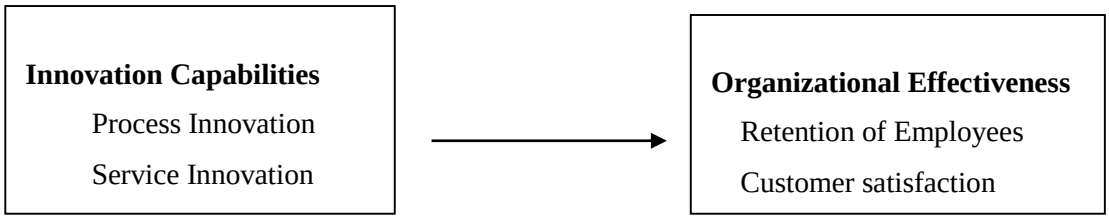
Estimate	**Estimate**	**S.E.**	**C.R.**	**P**	**Label**
Knowledge Application<--- Process Innovation	.659	.134	4.921	***	Supported
Knowledge Application <--- Service Innovation	.309	.098	3.137	.002	Supported
Knowledge Protection<--- Process Innovation	.405	.122	3.655	.001	Supported
Knowledge Protection<---Service Innovation	.395	.99	4.136	.002	Supported

Source: prepared by the researcher from data (2018).

Note: Level of significant: *p<0.10, **p<0.05, ***p<0.01

5.10.3 The relationship between Innovation Capabilities and Organizational Effectiveness.

This section deals with the third hypotheses in the study which predicts that the two components of Innovation Capabilities (Process Innovation, and Service Innovation) have positive relationship with Organizational Effectiveness, as shown in figure (5.5) below.



5.10.3.1 Multiple Regression Result: The relationship between Process Innovation and Organizational Effectiveness:

Path Analysis Using the AMOS 23 program, supported by AMOS.23 software, was used to verify the average impact of Process Innovation, and Service Innovation on Retention of Employees and Customer satisfaction. The results of the path analysis indicate the quality of the model; the required measurements are as they are close to full matching as in the table below.

The method of path analysis was used to identify the relationship between mediating variables (Process Innovation, and Service Innovation) on dependent variables (Retention of Employees and Customer satisfaction). The weights of the regression coefficients indicate a decrease in the influence of the variable Process Innovation on both of Retention of Employees and Customer satisfaction. We can observe the direct effect based on the multiple correlation coefficients (2R). The slope coefficients were relatively high: 0.41and 0.52 respectively. Process Innovation factor was 0.41 and 0.24 was the difference. Service Innovation factor was 0.52 and 0.15 was the difference as shown in Fig.5.6. In the analysis, there is a significant relationship between Process Innovation and Service Innovation, on one hand, and Retention of Employees and Customer satisfaction on the other hand as the value of square (36.571), which is not statistically significant at the level (0.000) and the value of (RMR) is less than 0.14. (GFI) and CFI are greater than 0.90 In view of Table 5.19, which shows the values of the path coefficients, both of the Process Innovation and Service Innovation were indicative of the Retention of Employees and Customer satisfaction, which reach the level of significance at the level of (0.05) less.

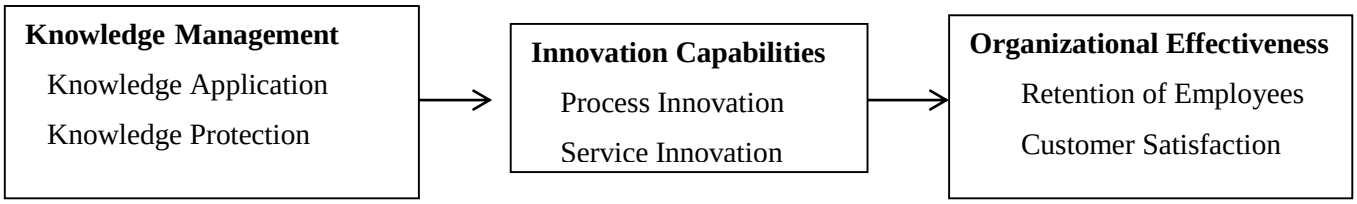
Table 5.19: Regression Weights: The relationship between Innovation Capabilities and Organizational Effectiveness

Estimate	Estimate	S.E.	C.R.	P	Label
Process Innovation<---Retention of Employees	.405	.084	4.818	***	Supported
Process Innovation<--- Customer Satisfaction	.521	.110	4.753	***	Supported
Service Innovation<---Retention of Employees	624`	.112	4.899	***	Supported
Service Innovation<--- Customer Satisfaction	702	.132	4945	***	Supported

Source: prepared by the researcher from data (2018).

Note: Level of significant: *p<0.10, **p<0.05, ***p<0.01

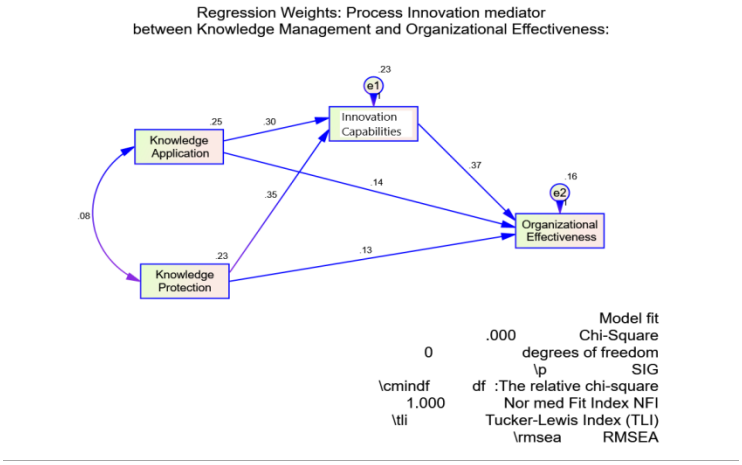
5.10.4 The Mediating Effect of Innovation Capabilities between Knowledge Management Practices and Organizational Effectiveness:



Testing mediation impact aims to detect the intervening variable in the model through the differences in coefficients using an examination method. On the other hand, in order to find whether mediator is fully or partially mediating the relationship between the independent variable and dependent variable, the impact of independent variable on dependent variable controlling for mediating variable should be zero or ß4 is not significant in fully mediator, while partial mediator exists once ß4 is significant but reduced. Despite the method outlined by (e.g., Baron & Kenny, 1986; Kenny et al., 1998) is the most commonly used approach in the literature (Frazier,Tix, and Barron, 2004).

Analysis Path was also used using the AMOS.23 program (SPSS.23) in a static manner to verify the impact of Innovation Capabilities as a mediator between Knowledge Management Practices and Organizational Effectiveness. The results of the analysis indicate that there is a general effect of Innovation Capabilities in the relationship between Knowledge Application, Knowledge Protection on one hand, and Retention of Employees and Customer satisfaction on the other hand, with the value of

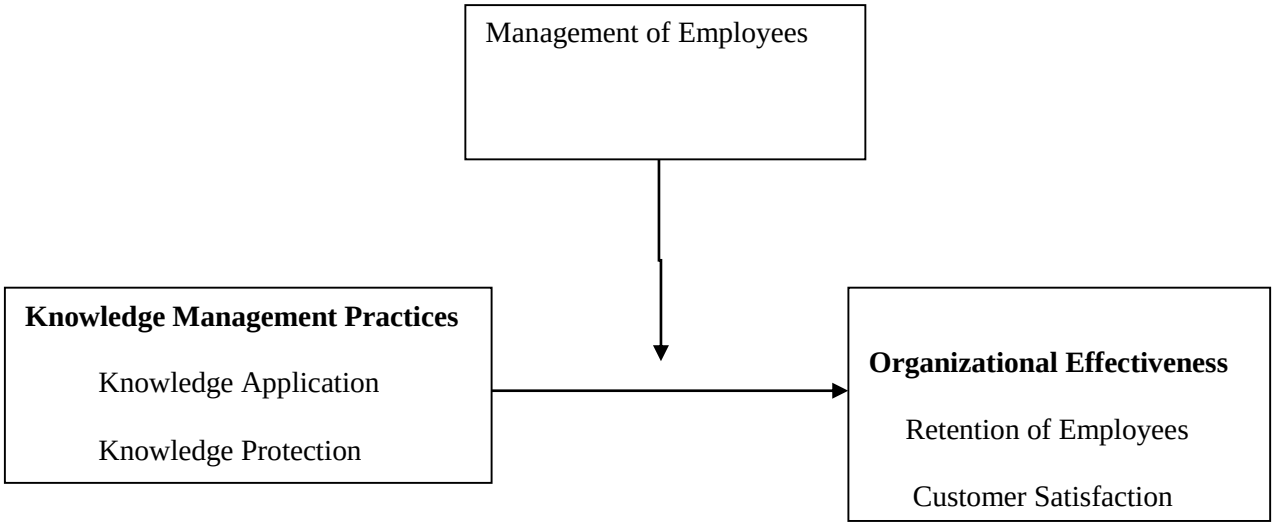
square (0.00) at (0.00) and the value of (RMR) less than 0.10. (GFI) and CFI are greater than 0.90 In view of Table (5.20), there is a total effect of the mean variable between the Innovation Capabilities as a mediator between Knowledge Management Practices and Organizational Effectiveness.



5.10.4.1 Regression Weights: Innovation Capabilities as a mediator between Knowledge Management Practices and Organizational Effectiveness:

Hypotheses	**Direct Relations**	**Indirect relationships**	**The result**
Knowledge Application →Process Innovation →Retention of Employees	.129**	.126**	Total mediation
Knowledge Application→ Process Innovation →Customer Satisfaction	.142**	.114**	Total mediation
Knowledge Protection →Service Innovation →Retention of Employees	.143**	.115**	Total mediation
Knowledge Protection →Service Innovation → Customer Satisfaction	.129**	.119**	Total mediation

5.10.5.1 Regression Weights: Management of Employees moderates the relationship between Knowledge Management Practices dimensions and Organizational Effectiveness dimensions



Source: prepared by researcher, (2018)

In order to test this hypothesis many criteria must be met. These criteria can be classified as global or local tests. According to (Gaskin, 2016) in arranging for a hypothesis to be supported global tests of model fit are the first assumption must be met, to let a local test (p-value) to have meaning. Next is the global test of variance explained or R-squared. Lastly, if a regression weight is significant, but is in the wrong direction, our hypothesis is not supported. Instead, there is counter-evidence.

In brief, the conditions for testing moderating variable, observing significant p-values and good model fit, but the R-square must be greater than 0.025 to explain sufficient variance in the dependent variable. Also the process requires introduction of a multiplicative interaction term into the path analysis. Accordingly, three interaction terms were created by multiplying the values of Structural SCO.

To make it obvious, if the moderator effect is present on the proposed relationship; three or four maximum conditions were used. First, the model fit indices is adequate. Second, the P-value is significant. Third, the R-square must explain sufficient variance in the dependent variable. Fourth, the interaction term is also statistically significant. Additionally, in order to establish whether moderator is a pure or a quasi-moderating this research applied the criteria mentioned by Sharma et al (1981). If the coefficients of both the multiplicative interaction term and the moderator variable are significant, the moderator is a quasi-moderator. However, if the coefficient of the multiplicative interaction term was

significant and the coefficient of the moderator variable effect was not significant, the moderator is a pure moderator.

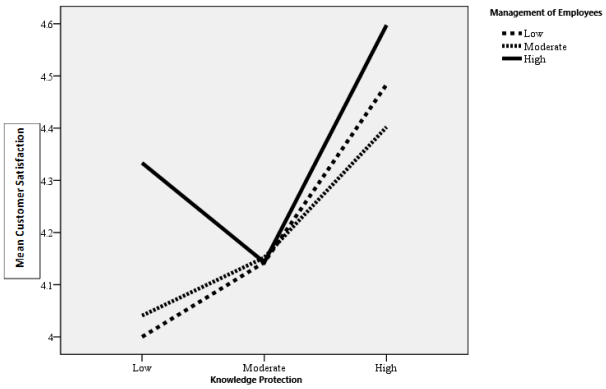
Path Analysis was used using the AMOS.23 software (SPSS.23) to verify the presence of a modified effect of Management of Employees on the relationship between Knowledge Management Practices components (Knowledge Application, Knowledge Protection) and dimensions of Organizational Effectiveness (Retention of Employees, Customer Satisfaction). The results of the path analysis indicate the quality of the model, required as they approached the full match as in the table:

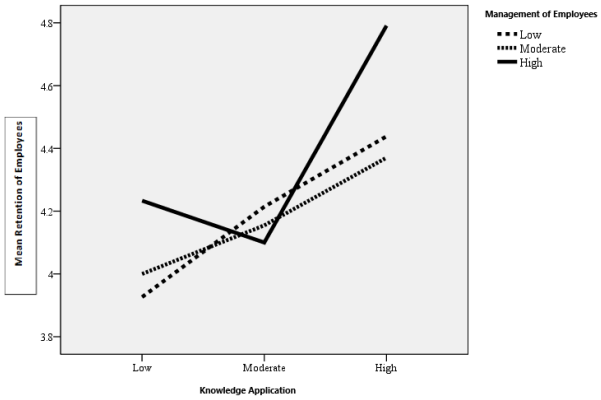
Table 5.20: The Moderating Effect of Management of Employees on dimensions of Knowledge Management Practices and dimensions of Organizational Effectiveness.

