



**JIMMA UNIVERSITY**  
**COLLEGE OF NATURAL SCIENCE**  
**DEPARTMENT OF INFORMATION SCIENCE**

**MEASURING USERS' SATISFACTION WITH KNOWLEDGE  
MANAGEMENT SYSTEM IMPLEMENTATION IN NATIONAL  
BANK OF ETHIOPIA**

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**OCTOBER, 2014**

**JIMMA , ETHIOPIA**

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A Thesis Submitted to the School of Graduate Studies of -Jimma  
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**Dedicated**

**To**

My beloved family.

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## **Acronyms and Abbreviations**

Abbreviations and acronyms used throughout this thesis are listed below:

|         |   |
|---------|---|
| IS      | Information System                                    |
| IT      | Information Technology                                |
| KM      | Knowledge Management                                  |
| KMS     | Knowledge Management System                           |
| NBE     | National Bank of Ethiopia                             |
| NBE KMS | National Bank of Ethiopia Knowledge Management System |

## **Abstract**

National Bank of Ethiopia had adopted a KMS (specifically Knowledge Portal). However, so far there was no systematic investigation has been conducted to check the actual success of KMS implementation in the bank from users' point of view. This study attempts to measure the effectiveness of KMS implementation efforts in National Bank of Ethiopia and identify potential improvement areas of the system in order to achieve the objectives of KMS in the bank. Mixed research methodology is used to conduct this study. Both qualitative (i.e., semi-structured interviews) and quantitative methods (i.e., questionnaire) of data collection are used for depth investigation of the problem. Using stratified random sampling method, employees are selected from each core directorates of the bank for distributing the questionnaires. Interview sessions were also conducted with the Bank KM team members.

The outcome of this research shows the users are satisfied with operational methods and interface of NBE KMS. They also identified some areas of NBE KMS that needs to be improved, like security measures, online links and expert directory. In terms of social antecedents of KMS, the users' awareness and intension to use KMS is poor.

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background

Knowledge is increasingly being seen as the most important strategic asset in organizations and a crucial resource to achieve sustainable competitive advantage (Drucker, 1999; Ipe, 2003). To gain a competitive advantage organizations must consider how to transfer expertise and knowledge from experts who have it to novices who need to know (Hinds et.al., 2001). Knowledge sharing between employees and within and across teams allows organizations to exploit and capitalize on knowledge-based resources (Damodaran & Olphert, 2000). Besides, knowledge sharing is one of the most important processes of Knowledge Management (KM) (Du, et al., 2007). KM is a systemic and organizationally specified process for acquiring, organizing and communicating knowledge of employees so that other employees may make use of it to be more effective and productive in their work (Alavi and Leidner, 1999). Thus, KM acquires high attention in all sectors, since it is a valuable instrument in improving performance.

Information technology will then give the banking management a new dimension in managing its knowledge and help in carrying out and maximizing the management's initiatives in harmonizing the appropriate strategies in the short and long-term (Edmondson, 2002). In order to effectively manage firms' knowledge assets with the aid of advanced technology, many companies have deployed knowledge management systems (KMS) (Kim, 2008). Specifically financial organizations are paying a high attention to the KMS to derive an excellent benefit (Mohammed, 2011). KMSs are developed to support knowledge management processes in terms of knowledge creation, storage/retrieval, transfer, and application (Alavi & Leidner, 2001). Hence KMS facilitates effective implementation of KM practice in organizations. Maier and Hädrich (2006) also noted that KMSs foster the implementation of KM instruments in support of knowledge processes targeted at increasing organizational effectiveness. As a result, research has indicated that these systems are being adopted rapidly by organisations on a global scale and are effectively improving business performance (Housel & Bell, 2001). Given that organisations adopt knowledge management practices, implement KMS and promote

knowledge sharing in order to minimise risk, increase efficiency within the organisation and primarily to support and help to increase innovation (Krough et al.,2000; Nonaka & Takeuch i, 1995). Thus, many organizations started making significant investments in KMS (Poston and Speier, 2005).

Measuring success of KMS enables the organization to determine whether the systems are having the desired effect or not. Measuring current effectiveness of KMS enables the organization to identify the system weakness and take measures to enhance KM systems performance. Shannak (2009) strength this idea by saying that it is easy if one knows the current performance level, then it becomes possible to track the changes. However, based on the published literature, there are very few studies that investigate KMS deployment in developing countries (Al-Busaidi et al., 2007). Therefore, it is important to carry out a research on organization which has adopted a KMS to understand the current status of the system. In this research venture, a National Bank of Ethiopia (NBE) is chosen which implements an KMS to support KM efforts of the bank. To address this issue, this paper focuses on a particular type of KMS, which is knowledge portal that presents the potential of providing organizations with a rich and complex shared information workspace for the generation, exchange, and use of knowledge. In addition, this research intends to provide some rather interesting background information where weakness and strength of the existing KMS at NBE is analysed.