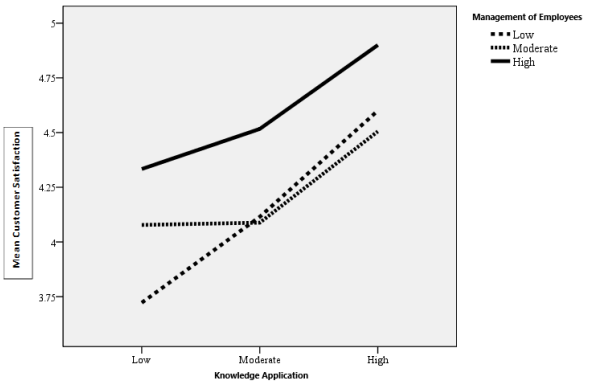
Goodness-of-fit Measures	Acceptable Level	Structural Model
Match Quality Indicators	Not statistically significant At a significance level of 0.05	Structure of the model
Chi-squire		0.000
Chi-squire/df(cmin/df)	$1 < x^2/df < 5$	0.00
Goodness of fit index (GFI)	≥ 90 أكبر من90	1.000
Goodness of fit index (CFI)	≥ 90	1.000
Root-mean-squire error of approximation (RMSEA)	≥ 90	0.000
SRMR	0.05 good ;0.05-0.08 moderate,>0.08 bad	0.000

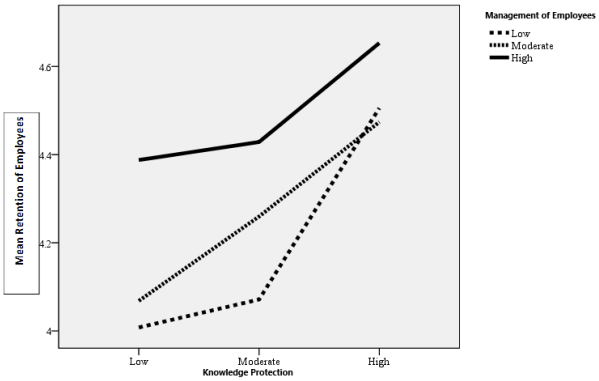
Source: prepared by researcher, (2018)

The results showed that Organizational Culture (Management of Employees) has a moderating effect on the relationship between and Knowledge Management Practices andOrganizational Effectiveness. Moreover, the test reveals that the coefficient of the locus of interaction effect was significant.At the level of the detailed relationship, Management of Employees modifies the relationship between Knowledge Management Practices (Knowledge Management, Knowledge Protection)and Organizational Effectiveness.







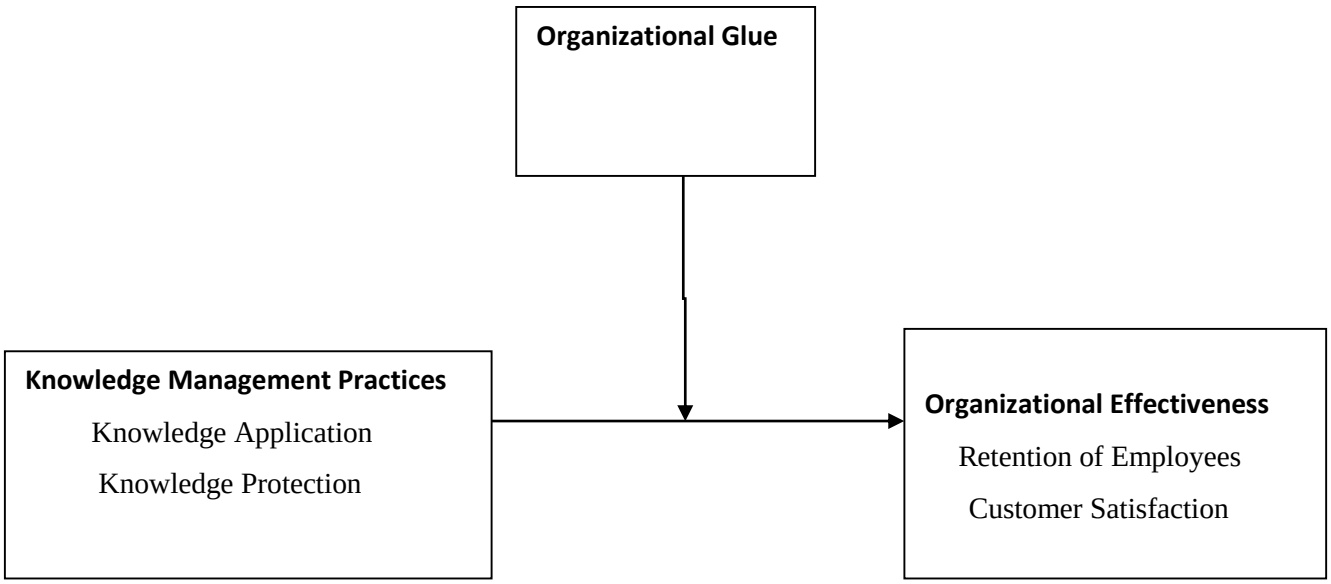


5.20.1 Regression Weights: Management of Employees moderates the relationship between Knowledge Management Practices variables and Organizational Effectiveness.

	Estimate	S.E.	C.R.	P	Label
Retention of Employees <--- Management of Employees * Knowledge Application	-.151	.079	.056	***	Supported
Customer Satisfaction <--- Management of Employees * Knowledge Application	-.118	.090	.192	***	Supported
Retention of Employees <--- Management of Employees * Knowledge Protection	-.163	.083	.065	***	Supported
Customer Satisfaction <--- Management of Employees * Knowledge Protection	-.116	.094	.183	***	Supported

Source: prepared by researcher, (2018). ** p <.0* p <.05

5.20.2 Regression Weights: Organizational Glue moderates the relationship between Knowledge Management Practices variables and Organizational Effectiveness variables.



Source: prepared by researcher, (2018)

In order to test this hypothesis many criteria must be met. These criteria can be classified as global or local tests. According to (Gaskin, 2016) in arranging for a hypothesis to be supported global tests of model fit are the first assumption must be met, to let a local test (p-value) to have meaning. Next is the global test of variance explained or R-squared. Lastly, if a regression weight is significant, but is in the wrong direction, our hypothesis is not supported. Instead, there is counter-evidence.

In brief, the conditions for testing moderating variable, observing significant p-values and good model fit, but the R-square must be greater than 0.025 to explain sufficient variance in the dependent variable. Also the process requires introduction of a multiplicative interaction term into the path analysis. Accordingly, three interaction terms were created by multiplying the values of Structural SCO.

To make it obvious, if the moderator effect is present on the proposed relationship; three or four maximum conditions were used. First, the model fit indices is adequate. Second, the P-value is significant. Third, the R-square must explain sufficient variance in the dependent variable. Fourth, the interaction term is also statistically significant. Additionally, in order to establish whether moderator is a pure or a quasi-moderating, this research applied the criteria mentioned by Sharma et al (1981). If the coefficients of both the multiplicative interaction term and the moderator variable are significant, the

moderator is a quasi-moderator. However, if the coefficient of the multiplicative interaction term was significant and the coefficient of the moderator variable effect was not significant, the moderator is a pure moderator.

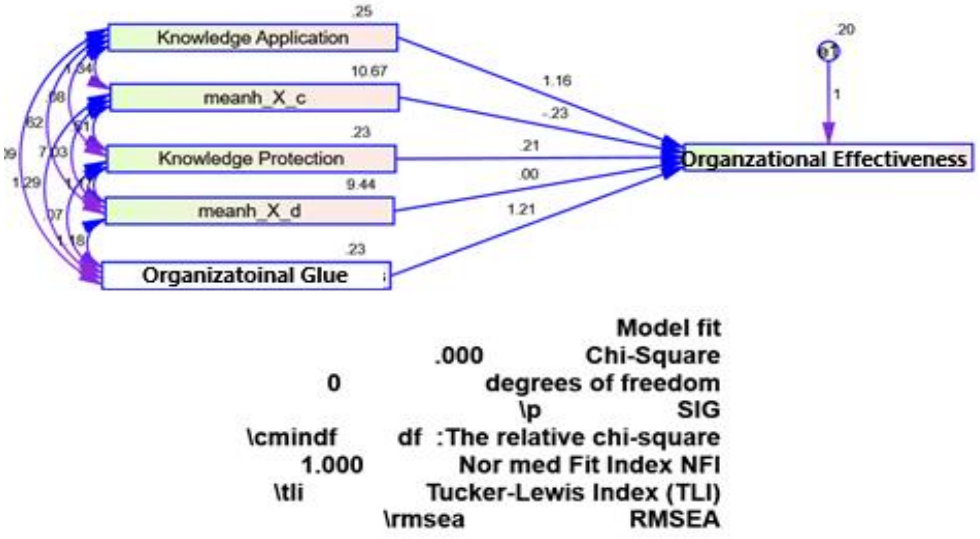
Path Analysis was used using the AMOS.23 software (SPSS.23) to verify the presence of a modified effect of Organizational Culture (Organizational Glue) on the relationship between Knowledge Management Practices variables and Organizational Effectiveness. The results of the path analysis indicate the quality of the model, required as they approached the full match as in the table:

Table 5.21: Organizational Glue moderates the Relationship between Knowledge Management Practices and Organizational Effectiveness.

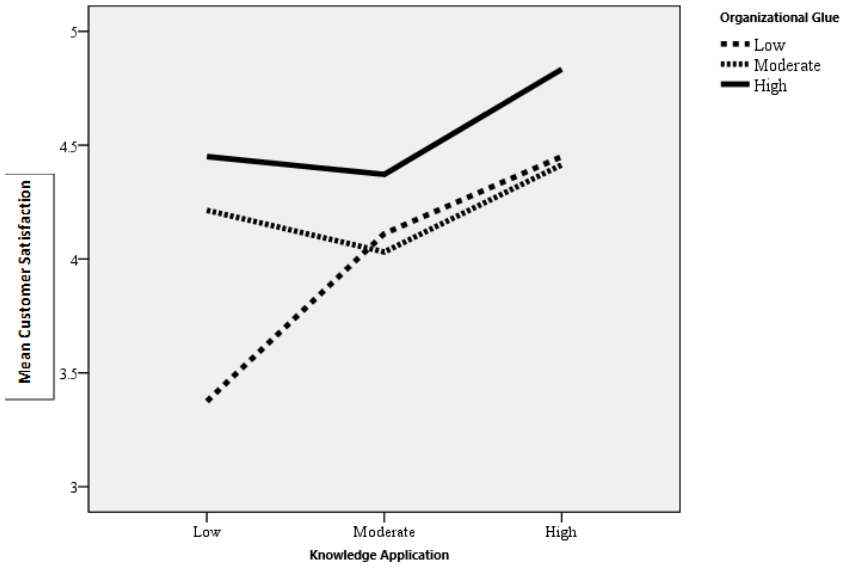
Goodness-of-fit Measures	Acceptable Level	Structural Model
Match Quality Indicators	Not statistically significant At a significance level of 0.05	Structure of the model
Chi-squire		0.000
Chi-squire/df(cmin/df)	$1 < x^2/df < 5$	0.00
Goodness of fit index (GFI)	≥ 90	1.000
Goodness of fit index (CFI)	≥ 90	1.000
Root-mean-squire error of approximation (RMSEA)	≥ 90	0.000
SRMR	0.05 good ;0.05-0.08 moderate,>0.08 bad	0.000

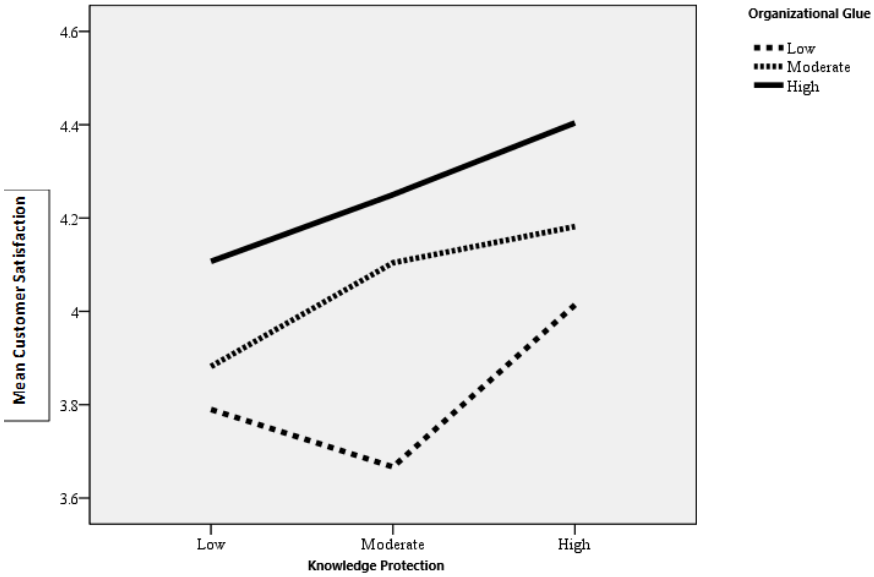
Source: prepared by researcher, (2018)

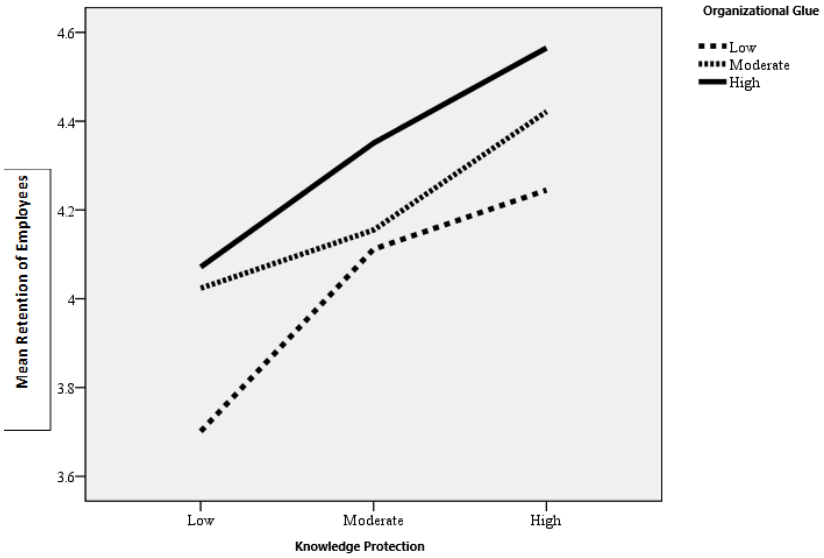
The results showed that Organizational Glue has no moderating effect on the relationship between and Knowledge Protection and both Retention of Employees and Customer Satisfaction. Moreover, the test reveals that the coefficient of the Organizational Glue of interaction effect was significant at the level of the detailed relationship, we find that organizational Glue moderates the relationship between Knowledge Application and both Retention of Employees and Customer Satisfaction.

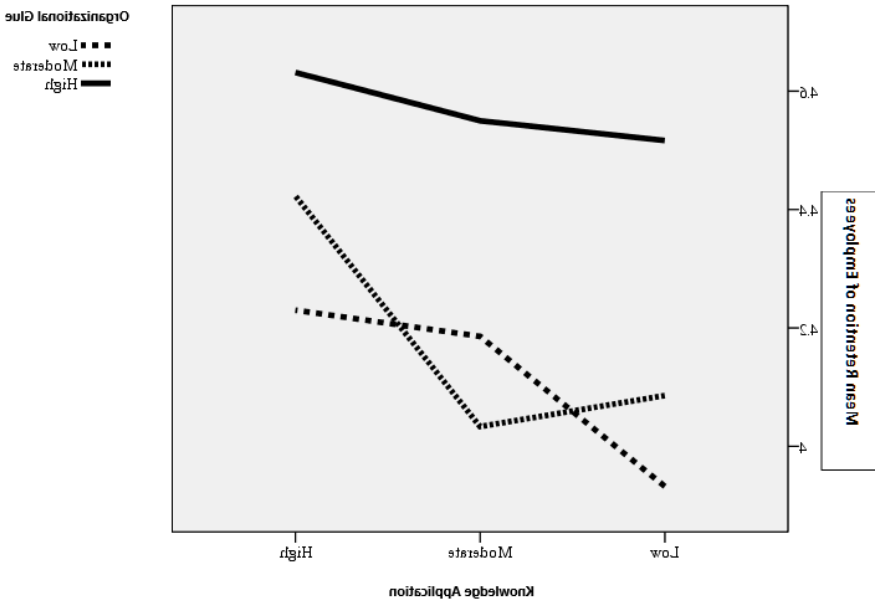


Source: prepared by researcher, (2018)


Organizational Glue
Low
Moderate
High
Mean Customer Satisfaction
5
4.5
4
3.5
3
Low
Moderate
High
Knowledge Application


Organizational Glue
Low
Moderate
High
Mean Customer Satisfaction
4.6
4.4
4.2
4
3.8
3.6
Low
Moderate
High
Knowledge Protection





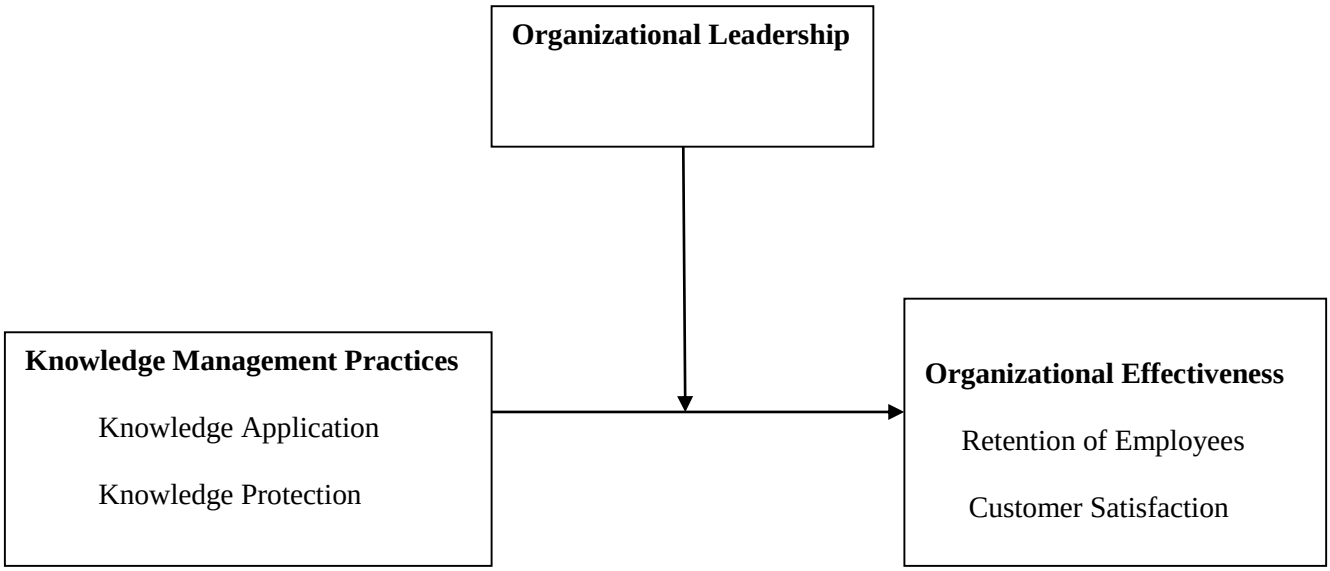
5.20.3 Regression Weights: Organizational Glue as a moderator in the relationship between Knowledge Management Practices and Organizational Effectiveness.

	Estimate	S.E.	C.R.	P	Label
Retention of Employees <---Organizational Glue * Knowledge Application	-.234	.094	-2.504	.012	Supported
Customer Satisfaction <--- Organizational Glue* Knowledge Application	-.364	.089	-2.611	.014	Supported

	Estimate	S.E.	C.R.	P	Label
Retention of Employees <---Organizational Glue * Knowledge Protection	.001	.101	.021	843	Not Supported
Customer Satisfaction <--- Organizational Glue* Knowledge Protection	.002	.107	.023	.981	Not Supported

Source: prepared by researcher, (2018). ** p <.0* p <.05

5.20.4 Organizational Leadership moderates the relationship between Knowledge Management Practices and Organizational Effectiveness.



Source: prepared by researcher, (2018)

In order to test this hypothesis many criteria must be met. These criteria can be classified as global or local tests. According to (Gaskin, 2016) in arranging for a hypothesis to be supported global tests of model fit are the first assumption must be met, to let a local test (p-value) to have meaning. Next is the global test of variance explained or R-squared. Lastly, if a regression weight is significant, but is in the wrong direction, our hypothesis is not supported. Instead, there is counter-evidence.

In brief, the conditions for testing moderating variable, observing significant p-values and good model fit, but the R-square must be greater than 0.025 to explain sufficient variance in the dependent variable.

Also the process requires introduction of a multiplicative interaction term into the path analysis. Accordingly, three interaction terms were created by multiplying the values of Structural SCO.

To make it obvious, if the moderator effect is present on the proposed relationship; three or four maximum conditions were used. First, the model fit indices is adequate. Second, the P-value is significant. Third, the R-square must explain sufficient variance in the dependent variable. Fourth, the interaction term is also statistically significant. Additionally, in order to establish whether moderator is a pure or a quasi-moderating this research applied the criteria mentioned by Sharma et al (1981). If the coefficients of both the multiplicative interaction term and the moderator variable are significant, the moderator is a quasi-moderator. However, if the coefficient of the multiplicative interaction term was significant and the coefficient of the moderator variable effect was not significant, the moderator is a pure moderator.

Path Analysis was used using the AMOS.23 software (SPSS.23) to verify the presence of a modified effect of Organizational Leadership on the relationship between Knowledge Management Practices variables and variables of Organizational Effectiveness. The results of the path analysis indicate the quality of the model, required as they approached the full match as in the table:

Table 5.22: Organizational Leadership as a moderator between Knowledge Management Practices and Organizational Effectiveness.

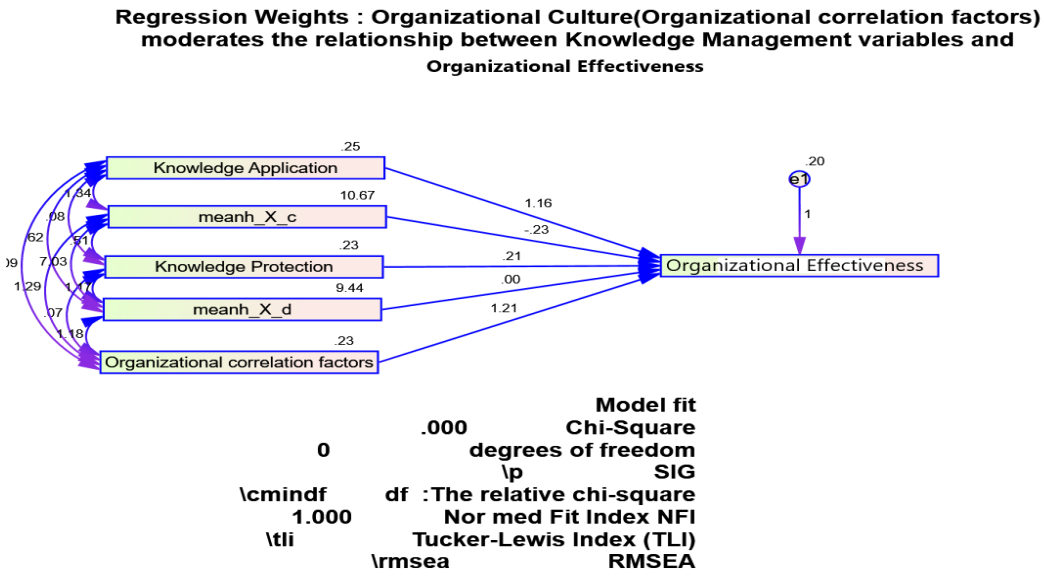
Goodness-of-fit Measures	Acceptable Level	Structural Model
Match Quality Indicators	Not statistically significant At a significance level of 0.05	Structure of the model
Chi-squire		0.000
Chi-squire/df(cmin/df)	$1 < x^2/df < 5$	0.00
Goodness of fit index (GFI)	≥ 90 أكبر من90	1.000

Goodness of fit index (CFI)	≥ 90	1.000
Root-mean-squire error of approximation (RMSEA)	≥ 90	0.000
SRMR	0.05 good ;0.05-0.08 moderate,>0.08 bad	0.000

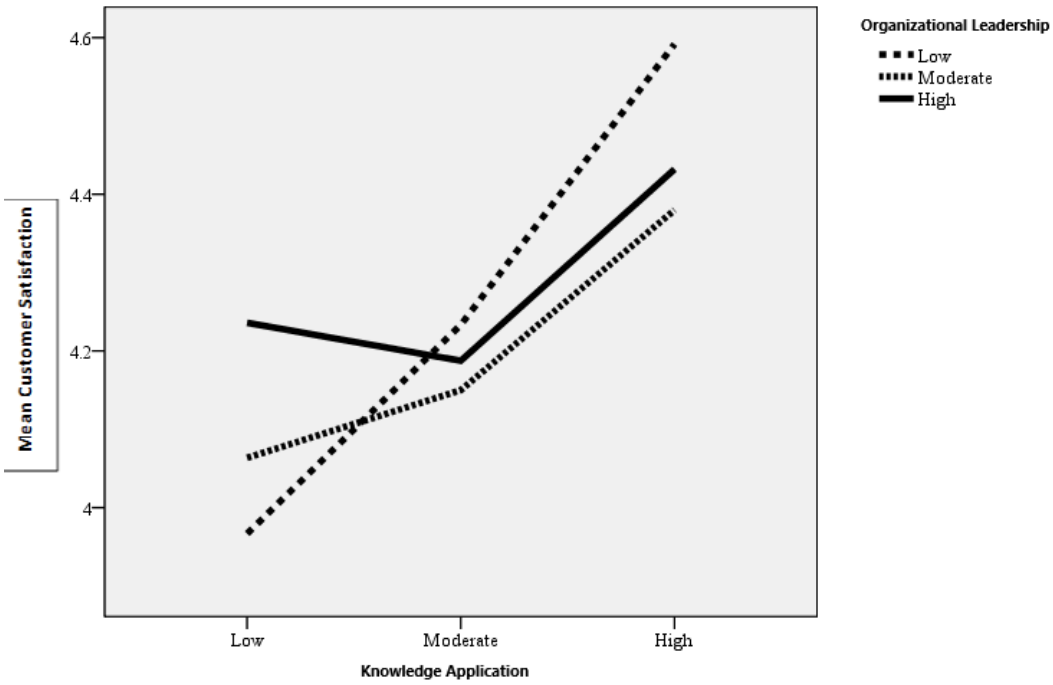
Source: prepared by researcher, (2018)

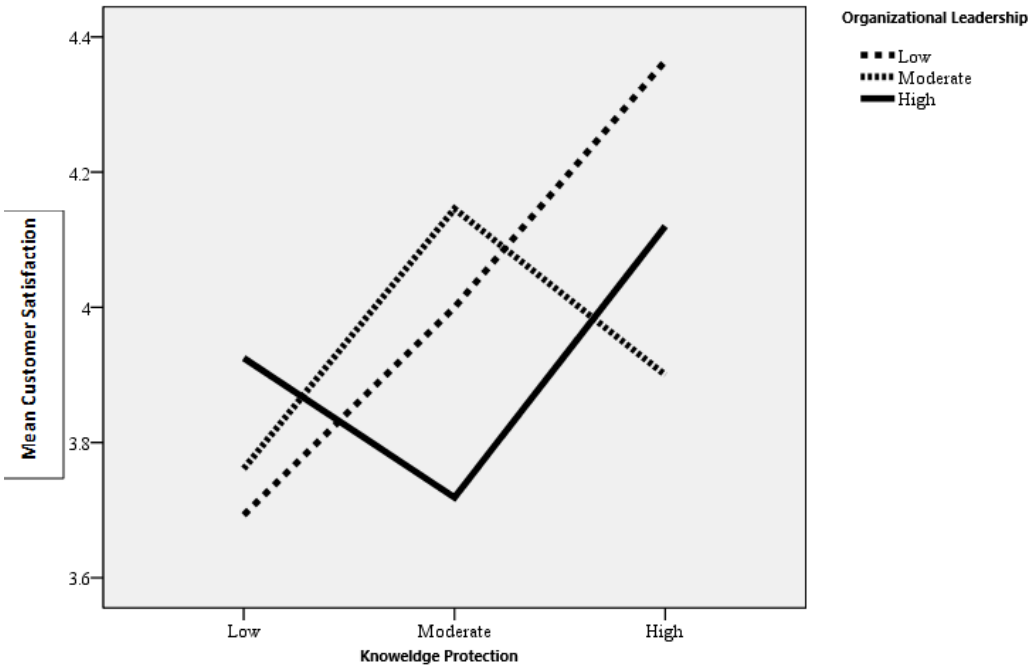
The results showed that Organizational Leadership has a moderating effect on the relationship between both Knowledge Application and Knowledge Protection, on one hand, and Retention of Employees and Customer Satisfaction on the other hand.