## **1.2 Statement of the Problem**

Because of the potential benefits that can be realized from knowledge sharing, many organizations have invested considerable time and money into knowledge management initiatives including the development of KMS. Despite these investments, as a result of failing to share knowledge, companies lose at least \$31.5 billion per year (Babcock, 2004). Ong and Lai (2007) also support this idea by saying, even though organizations have invested large sums of money in developing and introducing KMS to employees, little attention has been paid to assessing the actual effectiveness of KMS. According to Jennex and Olfman (2004) once a KMS is implemented, whichever type it is, its success or effectiveness needs to be determined. Therefore, organizations should be able to measure KMS's performance, in order to utilize their KMSs efficiently (Strassmann, 1999; cited on Shannak , 2009). Therefore it is important to make sure that users accept the existing NBE KMS and use it effectively.

NBE has adopted a KMS 2 years ago, which is a web based KMS (specifically knowledge portal) that enable the employees of the bank to share knowledge through the intranet. However according to NBE team members, so far there was no systematic investigation has been conducted to check the success of KMS implementation in the bank and identify problems and patterns which will lead to better understanding of barriers of KMS implementation and usage of KMS from users' point of view. Hence, this research is going to contribute in filling this knowledge gap.

### **1.3 Research Questions**

This study attempts to answer the following questions:

1. How employees perceive and use KMS in NBE?
2. What are the shortfalls of existing NBE KMS?

### **1.4 Objective of the Study**

#### **1.4.1 General Objective**

The main objective of this research is to measure users' satisfaction level of KMS implementation in NBE, with the aim of identifying potential improvement areas of the system.

#### **1.4.2 Specific Objectives**

The specific objectives of this study are:

- ⇒ To understand employees' perception towards KMS
- ⇒ To evaluate the extent of KMS usage by employees of NBE
- ⇒ To analyse users satisfaction level with NBE KMS.
- ⇒ To identify shortfalls of existing KMS from user's point of view

### **1.5 Significance of Study**

In our country (Ethiopia), studies have been conducted on the issue of KM. Most of these researches focus on exploring knowledge sharing practices on different organizations. There are also a few studies conducted to analyse the role of information technology in KM processes (to mention some of them Fraol, L. (2009), Fanos et al. (2012)). However, this study conducted specifically on KMS implementation issues. In general KMS have been the subject of considerable interest by academics and practitioners over the past decade, yet little cumulative

research has been conducted to establish the mechanisms under which KMS effectiveness is most likely to occur (Benbya and Belba, 2005).

Measuring KMS effectiveness is important to provide a basis for company valuation, to stimulate management to focus on what is important (Jennex et al. 2007). This kind of researches makes a contribution to the effective implementation of KMS in the organizations.

The following specific significances will be obtained from the result of this study

- ⇒ The results are sources where improvements can be carried out to the existing NBE KMS.
- ⇒ Based on the analysis of the data compiled, a number of problems and patterns were identified which will led to better understanding of the usage of KMS.
- ⇒ Uses as an input to improve the functionality and usability of NBE's KMS.
- ⇒ It helps NBE to secure a certain degree of usage before the system is put into full operation.
- ⇒ Provides some rather interesting background information where difficulties and benefits learned by NBE employees in the implementation process of KMS.

The findings and recommendations of the study will contribute to reach successful implementation of KMS and plays a great role in transforming NBE into a knowledge centric bank. Moreover, lessons learned from implementation of KMS in NBE will help others organizations to understand how these systems should be built and implemented. It also helps the researcher to acquire knowledge and practical experience, and also for the partial fulfilment of the requirements for masters degree in Information and Knowledge Management.

## **1.6. Scope of the Study**

The scope of this study is to measure users' satisfaction level of the existing KMS in NBE. KMS effectiveness cannot be directly measured. Instead, there have been a large number of factors that are indicators or determinants for success of KMS. Form literature review the following variables are identified to measure success of the case study KMS: system quality, knowledge or information quality, perceived KMS benefits, user satisfaction, service quality and system use. This means, the study does not consider the other KMS success indicators (such as culture, commitments, economic returns and other indicators are not discussed in this



study). The study focuses on evaluating KMS success from user's point of view in order to improve design and functionality of the existing KMS. That means, the study does not consider the organizational effectiveness of the system. The scope of this study is also limited to KMS implementation process of NBE in Addis Abeba, Ethiopia. This study mainly focuses on primary target users (core directorates) of NBE.

### **1.6. Organization of the Thesis**

This thesis is organized into five chapters. Chapter one introduces the background of the study, problem of the study areas, significance of the study, the research objectives, research questions and scope and limitations of the study. Chapter two covers the review of the related literature that includes a conceptual explanation on how to evaluate KMS success and other related topics. Chapter three presents the research design and methodology that used to carry out this research. Chapter four presents the study findings, and presentation of the results. Finally, Chapter five comprises conclusions and recommendations of the findings.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1. Introduction**

Information technology (IT) gives a new dimension in managing organizations knowledge. According to Mohammed (2011), information technology plays a major factor in expanding the dimension of knowledge management base in the financial organizations by processing the knowledge management. As Alavi and Leidner (1999) finds that IT can lead to a greater breadth and depth of knowledge creation, storage, transfer, and application in organizations, as well as to faster and higher quality knowledge creation, storing, transfer, and application.