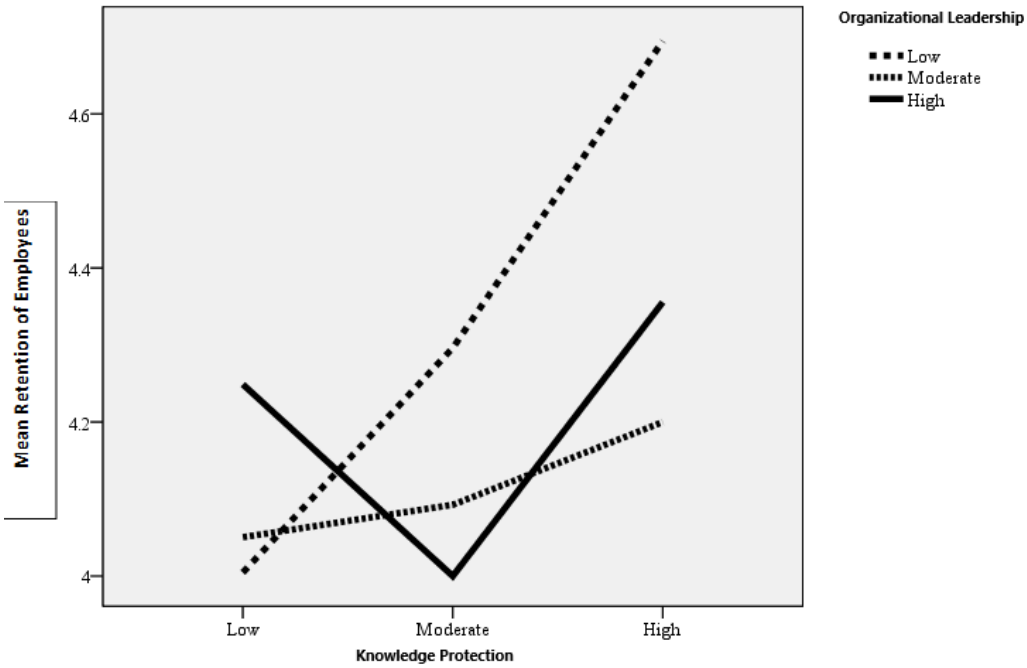
Figure (5.6) shows the moderating effect of Organizational Leadership on the relationship between Knowledge Management Practices and Organizational Effectiveness.

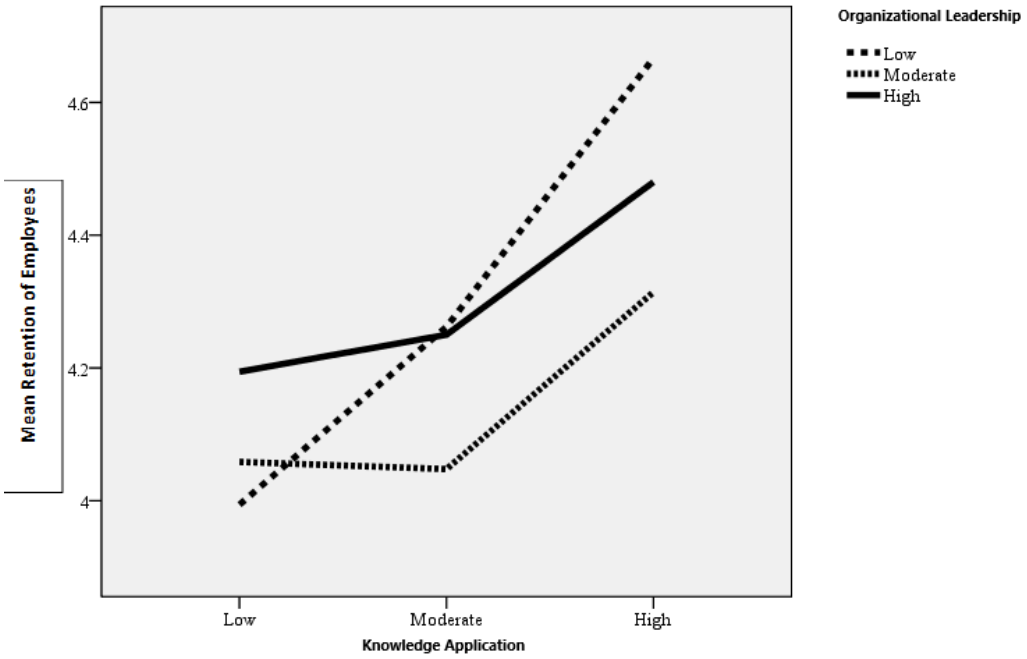


Source: prepared by researcher, (2018)


Organizational Leadership
Low
Moderate
High
Mean Customer Satisfaction
4.6
4.4
4.2
4
Low
Moderate
High
Knowledge Application


Organizational Leadership
Low
Moderate
High
Mean Customer Satisfaction
4.4
4.2
4
3.8
3.6
Low
Moderate
High
Knowledge Protection


Organizational Leadership
Low
Moderate
High
Mean Retention of Employees
4.6
4.4
4.2
4
Low
Moderate
High
Knowledge Protection

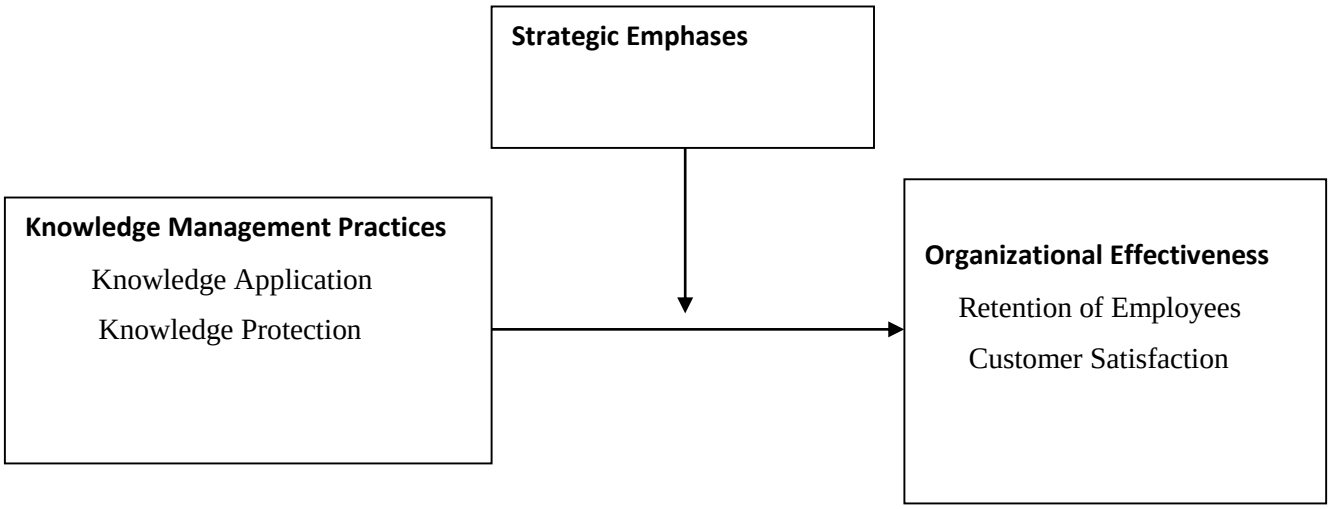

Organizational Leadership
Low
Moderate
High
Mean Retention of Employees
4.6
4.4
4.2
4
Low
Moderate
High
Knowledge Application

5.20.4.1 Regression Weights: Organizational Leadership moderates the relationship between Knowledge Management Practices and Organizational Effectiveness.

	Estimate	S.E.	C.R.	P	Label
Retention of Employees <--- Organizational Leadership*Knowledge Application	-.202	.132	-2.489	.058	Supported
Customer Satisfaction <--- Organizational Leadership * Knowledge Application	-.211	.100	-2.102	.036	Supported
Retention of Employees <--- Organizational Leadership*Knowledge Protection	-.212	.108	-2.234	.029	Supported
Customer Satisfaction <--- Organizational Leadership * Knowledge Protection	-.219	.112	-2.301	.046	Supported

Source: prepared by researcher, (2018). ** p <.0* p <.05

5.20.5 Strategic Emphasis moderates the relationship between Knowledge Management Practices and Organizational Effectiveness



Source: prepared by researcher, (2018)

In order to test this hypothesis many criteria must be met. These criteria can be classified as global or local tests. According to (Gaskin, 2016) in arranging for a hypothesis to be supported global tests of

model fit are the first assumption must be met, to let a local test (p-value) to have meaning. Next is the global test of variance explained or R-squared. Lastly, if a regression weight is significant, but is in the wrong direction, our hypothesis is not supported. Instead, there is counter-evidence.

In brief, the conditions for testing moderating variable, observing significant p-values and good model fit, but the R-square must be greater than 0.025 to explain sufficient variance in the dependent variable. Also the process requires introduction of a multiplicative interaction term into the path analysis. Accordingly, three interaction terms were created by multiplying the values of Structural SCO.

To make it obvious, if the moderator effect is present on the proposed relationship; three or four maximum conditions were used. First, the model fit indices is adequate. Second, the P-value is significant. Third, the R-square must explain sufficient variance in the dependent variable. Fourth, the interaction term is also statistically significant. Additionally, in order to establish whether moderator is a pure or a quasi-moderating this research applied the criteria mentioned by Sharma et al (1981). If the coefficients of both the multiplicative interaction term and the moderator variable are significant, the moderator is a quasi-moderator. However, if the coefficient of the multiplicative interaction term was significant and the coefficient of the moderator variable effect was not significant, the moderator is a pure moderator.

Path Analysis was used using the AMOS.23 software (SPSS.23) to verify the presence of a modified effect of Organizational Culture (Strategic Emphasis) on the relationship between Knowledge Management Practices variables and Organizational Effectiveness. The results of the path analysis indicate the quality of the model, required as they approached the full match as in the table:

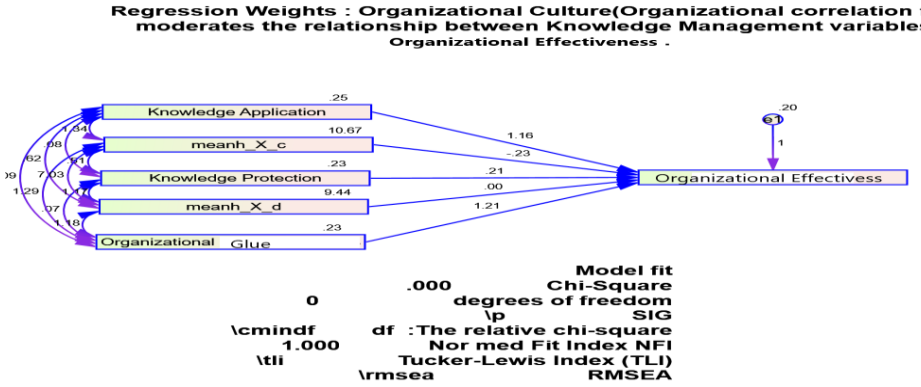
Table 5.23: Strategic Emphasis as a moderator between Knowledge Management Practices and Organizational Effectiveness

Goodness-of-fit Measures	Acceptable Level	Structural Model
Match Quality Indicators	Not statistically significant At a significance level of 0.05	Structure of the model
Chi-squire		0.000
Chi-squire/df(cmin/df)	$1 < x^2/df < 5$	0.00
Goodness of fit index (GFI)	≥ 90 أكبر من90	1.000
Goodness of fit index (CFI)	≥ 90	1.000
Root-mean-squire error of approximation (RMSEA)	≥ 90	0.000
SRMR	0.05 good ;0.05-0.08 moderate,>0.08 bad	0.000

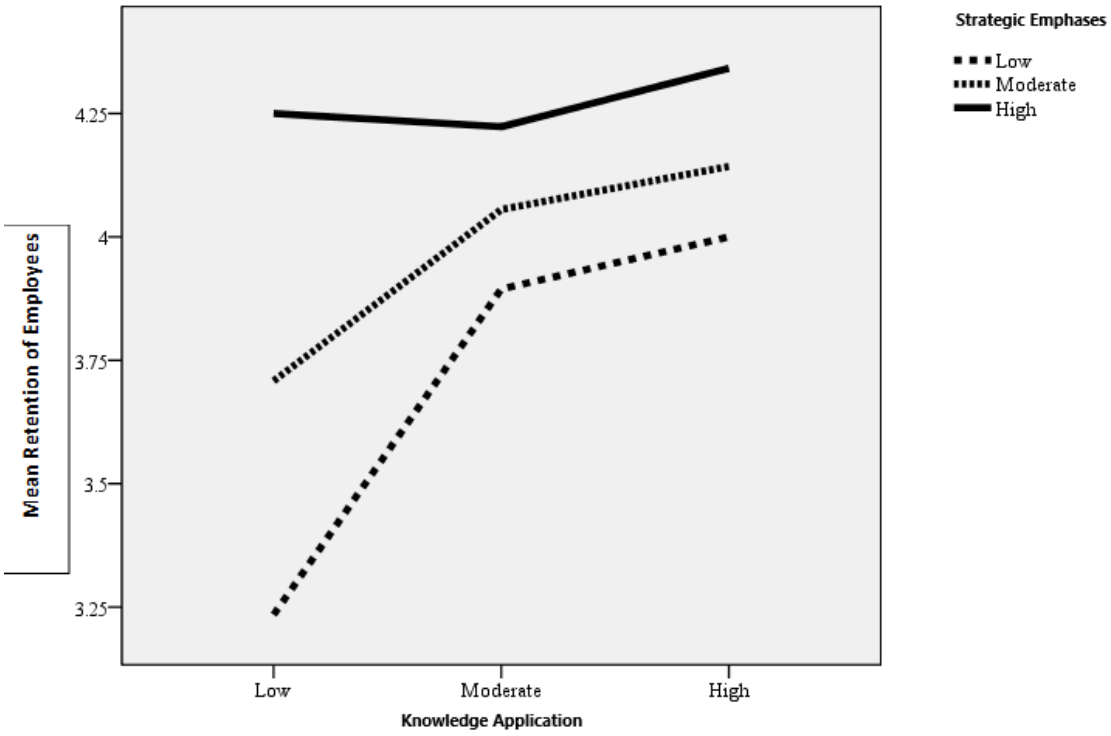
Source: prepared by researcher, (2018)