#### **2.2 Knowledge**

In order to understand knowledge management Systems, it is necessary to first define the term knowledge. The term knowledge is discussed within in many scientific disciplines, and also in politics, religion and philosophy (Land, 2009). The most important distinction to today's (scientific) use of the term knowledge is that the Greeks philosophers. Early thinkers such as Plato and Aristotle were followed by Hobbes and Locke to name just a few of the more prominent western philosophers (Benbya et al., 2004). As noted by Maier (2007), most of these philosophers believed in the notion of an objective reality which would be knowable by a systematically or scientifically observing and analysing subject and therefore knowledge would represent objective truth.

When we come to field of Knowledge Management, knowledge has been defined in many ways. To mention some of them: Nonaka (1994) suggests that Knowledge is individuals justify the truthfulness of their beliefs based on their interactions with the world. Land et al. (2006) echoes this view , Knowledge is what the individual believes to be true. That belief is socially constructed and reflects the individual's perceptions, memories, and experiences. Ali et al. (2006) add another view, that Knowledge is an understanding gained through experience or learning the sum, or a subset, of what has been perceived and discovered by an individual. According to this view, Knowledge exists in the minds of individuals and is generated and shaped through interaction with others. Others have a more restrictive view and suggest that knowledge exists only in the human mind and "new" knowledge is created by a cognitive act

associating what is in the mind with information perceived via the senses ( Wilson, 2002, as cited in Land, 2009). These definitions suggests that knowledge is personalized, in order for an individual's or a group's knowledge to be useful for others.

Some authors also consider knowledge as something other than just an individual's understanding of the true facts of the world. According to Davenport and Prusak (1998 ) Knowledge is a fluid mix of framed experience, values, contextual information, and expert insights that provides a framework for evaluating and incorporating new experiences and information. Which means Knowledge originates in and is applied in the minds of knower's.

Other authors consider knowledge as a capability. Knowledge can be regarded as the potential capability to affect a particular task and action (Dawson, 2000). Similarly Alavi and Leidner (2001) define knowledge as a belief that improves an entity's capacity for action effectively. Rumizen (2002) also defines knowledge as Information in context to produce actionable understanding. These definitions have a notion of knowledge as a practical tool for framing experiences, sharing insights, and assisting with practical tasks.

The definitions of knowledge also found in the Information systems (IS) literature. A common view of knowledge in most IS literature is based on the hierarchy of data, information, and knowledge. To understand this view, it is important to distinguish the difference between data, information, and knowledge. Machlup (1983) defines data as a raw numbers and facts, and information is processed data, and knowledge is authenticated information. Thus information is the "commodity capable of yielding knowledge," and knowledge is "a high value form of information that is ready to apply to decisions and actions" (Davenport, 1998). Hence Knowledge is not data or information.

Alternatively, hierarchy from data to information to knowledge with each varying along some dimension, such as context, usefulness, or interpretability. According to Jones And Leonard (2009) data is simply raw facts without context, whereas information is data that comes with context. The continued use and understanding of this information will turn it into knowledge. Knowledge is information that is contextual, relevant, and actionable (Fraol, 2009). This shows knowledge is a multidimensional construct with more complex characteristics than those of information ( Kulkarni, 2007, as cited in Kim, 2008).

Finally the lesson from the prior literature is that, there are many different definitions of the term knowledge lead to different perspectives on knowledge. Therefore, it is better to adopt a definition that matches this research context, and avoid confusions. Considering the many views of knowledge, the researcher has adopted a definition that in my judgment leads to a workable notion of knowledge management systems in organizational settings. The adopted definition, based on the work of Maier and Hädrich (1994), is: which is from the perspective of KMS, knowledge is information that is meaningfully organized, accumulated, and embedded in a context of creation and application.

### **2.3 Knowledge Management**

In today's global market, organizations are facing a competitive environment characterized by the globalization of markets, increasingly complex business problems, and the acceleration of change phenomena (López, 2009). In face of the volatility and rate of change in business environment, effective management of knowledge of organization is undoubtedly recognized as perhaps, the most significant in determining organizational success (Ong & Lai, 2004). Hence more and more organizations are realizing how important it is to know what they know, improve what they know and be able to make more effective use of their knowledge (Hussain et al., 2004). As noted by Kankanhalli et al. (2006) in a knowledge-based economy, organizations find it difficult to compete based upon the individual knowledge of a few organizational members. This provides the rationale for knowledge management wherein organizational knowledge must be shared, combined, and reused in order to enable organizations to compete more effectively.

In recent decades, knowledge has been recognized as organizations' key resource (Ipe, 2003). Consequently, the traditional sources of competitive advantage, such as protected markets, and physical and financial assets, have lost importance compared to knowledge assets (Johnston and Rolf, 1998). As a result a confluence of forces led to the widespread rise of knowledge organizations, and the accompanying interest in more fully understanding these organizations and their possibilities (Bennet & Bennet, 2003). This has contributed to the growing interest in the concept of knowledge management.