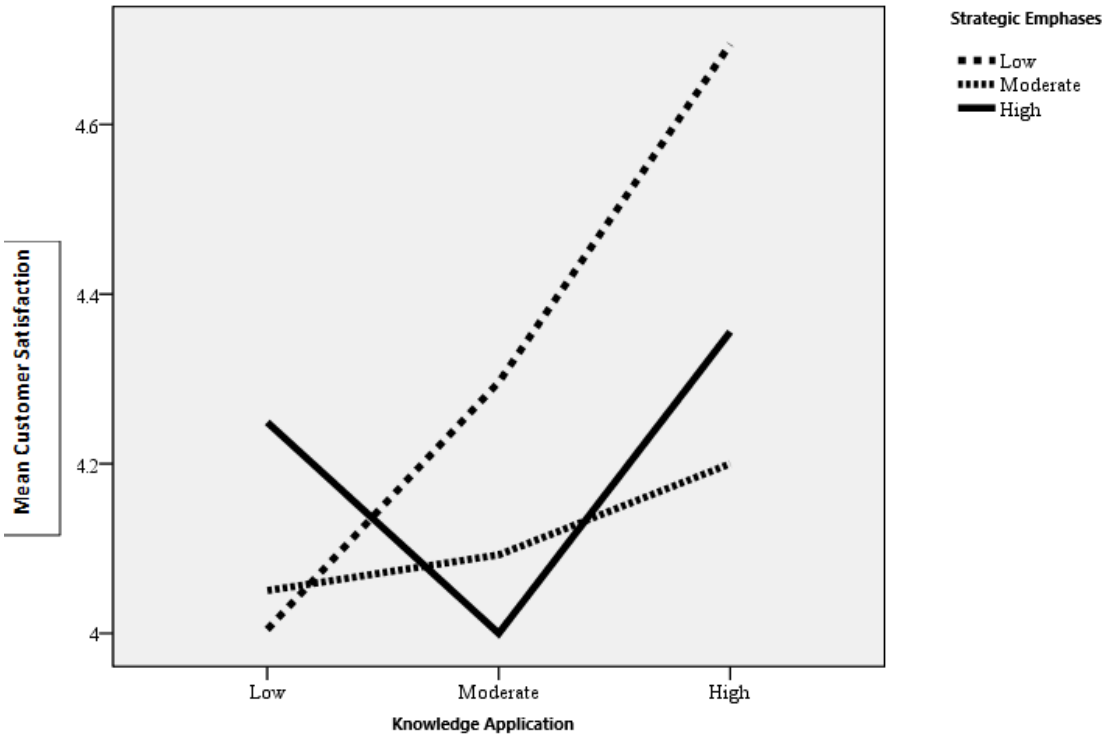
The results showed that Strategic Emphasis has no moderating effect on the relationships between Knowledge Protection and Knowledge Application, on one hand, and dimensions of Organizational Effectiveness, on the other hand. Moreover, the test reveals that the coefficient of Strategic Emphasis of interaction effect was not significant.

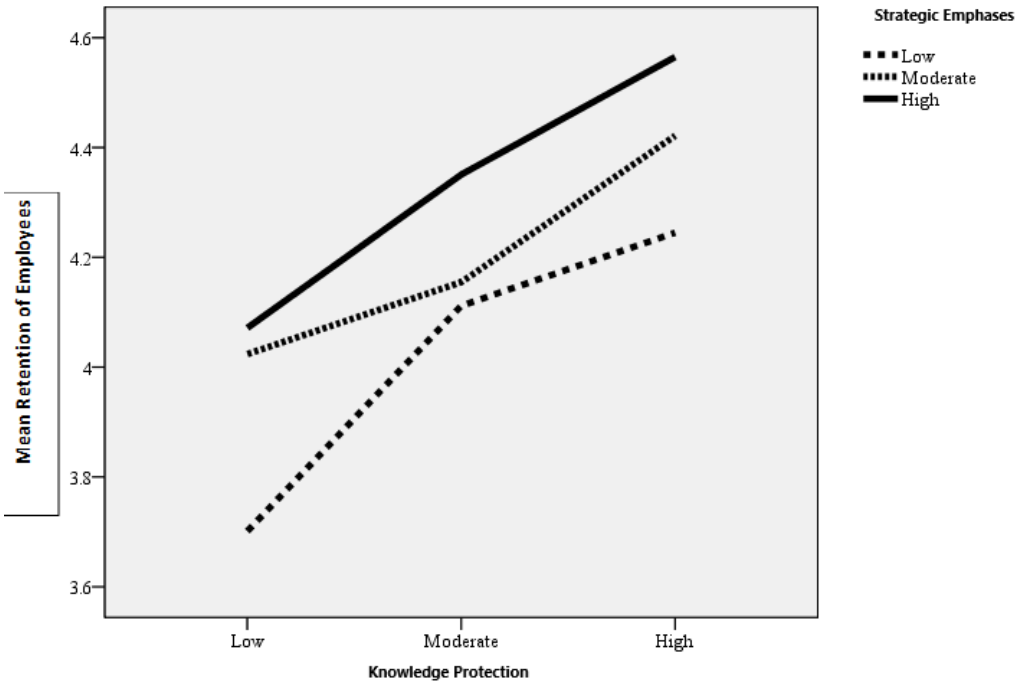
Figure 5.7: The moderating effect of Strategic Emphasis on the relationship between Knowledge Management Practices and Organizational Effectiveness.

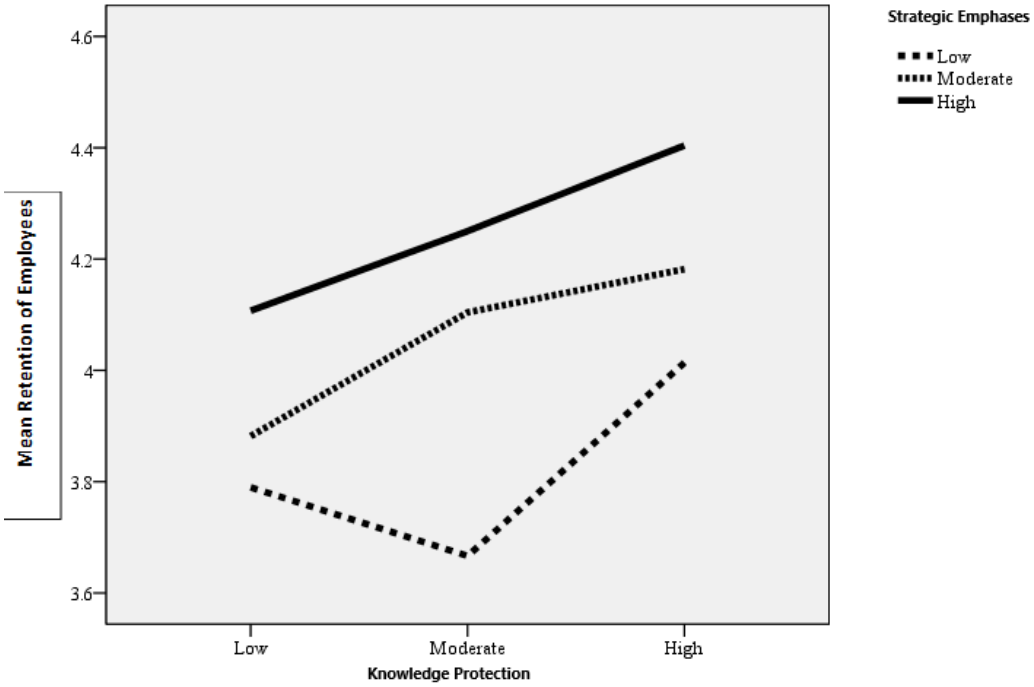


Source: prepared by researcher, (2018)


Strategic Emphases
Low
Moderate
High
Mean Retention of Employees
4.25
4
3.75
3.5
3.25
Low
Moderate
High
Knowledge Application


Strategic Emphases
Low
Moderate
High
Mean Customer Satisfaction
4.6
4.4
4.2
4
Low
Moderate
High
Knowledge Application





5.20.5.1 Regression Weights: Strategic Emphasis moderates the relationship between Knowledge Management Practices and Organizational Effectiveness.

	Estimate	S.E.	C.R.	P	Label
Retention of Employees<---Strategic Emphasis*Knowledge Application	-.040	.090	-.450	.652	Not Supported
Customer Satisfaction<---Strategic Emphasis*Knowledge Application	-.195	.112	-1.744	.081	Not Supported
Retention of Employees<---Strategic Emphasis*Knowledge Protection	-.042	.096	-.350	.593	Not Supported
Customer Satisfaction<---Strategic Emphasis*Knowledge Protection	-.183	.123	-1.638	.055	Not Supported

Source: prepared by researcher, (2018). ** p <.0* p <.05

CHAPTER SIX

DISCUSSION AND CONCLUSION

Overview

This chapter is for discussion and conclusion that came in consistency with data analysis and findings, so it contains research recapitulation, major research outcomes, research implication, recommendations, secondly, limitations and directions for future research, finally, an overall conclusion of the research.

The objectives of this study are 1) To investigate the relationship between knowledge management practices and organizational effectiveness, particularly in the financial institutions sector; 2) To investigate the relationship between knowledge management practices and organizational effectiveness, particularly in the financial institutions sector; 3) To examine whether the organizational culture moderates the relationship between knowledge management practices and organizational effectiveness; 4) To examine whether process innovation mediate the relationship between knowledge management practices and organizational effectiveness; 5) To identify the effect of knowledge management practices on process innovation; 6) To identify the impact of process innovation on the organizational effectiveness.

Table 6.1 shows the summary of the hypotheses testing and compares the results of this study with previous studies findings. It should be noted that in some parts, it is difficult to compare the findings of this study with the previous findings, either because of the lack of previous studies or because of the different component of the construct used in the previous studies.

Table 6.1: **Summary of Hypotheses Testing**

	Hypotheses	Previous Studies		Results		
		Author	Relationship	Relationship	Supported	Significance
1.1	There is a positive relation between Knowledge Application and organizational Effectiveness	(Hayfa et al., 2018)	+	+	Yes	< .01
1.2	There is a positive relation between Knowledge Protection and organizational Effectiveness	(Hayfa et al., 2018)	+	+	Yes	Significant
2.1	There is a positive relation between Knowledge Application and Technology Innovation	(Obeidat, 2016)	+	+	Yes	< .05
2.2	There is a positive relation between Knowledge Application and Business Model Innovation	(Obeidat, 2016)	+	+	Yes	< .01
		(Amro et al., 2015)	-	+	Yes	
3.1	There is a positive relation between Technology Innovation and Organizational Effectiveness	(Alam, 2014)	+	+	Yes	< .05
3.2	There is a positive relation between Business Model Innovation and Organizational Effectiveness	Syed-Ikhsan; Fytton Rowland(2014)	+	+	Yes	Significant
4.1	Process Innovation mediates the relationship between Knowledge Application and Organizational Effectiveness	(Diego at al., 2015)	+	+	Yes	< .05
4.2	Process Innovation mediates the relationship between Knowledge	(Diego at al., 2015)	+	+	Yes	Significant

	Protection and Organizational Effectiveness					
5.1.1	Organizational culture (Management of Employees) has a moderating effect on the relationship between Application Management and Organizational Effectiveness	Fytton Rowland(2004)	+	+	Yes	Significant
5.1.2	Organizational culture (Management of Employees) has a moderating effect on the relationship between Knowledge Protection and Organizational Effectiveness	Fytton Rowland(2004)	+	+	Yes	Significant
5.2.1	Organizational culture(Organizational Glue) has a moderating effect on the relationship between Knowledge Application and Organizational Effectiveness	Chow & Chan (2008)	+	+	Yes	Significant
5.2.2	Organizational culture(Organizational Glue) has a moderating effect on the relationship between Knowledge Protection and Organizational Effectiveness	Chow & Chan (2008)	+	-	No	Insignificant
5.3.1	Organizational culture (Organizational Leadership) has a moderating effect on the relationship between Knowledge Application and the organizational effectiveness	----------	----------	-	No	Insignificant
5.3.2		----------	----------	+	Yes	

	Organizational culture(Organizational Leadership) has a moderating effect on the relationship between Knowledge Protection and Organizational Effectiveness					Significant
5.4.1	Organizational culture(Strategic Emphasis) has a moderating effect on the relationship between Knowledge Application and Organizational Effectiveness	----------	----------	-	No	Insignificant
5.4.2	Organizational culture(Strategic Emphasis) has a moderating effect on the relationship between Knowledge Protection and Organizational Effectiveness	----------	----------	-	No	Insignificant

6.1 Recapitulation of the Study Findings

This study aimed to investigating the relationship between knowledge management practices and organizational effectiveness. The study as well examined the relationship knowledge management practices and two components of process innovation. The relationship between process innovation and organizational effectiveness was also explored. Moreover, the study tried to determine the mediating effect of process innovation in the relationship between knowledge management practices and organizational effectiveness, in addition to investigate the moderating effect of organizational culture on the relationship between knowledge management practices and organizational effectiveness. financial institutions sector in Sudan was chosen as a focus for this study asit's viewed as a source of economic development through its vast creation of employment, wealth creation and innovation by introducing competitive strategies which set this sector apart from other business sectors (Thwala, Ajagbe, Enegbuma, Bilau, & Long, 2012). Five research questions were outlined to achieve the objectives of the study. The questions were as follows:

1) What is the impact of KM practices on organizational effectiveness?
2) Does organizational culture moderate the relationship between knowledge management practices and organizational effectiveness?
3) Does process innovation mediate the relationship between knowledge management practices and organizational effectiveness?
4) What effect do knowledge management practices have on process innovation?
5) Does process innovation have an impact on the organizational effectiveness?