The need for knowledge management is based on a paradigm shift in the business environment where knowledge is now considered to be central to organizational performance and integral to the attainment of a sustainable competitive advantage (Nonaka & Takeuchi, 1995; Drucker, 1993). Alex et al. (2012) notes that as organizations strive to improve innovative capabilities and competitiveness in today's rapidly changing economic environment, their attention is increasingly focused on how they manage their intangible assets. The view of knowledge as a resource that can be used to leverage other organizational resources suggests that knowledge management (KM) practices are important drivers of innovativeness and business performance.

According to Land et al. (2006) Knowledge management (KM) as a topic for academic research and practical implementation, has had a short history dating back only to the early 1990s. Thus, it is not surprising that there seem to be almost as many definitions to the term than there are approaches or "schools" of authors contributing to the field (Maier, 2007). For example, Davenport et al. (1998) defines knowledge management as a process of collection, distribution and efficient use of the knowledge resource. For King (2007), Knowledge management is the planning, organizing, motivating, and controlling of people, processes and systems in the organization to ensure that its knowledge-related assets are improved and effectively employed. Jasimuddin et al. (2006) see Knowledge management as a discipline that promotes an integrated approach to identifying, capturing, storing, retrieving, and transferring an organization's knowledge so as to enhance its competitive advantage. Bounfour (2003) suggests that knowledge management is a set of procedures, infrastructures, and technical and managerial tools, designed to create, share and leverage information and knowledge within and around organizations .

Some authors also consider KM as a process of managing knowledge. According to Alavi and Leidner (2001) Knowledge management is mostly considered as a process. King (2009) give explanations on the idea of Alavi and Leidner, Knowledge management focuses on knowledge processes: knowledge creation, acquisition, refinement, storage, transfer, sharing and utilization. These processes support organizational processes involving innovation, individual learning, collective learning and collaborative decision making.

Nonaka (1994) also identified four ways of managing knowledge:

- **Socialization (S):** the process of sharing tacit knowledge through shared experiences. As apprentices learn the craft of their masses through observation, imitation, and practice, so do employees of a firm learn new skills through on the job training.
- **Externalization (E):** where tacit knowledge is articulated into explicit knowledge with the help of metaphors and analogies. Externalization is triggered by dialog and collective reflection.
- **Combination (C):** the process of converting explicit knowledge into more systematic sets of explicit knowledge.
- **Internalization (I):** where explicit knowledge is converted into tacit knowledge. This usually occurs when explicit knowledge is put into practice. It is also related to shared mental models and work practices.

These interactions build a continuous spiral from the individual to organizational level.

Even though there is no universal definition of KM, according to King (2009) most of scholars agree that the main objectives of KM are leveraging and improvement of the organization's knowledge assets to effectuate better knowledge practices, improved organizational behaviours, better decisions and improved organizational performance. Therefore if organizations implement knowledge management practices successfully they are able to perform intelligently to sustain their competitive advantage by developing their knowledge assets (Wigg, 1999).

In Ethiopia, knowledge management is a new concept to most organizations. According to Fanos et al. (2012) little or no attention is provided to knowledge generation and sharing mechanisms and approaches in Ethiopia. However some authors have conducted researches on the knowledge management area. One of these researchers is Hareya (2011), in her study she investigated the knowledge sharing culture among employees of Mesfin Industrial Engineering (MIE). The study identified factors that affect knowledge sharing. This research findings shows that IT infrastructures, personal benefits, management problems, individual attitudes, individual willingness, interaction and communication skills and knowledge storage mechanisms are major problems that affect employees knowledge sharing in organizations. Habtamu (2011) also conducted a research on knowledge sharing practice. He

had had used a mixed research methodology to evaluate the knowledge sharing practice of COMMERCIAL BANK OF ETHIOPIA. The result of his study shows that knowledge sharing is still in its infancy stage among employees. And recommends that as today's knowledge based economy, effects concerning the globalization and increasing turnover rate, Ethiopian organizations should have to give attention to knowledge management.

## **2.4 Knowledge Management Systems**

In recent years, several researchers have associated knowledge management with the development of information and communication technologies, (ICT) (King, 2005). The reason behind is that knowledge management comprises activities related to the creation, representation, storage, and dissemination of knowledge, and that Information and Communication Technologies (ICTs) provide the tools to enable these activities to be performed effectively (Bontis et al., 1999) . Hasanali (2002) said that, technology is a basis for effective KM progress and implementation in organizations.

ICT allows the movement of information at increasing speeds and efficiencies, and thus facilitates sharing as well as accelerated growth of knowledge (Becerra-Fernandez & Sabherwal, 2006). Furthermore increasingly documents are being stored electronically. Thus knowledge objects are stored in databases that allow flexible and fast access and retrieval. Various ICT enabled functions support this access (Fink & Disterer, 2006). In this case, the role of ICT is to provide access to sources of knowledge and, with the help of shared context, to increase the breadth of knowledge sharing between persons rather than storing knowledge itself (Alavi & Leidner 2001). ICT can also facilitate tacit knowledge sharing among organization members. ICT platform is capable of linking, with the ideal being able to connect to anyone, anywhere (Keen,1991). ICT enable individuals to contact remotely located experts and seek detailed solutions to complicated problems. Overall, knowledge management can be facilitated by the organization's ICT infrastructure.

ICT also provide a platform to the implementation of KM applications. Consequently, organizations are beginning to implement information systems designed specifically to facilitate the KM process (Bartlett, 1996). Such systems are referred to as Knowledge Management Systems (KMS). KMSs are technologies that support knowledge management in

organizations, specifically, knowledge generation, codification, and transfer (Ruggles, 1997). Thus, a KMS is the technological part of a KM initiative that also comprises person-oriented and organizational instruments targeted at improving the productivity of knowledge work (Maier, 2004). KMS generally addresses information and communication technologies used for knowledge management.

KMS is a very broad concept and subsumes a range of systems that differ in many ways (Gallupe 2000). Several authors had classified KMS using different basis. For example Becerra-Fernandez et al., (2004) classifies KM Systems into four types, depending on the KM process most directly supported: knowledge-discovery systems, knowledge-capture systems, knowledge-sharing systems, and knowledge-application systems. Knowledge-discovery systems support the process of developing new tacit or explicit knowledge from data and information or from the synthesis of prior knowledge (Eg. Data mining). Knowledge-capture systems support the process of retrieving knowledge that resides within people, artifacts, or organizational entities (Eg. Expert systems, lessons learned databases and Artificial Intelligence based knowledge acquisition). Knowledge-sharing systems support the process through which explicit or implicit knowledge is communicated to other individuals ( Eg. knowledge portals and expertise locator systems). Knowledge-application systems support the process through which some individuals utilize knowledge possessed by other individuals without actually acquiring or learning that knowledge (Eg. decision support systems and enterprise resource-planning systems (ERPs)). Additionally, other researchers also consulted a number of KMS categorization schemes. Marwick (2001) classifies the KMS and KMS tools by the mode of Nonaka's (1994) SECI model (socialization, externalization, combination, and internalization) being implemented. The other interesting categorization method is the classifying KMS into integrative and interactive KMS (Zack 1999). Integrative KMS support the codification of knowledge and search and retrieval as well as the administration of knowledge repositories and the organization of knowledge structures. Interactive KMS or KMS tools support the transfer of tacit knowledge by facilitating communication between the knowledge source and the knowledge user.

Regardless of the classification of the KMS, the ultimate aim of KMS is to support the dynamics of organizational learning and organizational effectiveness (Maier, 2004). Likewise,



KMSs foster the implementation of KM instruments in support of knowledge processes targeted at increasing organizational effectiveness (Maier & Hädrich, 2006). Robles-Flores & Kulkarni (2005) observes KMS benefit from different dimension. From the organization's perspective, a KMS facilitates organizational learning and perpetual maintenance of organizational memory through knowledge repositories. In addition, KMS's allow effective dissemination of best practices, lessons learned, and expertise. From the knowledge worker's perspective, a KMS facilitates capture of individual knowledge and search and retrieval of previously stored relevant organizational knowledge for application in their own context. KMS's also allow knowledge workers to connect with other experts to exchange tacit knowledge through knowledge networks.

In order to conceptualize and integrate knowledge into organizational processes as well as to facilitate continuous organizational learning, organizations employ knowledge management systems (KMS) (Davenport, 2005). According to Tsui (2003) KMS are applied in a large number of application areas, e.g., in product development, process improvement, project management, post-merger integration or human resource management. In fact, a 2000 survey conducted by KPMG Consulting shows that the use of KMS is common in organizations worldwide and has numerous benefits (KPMG, 2000 cited on Benbya et al., 2004).

In Ethiopia, knowledge management happens often person to person. However, recently some organizations started to support KM efforts by ICT tools such as Woreda Knowledge Centers (WKC), E-government portals and National Bank of Ethiopia KMS. According to Fraol (2009) ICT tools have positive influence on agricultural knowledge Management services in Ethiopia. The most typical observed is that WKC facilitates access to new information which support transformation of subsistence agriculture system into market oriented agricultural development. Nevertheless, IT based KM is still in its infancy stage in Ethiopia (Fanos et al., 2012). On the other hand, based on the published literature, there are very few studies that investigate KMS deployment in developing countries (Al-Busaidi et al., 2007).

KMS offers developing countries an effective and efficient way to build their human resources and consequently prepare them for a knowledge-based economy (Al-Busaidi et al., 2010). According to World Bank (2003), the deployment of KMS is very essential for developing countries to efficiently manage their knowledge and build their human resources.

## **2.5 Knowledge portals**

As the basis of value creation and success of organizations increasingly depends on the leverage of knowledge available internally, KMS are emerging as vital tools for competitive advantage. Among these KMS, Knowledge portals (corporate portals) present the potential of providing organizations with a rich and complex shared information workspace for the generation, exchange, and use of knowledge (Benbya et al., 2004). Knowledge portals are a type of Knowledge Management System (KMS) that strive to provide a ‘one-stop knowledge shop’, that is, a single point of access to the knowledge available in an organization (or even beyond), reprocessed in such a way that it is useful and applicable for a knowledge-seeking user (Loebbecke and Crowston, nd). According to Mansourvar and Yasin (2010) knowledge portals are general KMS that provide the facility for organizations or companies to share, create, exchange and reuse knowledge.