Based on literature review, and the results of the factor analysis, the study identified the variables to be focused on and to include two components of knowledge management practices (knowledge application, and knowledge protection) and two dimensions of process innovation (technology innovation, and business model innovation), in addition to four components of organizational culture (management of employees, organizational glue, organizational leadership,

a strategic emphases) and one dimension of organizational effectiveness (employee's performance & characteristics). The data for this research was obtained from a cross-sectional survey on 134 financial institutions in Sudan. The convenient sampling technique was used in selecting a sample for this study. Data collection was done through a structured questionnaire survey directed to different management levels. The response rate achieved from the survey was 91.8%, which was considered satisfactory for the study purposes.

With respect to the above outlined questions, the first hypothesis predicts that there is a positive relationship between knowledge management practices and organizational effectiveness. The results revealed that there is a positive relationship between the two components of knowledge management and organizational effectiveness, i.e. knowledge application has positive relationship with organizational effectiveness, and knowledge protection shows significant positive relationship as well with organizational effectiveness. These results generally indicate that knowledge management practices fully relate positively to organizational effectiveness.

The second hypothesis in this study predicts that the two components of knowledge management practices (knowledge application, knowledge protection) have positive relationships with innovation capabilities.

The third hypothesis predicts that there is a positive relation between the two components of innovation capabilities (Process Innovation, Service Innovation) and organizational effectiveness. The results indicate that both Process Innovation and Service Innovation showed a significant relationship with organizational effectiveness.

The fourth hypothesis predicts that the two components of innovation capabilities (Process Innovation, Service Innovation) mediate the relationship between knowledge management practices and organizational effectiveness. The results revealed that the mentioned components of innovation capabilities positively mediate the relationship between knowledge management practices and organizational effectiveness.

The fifth hypothesis predicts that the four dimensions of Organizational culture (Management of Employees, Organizational Glue, Organizational Leadership, Strategic Emphasis) moderate the relationship between knowledge management practices dimensions (knowledge application, knowledge protection) and organizational effectiveness. The results of testing this hypothesis revealed that Management of Employees moderates the relationship between knowledge management practices dimensions (knowledge application, knowledge protection) and organizational effectiveness. Organizational Glue was found to moderate only the relationship between knowledge application and organizational effectiveness, as Organizational Glue showed no moderating effect on the relationship between knowledge protection and organizational effectiveness.

With regard to Organizational Leadership as a moderator between knowledge management practices and organizational effectiveness, the results revealed that it showed no moderating effect on the relationship between one component of knowledge management practices (knowledge application), while it moderates the relationship between knowledge protection and organizational effectiveness.

The results also revealed that Strategic Emphasis has no moderating effects on the relationship between knowledge management practices dimensions (knowledge application, knowledge protection) and organizational effectiveness.

6.2. Discussion

Based on the above mentioned, this section further discusses the research findings. The discussion is based on theoretical viewpoint, empirical evidence and conceptual studies that are considered to be suitable for this study. The discussion covers the relationship between knowledge management practices and organizational effectiveness. Furthermore, the discussion will extend to cover the mediating effect of innovation capabilities in the relationship between knowledge management practices and organizational effectiveness as well as the moderating effect of

organizational culture in the relationship between knowledge management practices and organizational effectiveness and the control variables.

In the following subsections, there is going to be a discussion of findings which are fully consistent with the previous studies and contradicted in few parts.

6.3. The Relationship between knowledge management practices and organizational effectiveness.

The first objective of this study was to investigate the relationship between knowledge management practices and organizational effectiveness in the Sudanese financial institutions sector. As mentioned in chapter one, this objective was considered as essential agenda in this study because of the fact that enhancing the organization's effectiveness has become a priority in order to improve the organization's overall performance (Clark, 2006).

As illustrated in chapter one, relatively little systematic efforts have been dedicated to investigate this relationship, particularly in the Sudanese context, therefore, the present study was intended to bridge this gap.

The findings in this study supported the assertion that knowledge management practices is a multi-facet construct, consisting of three components, which are knowledge acquisition, knowledge application, and knowledge protection. Due to the factor analysis, one of the three components was removed (knowledge acquisition). The removal of the dimension "knowledge acquisition" is consistent with some previous studies which viewed knowledge acquisition as integral part of the dimension knowledge application, such as Sayed (2010) who suggested that knowledge acquisition is regarded as an introductory phase to the application process of knowledge, therefore, the construct of knowledge management practices consist of two dimensions: knowledge application and knowledge protection.

6.4. The relationship between knowledge application & knowledge protection and customer satisfaction, and retention of employees

The results of path analysis showed that the two components of knowledge management practices (knowledge application & knowledge protection) have a positively significant relationship with the two components of organizational effectiveness (customer satisfaction, and retention of employees).

These findings are fully consistent with previous studies. A study was conducted by Reisi et al. (2013) to investigate the relationship between individual dimensions of knowledge management process capability and organizational effectiveness among selected sport organizations in Iran employed multi-variant regression analysis, the results demonstrated that all dimensions of knowledge management capabilities (knowledge acquisition, knowledge conversion, knowledge application, and knowledge protection) have direct and a significant relationship with organizational effectiveness. They further suggested that knowledge and learning activities are necessary for organizations to improve their effectiveness.

Furthermore, Liu and Deng (2015) found that each dimension of knowledge management capabilities has a positive effect on business process outsourcing performance. Knowledge application was found to be the most significant dimension correlated to business process outsourcing performance. They concluded that knowledge management capability is an effective tool to enhance effectiveness as it provides organizations with competitive advantages that are difficult for their competitors to imitate.

In addition, Kimaiyo, Kapkiyai and Sang (2015) mentioned that all processes of knowledge management are very important for enhancing firm effectiveness. Firms are suggested to apply knowledge management continuously by creating new knowledge, converting knowledge into new design or strategy, learning from previous experience, and protect their knowledge in order to achieve better effectiveness.

On the other hand, Mills and Smith (2011) conducted a study in Jamaica to examine the relationship between knowledge management capability and organizational effectiveness. They found that knowledge acquisition, knowledge application, and knowledge protection are positively related to organizational effectiveness. They argued that the relationship between knowledge management and effectiveness is complex which, each knowledge management process is not necessary directly linked to effectiveness even they are found to be correlated to effectiveness from a composite model.

6.5. The moderating effect of Organizational Culture in the relationship between Knowledge Management Practices and Organizational Effectiveness

According to Baron and Kenny (1986), a moderator can be a qualitative or quantitative variable which can affect the direction and/or strength of the relationship between an independent and dependent variable. The purpose for testing the moderating effect is to test whether the prediction of the dependent variable, in this case organizational effectiveness components, from an independent variable, in this case knowledge management practices, differs across levels of a third variable, in this case organizational culture. Based on Aiken and West (1991) the moderator variable will affect the strength or direction of the relationship between the independent and dependent variables (predictor and outcome) either by enhancing or reducing the relationship or even by changing the direction and influence of the predictor. In other words, the moderation effect could be discussed as an interaction between variables where the effect of one variable depends on levels of other variables in the analysis (Aiken and West, 1991).

The study findings showed that the four components of organizational culture moderate the relationship between Knowledge Management Practices and Organizational Effectiveness. This result is fully consistent with previous studies. According to King (2007), organizational culture is believed to affect the knowledge-related behaviors among individuals, teams, and organizational units because culture “influences the determination of which knowledge is appropriate to apply, share, and protect”. Knowledge management in organizations is influenced

by organizational culture, according to DeTienne et al. (2004), because it "plays a vital role in the knowledge creation, application, and protection process".

In consistency with the present study findings, Gold et al. (2001) showed that a relationship existed between certain organizational values (which were integrated in the so-called ''knowledge infrastructure capacities'' of the firm along with technology and structure), KM practices and organizational effectiveness. These authors suggest that organizations that have values oriented toward openness and support are prepared to develop behaviors through which the employees share more ideas and knowledge which, in turn, implies they can be more innovative, responding more easily and rapidly to changes and new market opportunities. Moreover, in a well-known article, Delong and Fahey (2000) identify several organizational cultures which, from their viewpoint, encourage or hinder the creation, application and use of knowledge by the firm. They suggest that while trust and cooperation may lead the employees to share knowledge, the value systems which highlight individual power and competition would imply the adoption of behaviors that lean toward hoarding knowledge in order to dominate and maintain the status quo. In a similar vein, Jarvenpaa and Staples (2003) showed that organizational shared values have an important influence on the willingness of knowledge owners to share knowledge with other organizational members. This study, which analyzed university staff, concluded that the existence of certain values that promoted a greater tendency to apply and protect knowledge and that established a clear perception of who owned the information, implied a greater use of ''collaborative'' means to share and exchange knowledge. Other studies basically concluded the same, albeit they only focus on the knowledge creation process. Lee and Choi (2003), for example, find a positive relationship between organizational culture and the improvement of the knowledge creation process. Similarly, Lee and Cole (2003) assert that culture acts like a social control mechanism which, depending on whether it promotes critical awareness and open behavior or if instead, it is oriented toward a system that looks to sanction an individual who operates outside of the rules, this will ultimately stimulate or hinder the processes that enables knowledge to be created and disseminated throughout the organization.

6.6. The Relationship between knowledge management practices and innovation capabilities

This study found that Knowledge management practices have a statistically significant direct effect on innovation capabilities. In particular, Knowledge Application was found to have a more significant effect on Process Innovation than its effect on service innovation, whereas Knowledge Protection has less effects on both Process Innovation and Service Innovation. The impact of knowledge management on innovation capabilities was widely investigated in the existing literature. These findings were in line with the findings of previous studies, as there is a large number of academic studies have found a positive association between knowledge management and innovation capabilities. (Carneiro, 2000; Darroch & McNaughton, 2002; Nonaka & Takeuchi, 1995; Prajogo, Power &Sohal 2004), in addition to (Gloet and Terziovski 2004) who explored the relationship between knowledge management practices and innovation performance and found both positive and negative relationships where the humanist approach to KM and innovation performance are significantly and positively related.

6.7 The Relationship between innovation capabilities and organizational effectiveness

According to Davenport (1993), innovation capabilities lead to major reductions in process cost, improvements in quality, service levels and other business objectives. According to Gunday et al (2011), innovation capabilities are one of the primary tools of growth which increases the existing market share and provides the company with a competitive advantage. Adner and Levinthal (2001) stated that successful innovation capabilities may result in cost reductions and eventually lead to increasing the profitability of the organization. Based on the empirical findings of this study, high levels of both process innovation and service innovation can increase the organizational effectiveness which agree with the previous studies findings. In particular, process innovation has a much higher effect on retention of employees than service innovation, whereas the latter has a higher effect on customer satisfaction than process innovation.

6.8. The Mediating Role of Innovation Capabilities in the Relationship between knowledge management practices and organizational effectiveness.

This section deals with the mediating effect of innovation capabilities in the relationship between knowledge management practices and organizational effectiveness. The result fully supports the mediating effect of both dimensions of innovation capabilities in this relationship.

According to Baron and Kenny (1986), the process of testing for mediation is to estimate the indirect effect of the independent variable on the dependent variable by controlling for the mediator. They specify four steps in the measurement of a mediation effect:

Step 1: Indicate that the predictor variable is significantly associated with the outcome variable.

Step 2: Indicate that the predictor variable is significantly associated with the mediator.

Step 3: Indicate that the mediator is significantly associated with the outcome variable.

Step 4: Indicate that the mediator completely or partially mediates the relationship between the predictor variable and the outcome variable (Baron and Kenny, 1986).

Regarding the mediating effect of process innovation in the relationship between knowledge management practices and organizational effectiveness, the results indicate a mediation effect of process innovation in this relationship. The result also indicates that service innovation mediates the relationship between knowledge management practices and organizational effectiveness. This confirms that firms with greater capacity to innovate will be more successful in responding to their internal and external environments and develop new capabilities leading to competitive advantage and superior performance. These results are consistent with some of the previous studies, for example, Lado (2003) demonstrates that process innovation and innovation performance completely mediate the impact of knowledge management capabilities on business performance. While Zehir (2015) shows that process innovation capabilities are mediator in the relationship between knowledge management and organizational effectiveness, and Ardyan, (2016) who asserted that service innovation success becomes the best mediating variable in the relationship between knowledge management and SMEs effectiveness.

6.9 Effect of Control Variables

To provide better estimates of the hypothesized variables, the study initially suggests three control variables (type of ownership, firm size, and market share). However, the tests of differences indicate that only one of these variables, namely; firm size appeared to have an impact on innovation capabilities, and organizational effectiveness. This control variable is included in the multiple regression models and the results again confirmed it as a control variable, suggesting the appropriateness of having it included in the regression analysis. While, type of ownership, and market share are not supported as control variables since no significant differences on organizational effectiveness variables reported across these two characteristics, thus, were omitted from the subsequent multiple regression models (Galbreath, 2010; Luk et al., 2008).

Firm size showed a significant impact on the two dimensions of innovation capabilities namely; process innovation and service innovation. For the process innovation, while the mean values show general increase in process innovation in financial firms with larger number of employees compared with those with fewer employees, the differences are not significant. These results confirm Abela (2010) earlier study, which showed that the size of firm influences innovation capabilities measurement. This result agreed also with previous study showed thatfirm size affects overall ability of the firm to sustain a competitive advantage (Luo, 2009). This result can be attributed to the fact that larger firms are more flexible, have established roles, a history of successful activities, and are more likely to adapt and apply innovation strategy to accommodate the ever-changing needs of the industry.

6.10. Major Results of the Study

Based on the above discussion, the key results of this study are as follows:

1. knowledge management practices is a multi-facet construct consisting of two major components, among which are knowledge application, and knowledge protection and can be measured using 16 questionnaire items.

1. Knowledge management practices are highly adopted in Sudanese financial institutions sector. However, the strategic emphases of the firms, as a component of organizational culture, doesn't support the utilization of knowledge resources in achieving the organizational effectiveness in these financial institutions.