Knowledge portals use different formats to support organizational KM efforts. Using a different perspective, Benbya et al. (2004) classified the key features of Knowledge portals in three categories namely; core capabilities, supportive capabilities and web services. Core capabilities include taxonomy (also called classification or categorization schemes), publishing, search, personalization, integration and collaboration. Supportive capabilities consist of security, profiling and scalability.

The role of knowledge portal play in supporting knowledge work tasks and the component technologies embedded in portals, such as gathering of distributed/scattered document, information indexing and text search and categorization (Goswami, 2007). Staab and Maedche (2002) also noted that the aim of knowledge portals is to make knowledge accessible to users and to allow users the exchange of knowledge. Knowledge portals specialize in a certain topic in order to offer deep coverage of the domain of interest and, thus, address a community of users. Knowledge Portals also help make more efficient use of an individual’s time, one of the most important organizational resources (Pickett and Hamre, 2002). With the ever-increasing glut of data, it is essential to provide an organization’s constituencies with focused information that can facilitate better decision making.

## **2.6 Knowledge Management Systems Success**

A successfully implemented KMS can provide many benefits to the organization. The benefits of using KMS are high because they include the ability of organizations to be flexible and to respond more quickly to changing market conditions, and the ability to be more innovative as well as improve decision making and productivity (Harris, 1996). Benefits of KMS have been witnessed in many companies. Ford, Chevron, Texas instrument are obvious examples; these companies have saved many million dollars through the use of efficient KMS (Bose, 2004). By taking this into consideration, Knowledge management initiatives in organizations are consequently increasingly becoming important and firms are making significant IT investments in deploying KMS (Hahn & Subramani, 2000). Large amount of money spent for KMS implementation. However this does not guarantee of its accomplishment (Malhotra et al., 2003). Malhotra (2005) reported that, for different reasons 70% of the surveyed KMS failed.

KM literature has identified a wide range of factors that influence successful implementation of KMS. A main reason for failure of KMS is lack of user centred system design (Wang and Noe, 2010). The other possible reason is that, it is not yet fully understood by organizations on how they can successfully implement KMS (Tseng, 2008).

## **2.7 Knowledge Management Systems Success Models**

From the perspective of KM academics and practitioners, the measurement of KMS success is crucial to understanding how these systems should be built and implemented (Andone and Sireteanu, nd). Measuring KM success is also important to provide a basis for company valuation, to stimulate management to focus on what is important, and to justify investments in KM activities (Turban and Aronson, 2001). Unfortunately according to Ong and Lai (2007), there are very few empirical studies that examine this issue in the field of KM. As a result Alavi and Leidner (2001) suggested that KMS research and development should preserve and build upon the significant literature that exists in different but related fields.

KMS is a class of information system (IS) that manage organizational knowledge. Wu & Wang (2006) supports the above idea by defining KMS as an information system developed to support and enhance the organizational processes of knowledge creation, storage and retrieval,

transfer, and application. Therefore IS related studies provides a foundation for research in the KMS domain.

IS literature provides several definitions and measures of IS success. Long ago IS studies recognized users' perceptions and attitudes as factors of system effectiveness. In particular, a comprehensive work by DeLone and McLean (2003) identified three quality dimensions affecting use behaviour and user satisfaction in IS: system quality, information quality and service quality. DeLone and McLean IS Success Model (D&M IS Success Model) is a dominant model for measuring IS success. In total, DeLone and McLean has identify six dimensions of IS success, namely system quality, information quality, service quality, use, user satisfaction, and net benefits. These dimensions incorporate both organizational and socio-technical perspectives of an IS.

DeLone and McLean's IS success model has received much attention among IS researchers, and it provides a foundation for research in the KMS domain (Jennex, and Olfman, 2003). However, from KM point of view the past promising applications of user satisfaction in IS research had limitations because most factors of these instruments were mainly related to information product/quality. According to Karlinsky and Zviran (2012) ,KMS differ from IS in that they are designed to not simply provide access to data or information, but to extract the pieces of information relevant to the user in a specific situation. Another important difference between IS and KMS is content of these systems, KMS is as the representativeness of knowledge, which is different from information. Unlike information, knowledge in organization remains uncoded and is tacit since it exists only in the minds of individuals throughout the organization (Ragowsky, 1996). Thus, the characteristics of a KMS are different from those of an IS.

Beside these difference between IS and KMS, user's perceptions and attitudes are commonly used in predicting both systems effectiveness, with modifications to some parts of D&M IS Success Model to accommodate the unique characteristics of KMS (Terill and Flitman 2003). Many researchers have used DeLone and McLean's (D&M) IS Success Model (2003) as underlying framework for the KMS success model. To mention some of most cited ones, Jennex and Olfman (2003), Wu and Wang (2006) and Maier (2007) used DeLone and McLean (2003) IS Success Model as the theoretical guidance for a KMS success model. These

researchers have altered some dimensions of DeLone and McLean (D&M) IS Success Model (2003) to fit into KMS concepts. For example, knowledge quality substitutes for information quality and refers to the quality of the knowledge/information delivered by the KMS. The following models, found through a review of the literature to determine KMS effectiveness. These models consider success a dependent variable and seek to identify the factors that lead to generating impacts from using KMS.

### 2.7.1 Jennex and Olfman KMS Effectiveness Model

Jennex and Olfman (2003) present a KMS Success/effectiveness model that is based on the DeLone and McLean (1992, 2003) Information System Success Model. Figure 2.1 shows the KMS Success Model. This model evaluates success as an improvement in organizational effectiveness based on use of and impacts from the KMS.

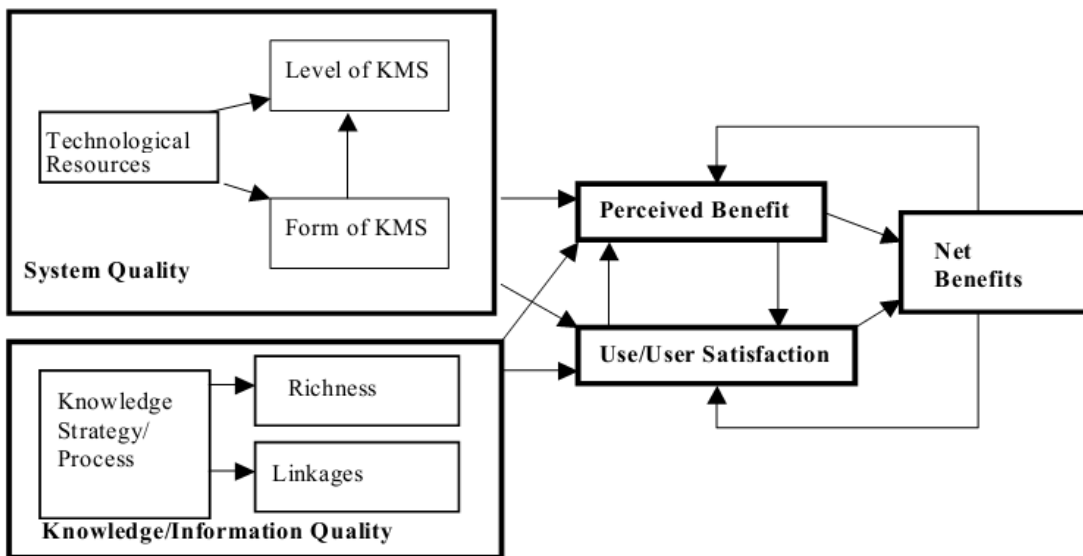


Figure 2.1. Jennex and Olfman (2003) KMS success model

Descriptions of the dimensions of the model follow:

- System quality: Defines how well the KMS performs the functions of KM (creation, storage/retrieval, transfer, and application). System quality dimension includes three factors: Technological resources, Form of KMS and Level of KMS. And it measures how the KMS is supported by the Information System staff and infrastructure.

- Knowledge quality: ensures that the right knowledge with sufficient context is captured and available for the right users at the right time. The Knowledge Quality dimension incorporates three constructs: the KM strategy/process, knowledge richness, and linkages among knowledge components are identified. The KM strategy/process construct looks at the organizational processes for identifying knowledge users and knowledge for capture and reuse, the formality of these processes including process planning, and the format and context of the knowledge to be stored. Richness reflected the accuracy and timeliness of the stored knowledge as well as having sufficient knowledge context to make the knowledge useful. Linkages reflect the knowledge topic maps (listings of expertise available to identify sources of knowledge to users in the organization).
- Use/User Satisfaction: indicates actual levels of KMS use as well as the satisfaction of the KMS users. User satisfaction is a construct that measures satisfaction with the KMS by users. It is considered a good complementary measure of KMS use when use of the KMS is required, and effectiveness of use depends on users being satisfied with the KMS.
- Perceived Benefit: measures perceptions of the benefits and impacts of the KMS by users. It helps to predict consistency of KMS use when use of the KMS is voluntary, and amount and/or effectiveness of KMS use depends on meeting current and future user needs. The knowledge quality and System quality constructs affects perceived benefits and satisfaction.
- Net Impact: An individual's use of a KMS will produce an impact on that person's performance in the workplace. And each individual impact should have an effect on the performance of the whole organization. Net Impact measures the whole effect of KMS on the organization and specifically on individuals.

In general this model recognizes that the System Quality and Knowledge/Information Quality influences Use/User Satisfaction and Perceived Benefit which leads to acquire Net Benefits from KMS.

### 2.7.2 Maier KMS Success Model

Maier (2007) also proposes a KMS success model based on the DeLone and McLean IS success model (1992). This model is similar to the Jennex-Olfman model. A breakdown of the dimensions into constructs is not provided, but specific measures for each dimension are identified. This model consists of three consecutive levels which correspond to the three levels. The first level deals with criteria describing the system itself, the quality of the presentation of knowledge as well as the knowledge-specific service, the development level. The second level comprises the usage and the user's satisfaction, the deployment level. The third and last level finally contains criteria to evaluate the impact of the system's use, the delivery level. This model is illustrated in Figure 2.2 and uses the following dimensions.