2. Knowledge management practices have a positive relationship with organizational effectiveness in the Sudanese financial institutions sector. This confirms that how well knowledge is managed contributes to organizational effectiveness. Sudanese financial institutions appear to employ their knowledge resources as the most important drivers for enhancing their organizational effectiveness.

3. Knowledge management practices have a positive relationship with organizational effectiveness in the Sudanese financial institutions, because how well knowledge is managed contributes to organizational effectiveness. Sudanese financial institutions appear to employ their knowledge resources as the most important drivers for enhancing their organizational effectiveness.

4. In the Sudanese financial institutions, Management of Employees, Organizational Glue, Organizational Leadership are the most powerful organizational culture components to shape the relationship between knowledge management practices and organizational effectiveness (all of them show a significant positive moderating effect on this relationship), however strategic emphases, as one of the organizational culture components was not significant on this relationship.

5. Sudanese financial institutions leverage their knowledge management practices in enhancing their innovation capabilities through utilizing both knowledge application and knowledge protection to achieve higher levels of process innovation and service innovation (innovation capabilities components).

6. Sudanese financial institutions maximize their organizational effectiveness using innovation capabilities components (process innovation and service innovation) in a way that helps them achieve competitive advantage and superior performance.

6.11. Implications of the Study

In this section, the findings of this research are presented in terms of their implications. Firstly, the theoretical implications of research findings are discussed. Next, the practical contributions of this research are then identified.

6.11.1. Theoretical Implications

The present research has enriched the current knowledge on business value of knowledge management within the context of financial institutions sector. The first theoretical contribution of the study deals with knowledge management practices. While a large number of previous studies (Lee, 2011; Murphy, 2013, Nour, 2014; Daniel, 2016) suggested that knowledge management is a multifaceted construct consists of three dimensions, namely: knowledge acquisition, knowledge application, and knowledge protection, the findings of the present study demonstrate that knowledge management practices consist of only two components: knowledge application, and knowledge protection. This finding is attributed to the fact that knowledge acquisition is widely viewed as an introductory phase to knowledge application (Sayed, 2010). The latter study argued that the process of acquiring knowledge does not hold value for the firm on its own unless it's been applied. The second theoretical contribution of this study deals with the relationship between knowledge management practices and organizational effectiveness. According to knowledge-based view logic, firm possession of certain key resource characteristics, which are value, rareness, inimitability, and non-substitutability, will enable the firm to sustain competitive advantage. In this study, knowledge was conceptualized as a strategic resource since it fulfilled the four mentioned characteristics (refer to chapter

Two). These characteristics enable knowledge-oriented firms to sustain competitive advantage which was conceptualized in this research in terms of organizational effectiveness (Newbert's, 2007). The result of the study revealed that attention to establish knowledge management strategy will enhance firms' competitive advantage. The findings of the present study suggest knowledge-based view as essential theory to understand why knowledge management can lead firm to gain competitive advantage and thus enhance the organizational effectiveness compared to other competitors. This study adds to the knowledge-based view theory by providing empirical evidence to support the effect of knowledge orientation, which describes the extent to which firm practices the knowledge-based view. Specifically, the results of this study display that knowledge management is a resource, which is an important determinant of organizational effectiveness in the customer satisfaction, corporate image, and retention of employees.

The third theoretical contribution of this study deals with the relationship between knowledge management practices and innovation capabilities. This study argues that knowledge management practices are viewed as a resource that is providing internal and external benefits by helping a firm to develop new resources and capabilities of innovation. The logic behind this relationship is that knowledge management practices are conceptualized in this study as a strategic resource. In fact, the more the organization owns or controls strategic resources, the more unique innovation capabilities they can develop. Therefore, this study adds to knowledge-based view by specifying which resources (the two components of knowledge management practices) are more influential in gaining and maintaining innovation capabilities.

6.11.2. Managerial Implications

In addition to the theoretical implications addressed above, this study also contributes towards management practice. Managers responsible for knowledge management, (i.e. Chief Knowledge Officer "CKO") can get an advantage from information obtained within these findings.

Given that limited efforts have been made to empirically investigate the impact of knowledge management, this study should help managers in several ways. First, this study helps to identify the key domains of knowledge management managers should address.

Besides, the study is expected to help managers understand how to operate with such knowledge management strategy and guide managers to better learn how to allocate knowledge resources.

Second, based on the findings of this study, knowledge management practices as a resource can enable firms to develop key knowledge-based capabilities. Generally, this finding can serve as a practical guide for knowledge practitioners and managers by enhancing their understanding of the knowledge-driven benefits and competitive advantages. Specifically, the finding of this study has proven that both knowledge application and knowledge protection have significant positive relationship on the two components of innovation capabilities. This indicates that as the financial institutions become more involved in knowledge-related activities, their innovation capabilities such as process innovation and service innovation increase.

While the results of the study demonstrate mixed support for the effects of the two components of innovation capabilities on organizational effectiveness, linking these components with multidimensional organizational effectiveness provides management with a strong tool to detect the degree to which different components of innovation capabilities affect several operational indicators of organizational effectiveness. This implies that managers of the Sudanese financial institutions need to

consider certain attributes that reflect a good deal of information about firms such as the processes their firms employ, and the services their firms provide.

Also, Managers may want to assess the degree of innovation in their organization to enhance their effectiveness. Further, the study identified the organizational culture factors that managers may find it useful to examine the positive relationship between knowledge management practices and organizational effectiveness.

This study contributes to the existing literature by empirically providing evidence of the scholars' argument that knowledge management fosters and facilitates innovation capabilities is imperative for maximizing organizational effectiveness. Importantly, the current study has also empirically tested the relationship between knowledge management practices and organizational effectiveness and established a significant link. Further, the current study points out that for enhanced organizational effectiveness, some components of organizational culture such as: organizational leadership, management of employees, and organizational glue play the key role.

Further, this study also provided an operational framework for the relationship between knowledge management and organizational effectiveness, with moderating effects of organizational culture and the mediating role of innovation capabilities in financial institutions sector in Sudan. This framework can serve as a practical guide for financial institutions managers by enhancing their understanding of the mechanism of knowledge management to create a competitive advantage. Moreover, understanding the effects of organizational culture by managers will enable them to adopt the appropriate type of organizational culture which supports a better implementation of knowledge management.

Furthermore, Sudanese financial institutions' management could capitalize on the findings of the study to deeply understand the applicable skills and knowledge tools in order to assure appropriate promotion and implementation of KM.

6.12. Limitations of the Study

While this study contributes to increased understanding of the applicability of knowledge-based view across institutional forces through testing the relationships between knowledge management practices, innovation capabilities, organizational effectiveness, and organizational culture, the results of this study must be interpreted with caution because of some certain limitations.

First, while the study sample adequately meets the desirable statistical standards, as well as demonstrates sufficient construct, internal and external validity, its inclusiveness of the Sudanese financial institutions sector potentially limits its generalizability to other industries contexts such as the manufacturing sector and the public sector, etc. Therefore, the results of the study should be handled with caution when applied to these sectors.

Second, the cross-sectional nature of the study meant that conclusions must be restricted to those of association. The dynamic of the effect of knowledge management practices was not analyzed. Therefore, the findings of this study are time-specific and may not provide solid conclusions. A study conducted in a longitudinal frame would throw light on causal relationships between the variables of concern and thus give results that are more valid.

Third, self-report measures using a single-informant approach, while widely used in management and strategy research, raises doubt about the findings as it is possible that social desirability bias will occur. However, the use of self-reported measures for managerial perception about knowledge management practices, innovation capabilities, organizational culture and effectiveness is justified due to the difficulty in obtaining archival data.

6.13. Suggestions for Future Research

This study represents an early attempt to build and test a theoretical framework of knowledge management practices. However, based on the limitations of the study mentioned above, this study provides some suggestions for future research. These suggestions are as follows:

First, future studies can replicate this study using larger sample and different contexts such as different sectors or countries. This would not only enlarge sample size, but also more importantly grant the opportunity for direct comparison of model efficacy based on either firm size or country/region designation. Consequently, this would help resolve the issue of generalizability and allow for richer analysis of the validity of each hypothesized relationship as well as the proposed overall model. In addition, confirmatory factor analysis (CFA) can be used to test whether the two components suggested by the exploratory factor analysis is a good representation of knowledge management practices. Further, innovation capabilities scale consists of only eight items while there are many others that might be used to more capture the innovation capabilities construct. Therefore, this allows further research.

Second, although it could be costly and time-consuming, a longitudinal study is better suited to a clearer understanding of the dynamic, interactive and reversible nature of the relationship between knowledge management practices, innovation capabilities, organizational culture and organizational effectiveness. Moreover, this study relies fully on secondary data by using a single-informant approach. Although archival data may be more objective, it does not allow researcher access to the perceptions and other subjective factors that influence managerial decisions. Thus, future studies may be replicated using archival data instead of the perceptions used in this study, or collect data through more than one source, combining both perceptual and archival data. It would be useful also to obtain a broader sample of managers in future research.

Thirdly, the study found insignificant relationships between organizational culture component (Strategic Emphasis) and the two components of knowledge management practices (Knowledge Protection and Knowledge application) and organizational Effectiveness. Since Strategic Emphasis reflects strategy orientation, Morgan (2003) suggested that a business's strategic emphasis alone is not significantly associated with organizational effectiveness. However, Himanshu and Abdullah (2011) conducted a research on "Moderating effect of organizational culture on knowledge management capabilities-organizational performance link"; it was a case study on Saudi Arabian financial institutions sector. This research establishes the way how strategic emphasis as an organizational culture dimension

is linked to knowledge management capabilities and organizational performance. Keeping in view the finding of the present study, further research is needed to investigate such relationships.

Fourthly, the insignificant relationships between some types of organizational culture and organizational effectiveness can also be due to the nature of these culture dimensions. For example, Parnell (2012) mentioned that such organizational culture components are more likely to lead to a sustainable competitive advantage when the environment is changing rapidly. As such, future studies should examine the potential moderating effects of organizational culture factors such as dominant organizational characteristics and organizational criteria of success on the association between knowledge management practices and organizational effectiveness.

6.14. Conclusions

This study is an attempt to enhance the understanding of business value of knowledge management practices in the context of financial institutions sector in Sudan. Besides, the study has investigated the connection between knowledge management practices and organizational effectiveness exploring the role that key innovation capabilities components play in mediating that relationship. In addition, the study has examined the moderating effect of organizational culture between knowledge management practices and organizational effectiveness.

The present study was conducted among 134financial institutions operating in Sudan. This study has established on its empirical findings that knowledge management practices consists of two components (knowledge application, and knowledge protection) and can be measured using 16 questionnaire items, which demonstrate internal consistency, its content and construct validity. The result also found that financial institutions operating in Sudan implemented knowledge management practices to high extent. In relation to the business value of knowledge management practices, this study provided empirical evidence that knowledge management practices can lead the Sudanese financial institutions to achieve sustainable competitive advantage in terms of organizational effectiveness. The study showed that knowledge management practices namely: knowledge application, and knowledge protection can

provide the Sudanese financial institutions with unique innovation capabilities, particularly process innovation capability and service innovation capability. These innovation capabilities assist financial institutions in their value creation and ultimately increase their organizational effectiveness. In addition, the study further found that organizational culture components, namely: organizational leadership, organizational glue, and management of employees shape the association between knowledge management practices and organizational effectiveness, except for strategic emphasis, which was found to have insignificant effect on this relationship.

In sum, this study outlined several objectives, which it hoped effectively to accomplish. In fact, the true contribution of this study lies primarily in its theoretical and practical implications as well as its ability to hopefully motivate and incite future academic endeavors. If the results in replications of this study support the study findings, the message to managers is clear. Rather than relying only on traditional resource concepts, financial institutions might use their knowledge management practices in order to achieve a sustainable competitive advantage and thus an organizational effectiveness.

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Appendix A

A Covering Letter

Dear Respondent,

I am a PhD candidate at Sudan University of Science and Technology, under the supervision of Dr. Siddig Balal, Dean of Faculty of Business Studies. This research is entitled as:

The Impact of Knowledge Management Practices on Organizational Effectiveness in Sudanese Financial Sector: Mediating Role of Innovation Capabilities and Moderating Effect of Organizational Culture

The aim of study is to assess the impact of knowledge management practices on organizational effectiveness, and to investigate whether innovation capabilities mediate the relationship between knowledge management practices on organizational effectiveness, and to explore the moderating effects of organizational culture this relationship. Secondly, to generate a comprehensive model to contribute the knowledge regarding the constructs which significantly determine the impact of knowledge management practices on organizational effectiveness using innovation capabilities as mediator and organizational culture as moderator.

This study will require you to complete the survey questionnaire (attached) which takes approximately 10 minutes. Your participation is voluntary, and your name and any information you provide will be kept strictly confidential and will not be attributed to the individual or organization. Completed questionnaire response will be stored in secure environment, and the results of research would be used for only academic purpose.

If you have any question or concern about this study, please contact the investigator: Mr. Qais Alsiddig Ahmed, PhD Student, Faculty of Business Studies, Sudan University of Science and Technology, email: qais.shahata@gmail.com. Your help would be greatly appreciated, thank you very much for your time and cooperation.

Qais Alsiddig Ahmed

Survey Questionnaire

Personal Data:

Gender: Male: ☐ Female: ☐

Age Category:

Less than 27	27 to 35	36 to 44	45 to 55	Over 55

Academic degree:

☐ Doctorate Degree

☐ Master's Degree

☐ Bachelor Degree

Length of service with my current bank:

Less than 1 year	1 – 5 years	6 – 10 years	11 – 15 years	Over 15

My job rank is:

☐ General Manager

☐ Deputy General Manager

☐ Assistant General Manager

How do you agree with the following statements about knowledge management practices, organizational culture, and organizational effectiveness in your bank?

SCALE: (1) Strongly Disagree (2) Agree (3) Neutral (4) Agree (5) Strongly Disagree

Knowledge Management:	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Knowledge Acquisition					
The Bank has explicit strategies for knowledge capture and development.					
The Bank management expects staff to document experiences and make them accessible to the rest of the Bank.					
The Bank has processes for acquiring knowledge about our customers.					
The Bank has processes for acquiring knowledge about new products/services and competitors within our industry.					
Knowledge Application					
The Bank has processes for applying knowledge learned from experiences					
The Bank has processes for using knowledge in development of new products/services.					
The Bank has processes for using knowledge to solve new problems.					

The Bank is able to locate and apply knowledge to changing competitive conditions.					
Knowledge Protection					
The Bank has processes to protect knowledge from inappropriate use inside the organization.					
The Bank has technologies that restrict access to some sources of knowledge.					
The Bank has incentives that encourage the protection of knowledge.					
Organizational Culture:					
Organizational Leadership					
The leadership in the Bank is generally considered to exemplify mentoring, facilitating, or nurturing.					
The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk taking.					
The leadership in the Bank is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.					

The leadership in the Bank is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.					
Strategic Emphasis					
The Bank emphasizes human development. High trust, openness, and participation.					
The Bank emphasizes acquiring new resources and creating challenges for new opportunities.					
The Bank emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.					
The Bank emphasizes permanence and stability. Efficiency, control and smooth operations are important.					
Organizational Glue					
The Bank defines success on the basis of development of human resources, teamwork, employee commitment, and concern for people.					
The Bank defines success on the basis of having the most unique or newest products.					
The Bank defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.					

The Bank defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.					
Innovation Capabilities					
Process Innovation					
The Organization's top management is committed and supportive for innovation and new idea generation.					
Communication in the Organization is effective and works top-down, bottom-up and across the Organization.					
The Organizational structure helps us to take up decisions rapidly.					
The Organization's innovation strategy is clearly communicated so everyone knows the targets for improvement.					
Service Capability					
We work closely with our customers in exploring and developing new products and services in our organization.					
The Organization uses the latest technology in its operations.					
We have mechanisms in place to ensure early involvement of all departments in developing					

new products/processes/services in our Organization.					
We have processes in place to review new technological or market developments and what they mean for our Organization's strategy					
Organizational Effectiveness					
Corporate Image					
The public image and reputation of the Bank is always very good.					
The Organization is highly committed to the benefits of the community.					
The Organization is perceived to be honest, friendly and customer-oriented.					
Customer Satisfaction					
The Organization responds to changes in the expectations of stakeholders.					
The Organization identifies needs of customers and meets them successfully.					
The Bank adapts quickly to unanticipated changes, and aligns its objectives and plans with these changes.					
C) Retention of Employees					
Employees are committed and loyal to the Bank.					

The Bank has a stable financial position.					

Appendix B

SPSS OUTPUT

Descriptive Statistics

Std. Deviation	Mean	Maximum	Minimum	N	
.698	1.84	4	1	272	Knowledge Application
.793	2.14	5	1	271	Knowledge Protection
.804	2.27	5	1	271	Management of Employees
.772	1.68	4	1	271	Organizational Leadership
.686	1.67	4	1	271	Organizational Glue
.652	1.82	4	1	271	Strategic Emphases
1.140	3.26	5	1	269	Retention of Employees
.880	2.54	5	1	267	Customer Satisfaction

Variables Entered/Removed(c)

Method	Variables Removed	Variables Entered	Model
Enter	.	Firm Size, Market Share (a)	1
Enter	.Knowledge Acquisition	Knowledge Management Practices(b)	2

a Tolerance = .000 limits reached. b All requested variables entered.

c Dependent Variable: Organizational Effectiveness

Model Summary(c)

Change Statistics					Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
Sig. F Change	df2	df1	F Change	R Square Change					
.458	237	2	.783	.007	.571	-.002	.007	.081(a)	1
.000	236	1	99.995	.296	.480	.293	.302	.550(b)	2

Predictors: (Constant), Firm Size, Market Share

Predictors: (Constant), Firm Size, Market Share, Knowledge Management Practices

c Dependent Variable: Organizational Effectiveness

ANOVA(c)

Sig.	F	Mean Square	Df	Sum of Squares		Model
.458(a)	.783	.256	2	.511	Regress ion	1
		.326	237	77.370	Residua l	
			239	77.881	Total	
.000(b)	34.072	7.846	3	23.537	Regress ion	2
		.230	236	54.344	Residua l	
			239	77.881	Total	

Predictors: (Constant), Firm Size, Market Share

B Predictors: (Constant), Firm Size, Market Share, Knowledge Management Practices

c Dependent Variable: Organizational Effectiveness

Coefficients(a)

Collinearity Statistics			Standardized Coefficients	Unstandardized Coefficients		

VIF	Tolerance	Sig.	t	Beta	Std. Error	B		Model
		.000	33.039		.049	1.607	(Constant)	1
1.050	.953	.239	1.179	.078	.078	.092	Firm Size	
1.050	.953	.880	.151	.010	.090	.014	Market Share	
		.000	6.380		.103	.659	(Constant)	2
1.051	.952	.089	1.707	.095	.066	.112	Firm Size	
1.053	.950	.469	.725	.040	.076	.055	Market Share	
1.005	.995	.000	10.000	.545	.049	.488	Knowledge Management Practices	

a Dependent Variable: Organizational Effectiveness

Excluded Variables(c)

Collinearity Statistics			Partial Correlation	Sig.	t	Beta In		Model
Minimum Tolerance	VIF	Tolerance						
.000	.	.000	.	.	.	.(a)	AGE1	1
.950	1.005	.995	.546	.000	10.000	.545(a)	Knowledge Management Practices	
.000	.	.000	.	.	.	.(b)	AGE1	2

Predictors in the Model: (Constant), Firm Size, Market Share

Predictors in the Model: (Constant), Firm Size, Market Share, Knowledge Management Practices

Dependent Variable: Organizational Effectiveness

Collinearity Diagnostics(a)

Variance Proportions				

Knowledge Management Practices	Firm Size	Market Share	(Constant)	Condition Index	Eigenvalue	Dimension	Model
	.10	.10	.10	1.000	2.024	1	1
	.88	.21	.09	1.856	.587	2	
.01	.04	.05	.01	1.000	2.777	1	2
.02	.81	.01	.01	2.029	.675	2	
.02	.13	.92	.01	2.358	.500	3	
.95	.01	.02	.97	7.518	.049	4	

a Dependent Variable: Organizational Effectiveness

Residuals Statistics(a)

N	Std. Deviation	Mean	Maximum	Minimum	
240	.314	1.64	2.49	1.15	Predicted Value
240	.477	.00	1.33	-1.24	Residual
240	1.000	.000	2.689	-1.586	Std. Predicted Value
240	.994	.000	2.778	-2.593	Std. Residual

a Dependent Variable: Organizational Effectiveness

Correlations

Organizational Effectiveness	Knowledge Management Practices	Knowledge Application	Knowledge Protection		
.336(**)	.270(**)	.404(**)	-.234(**)	Pearson Correlation	Knowledge Application
.000	.000	.000	.000	Sig. (2-tailed)	
269	267	267	269	N	
.375(**)	.316(**)	.461(**)	-.224(**)	Pearson Correlation	Knowledge Protection
.000	.000	.000	.000	Sig. (2-tailed)	
269	267	267	269	N	
.217(**)	.200(**)	.599(**)	-.127(*)	Pearson Correlation	Knowledge Application
.000	.001	.000	.037	Sig. (2-tailed)	
269	267	267	269	N	
.448(**)	.367(**)	.215(**)	-.173(**)	Pearson Correlation	Knowledge Protection
.000	.000	.000	.005	Sig. (2-tailed)	
269	267	267	269	N	
267	266	267	267	N	

.518(**)	1	.326(**)	-.173(**)	Pearson Correlation	Attitude twords

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Variables Entered/Removed(c)

Method	Variables Removed	Variables Entered	Model
Enter	.	Firm Size, Market Share(a)	1
Enter	Knowledge Acquisition	Knowledge Application, Knowledge Protection (b)	2

a Tolerance = .000 limits reached. b All requested variables entered.

c Dependent Variable: Intension to sharing

Model Summary(c)

Change Statistics			R	R	

Sig. F Change	df2	df1	F Change	R Square Change	Std. Error of the Estimate	Adjusted R Square	Square		Model
.665	244	2	.409	.003	.651	-.005	.003	.058(a)	1
.000	241	3	55.357	.407	.504	.398	.410	.640(b)	2

Predictors: (Constant), Firm Size, Market Share

Predictors: (Constant), Firm Size, Market Share, Knowledge Application, Knowledge Protection

Dependent Variable: Organizational Effectiveness

ANOVA(c)

Sig.	F	Mean Square	Df	Sum of Squares		Model
.665(a)	.409	.173	2	.347	Regression	1
		.424	244	103.441	Residual	
			246	103.788	Total	
.000(b)	33.487	8.509	5	42.547	Regression	2

		.254	241	61.241	Residua l	
			246	103.788	Total	

Predictors: (Constant), Firm Size, Market Share

Predictors: (Constant), Firm Size, Market Share, Knowledge Application, Knowledge Protection

Dependent Variable: Organizational Effectiveness

Coefficients(a)

Collinearity Statistics		Sig.	t	Standardized Coefficients	Unstandardized Coefficients			Model
VIF	Tolerance			Beta	Std. Error	B		
		.000	30.279		.055	1.657	(Constant)	1
1.046	.956	.681	.412	.027	.088	.036	Firm Size	
1.046	.956	.484	.700	.046	.100	.070	Market Share	
		.046	2.002		.120	.240	(Constant)	2
1.070	.934	.960	-.050	-.003	.069	-.003	Firm Size	
1.069	.936	.635	.476	.024	.078	.037	Market Share	
1.495	.669	.001	3.273	.198	.068	.223	Knowledge Application,	
1.919	.521	.001	3.361	.230	.075	.251	Knowledge Protection	

a Dependent Variable: Organizational Effectiveness

Excluded Variables(c)

Collinearity Statistics			Partial Correlation	Sig.	t	Beta In		Model
Minimum Tolerance	VIF	Tolerance						
.000	.	.000	.	.	.	.(a)	AGE1	1
.955	1.002	.998	.459	.000	8.065	.459(a)	Knowledge Acquisition	
.000	.	.000	.	.	.	.(b)	AGE1	2

Predictors in the Model: (Constant), Firm Size, Market Share

Predictors in the Model: (Constant), Firm Size, Market Share, Knowledge Acquisition

Dependent Variable: Organizational Effectiveness

Collinearity Diagnostics(a)

Variance Proportions						Condition Index	Eigenvalue	Dimension	Model
Shared Goals	Knowledge Application	Knowledge Protection	Firm Size	Market Share	(Constant)				
			.10	.10	.10	1.000	2.025	1	1
			.87	.23	.08	1.859	.586	2	
			.03	.67	.82	2.281	.389	3	
.00	.00	.00	.01	.01	.00	1.000	4.559	1	2
.00	.00	.01	.68	.10	.00	2.468	.749	2	
.00	.00	.00	.28	.84	.00	2.934	.530	3	
.61	.01	.41	.00	.01	.04	8.191	.068	4	
.00	.25	.11	.00	.03	.83	8.959	.057	5	
.38	.73	.47	.02	.00	.13	10.987	.038	6	

a Dependent Variable: Organizational Effectiveness

Casewise Diagnostics(a)

Residual	Predicted Value	Organizational Effectiveness	Std. Residual	Case Number
1.88	2.45	4	3.730	105
1.68	2.65	4	3.333	214

Dependent Variable: Organizational Effectiveness

Residuals Statistics(a)

N	Std. Deviation	Mean	Maximum	Minimum	
247	.416	1.69	2.71	1.06	Predicted Value
247	.499	.00	1.88	-1.24	Residual
247	1.000	.000	2.469	-1.505	Std. Predicted Value
247	.990	.000	3.730	-2.459	Std. Residual

Dependent Variable: Organizational Effectiveness

- - - - - - - - - - F A C T O R A N A L Y S I S - - - - - - - - - -

Factor Analysis (1) KMO and Bartlett's Test

.782	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
365.836	Approx. Chi-Square	Bartlett's Test of Sphericity
15	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.395	1.000	AKS 1
.584	1.000	AKS 2
.699	1.000	AKS

		3
.603	1.000	AKS 4
.508	1.000	AKS 5
.932	1.000	AKS 6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Rotation Sums of Squared Loadings			Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	%of Variance	Total	Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
44.031	44.031	2.642	45.157	45.157	2.709	45.157	45.157	2.709	1
62.010	17.979	1.079	62.010	16.853	1.011	62.010	16.853	1.011	2

						75.949	13.939	.836	3
						85.057	9.108	.546	4
						93.287	8.230	.494	5
						100.000	6.713	.403	6

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component		
2	1	
-.214	.591	AKS 1
.079	.760	AKS 2
.271	.791	AKS 3
.073	.773	AKS 4
.013	.712	AKS 5
.938	-.228	AKS 6

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

Rotated Component Matrix(a)

Component		
2	1	
-.327	.536	AKS1
-.074	.760	AKS2
.108	.829	AKS3
-.083	.772	AKS4
-.129	.701	AKS5
.965	-.037	AKS6

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

a Rotation converged in 3 iterations.

Component Transformation Matrix

2	1	Component
-.200	.980	1
.980	.200	2

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

Factor Analysis (2) KMO and Bartlett's Test

.767	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
299.596	Approx. Chi-Square	Bartlett's Test of Sphericity
10	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.549	1.000	AKS2
.661	1.000	AKS3
.635	1.000	AKS4
.570	1.000	AKS

		5
.044	1.000	AK S 6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
49.171	49.171	2.459	49.171	49.171	2.459	1
			69.166	19.995	1.000	2
			81.078	11.913	.596	3
			91.903	10.825	.541	4
			100.000	8.097	.405	5

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	

.741	AKS 2

.813	AKS3
.797	AKS4
.755	AKS5
-.209	AKS6

Extraction Method: Principal Component Analysis. a 1 components extracted.

Rotated Component Matrix(a)

Only one component was extracted. The solution cannot be rotated.

Factor Analysis (3) KMO and Bartlett's Test

.778	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
288.561	Approx. Chi- quare	Bartlett's Test of

		Sphericity
6	Df	
.000	Sig.	