- System Quality: measures the following system dimensions response time ease of use, complexity, flexibility, reliability, availability/accessibility, quality of documentation, quality of integration of functions and resource utilization
- Knowledge Quality: category describes the quality of the contents and/or the output of KMS rather than the quality of the system performance and the functions provided. It covers the knowledge stored, distributed and presented by the KMS. It measures the following knowledge dimensions understandability, reliability of contents, currency, accuracy, conciseness, relevance, quality of format and quality of relevance valuations of knowledge elements.
- Knowledge-Specific Service (service quality): assesses to what extent specific roles exist that support the participants of KMS in using the organization's knowledge base. How well subject-matter experts, ICT technicians and KMS managers support the KMS.
- System Use: refers to actual KMS use. It measures number of users, regularity of use, intensity of use, extent of use and frequency of past intended or voluntary use etc.
- User Satisfaction: measures the degree users' satisfaction with KMS. In order to evaluate user's satisfaction participants can be asked for their satisfaction with the contents of the KMS as well as the knowledge structure and visualization of links.
- Individual Impact: refers to the impacts KMS use has on an individual's effectiveness. It assess the perceptions of individuals about the impact of the use of IS in general and

KMS in particular on their behaviour and performance (mostly decisions and productivity in performing a specific task).

- Impact on Collectives of People: the improved effectiveness within teams, work groups, and/or communities that comes from using the KMS. Group performance can be assessed with the same measures as applied for individuals.
- Organizational Impacts: taken directly from DeLone and McLean (1992) and refers to improved overall organizational effectiveness as a result of KMS use. It measures the overall organizational improvements recorded by the KMS use, specifically on financial/sales performance/, competitive advantage, innovations, products and services, impact on business relations, impact on the amount/quality of training and education, impact on building of social networks and reduction of fluctuation.

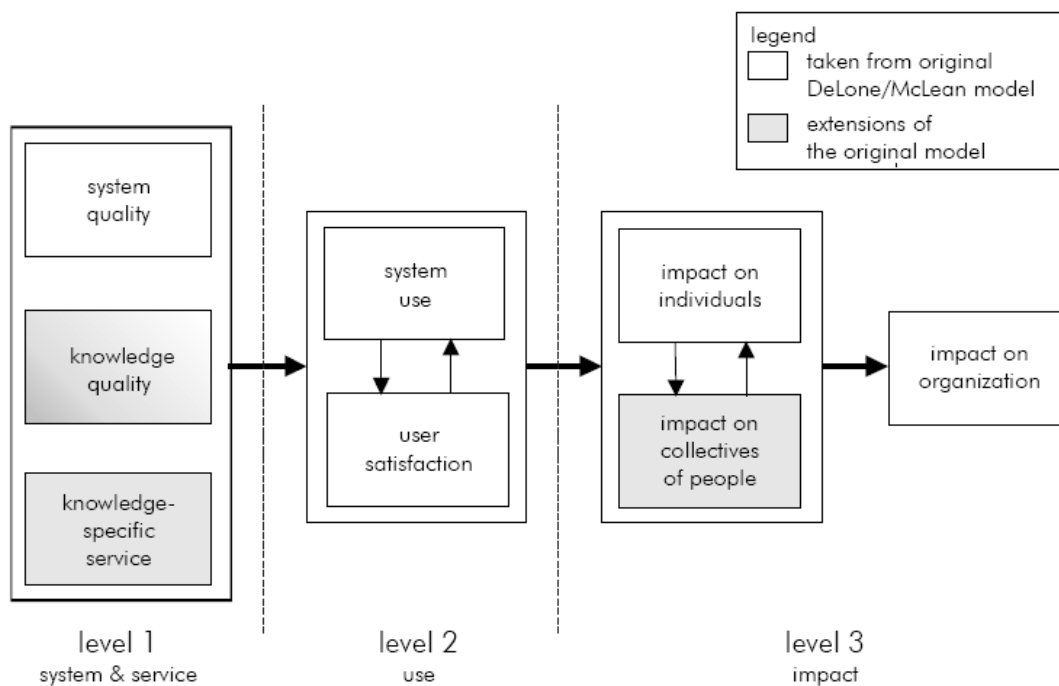


Figure 2.2 Maier (2007) KMS success model

### 2.7.3 Wu and Wang KMS Success Model

Wu and Wang (2006) also used DeLone and McLean's (2003) IS Success Model as the theoretical guidance for a KMS success model. Wu and Wang studies testified knowledge quality, system quality and service quality as important parts of KMS success. System quality



is a measure of KMS in terms of system stability, acceptable response time, a user-friendly interface, and ease of use. Moreover Knowledge or information quality for a KMS, knowledge or information quality is a multidimensional construct having two components: content quality and context and linkage quality. The first is similar to that of traditional IS environment, and the second is made up of special KMS characteristics. Content quality refers to meaningfulness and practicability of knowledge or information provided by KMS. Since it is impossible to capture and store knowledge itself, the best way to use it is to map it in an organized way (Spiegler, 2000). Therefore it is important to assess the knowledge linkage quality of KMS. Linkage quality measures how to a large extent KMS provide complete knowledge portal so that users can link to knowledge or information sources for more detail inquire. In this model the KMS benefits were measured by the perceptions of those using it.

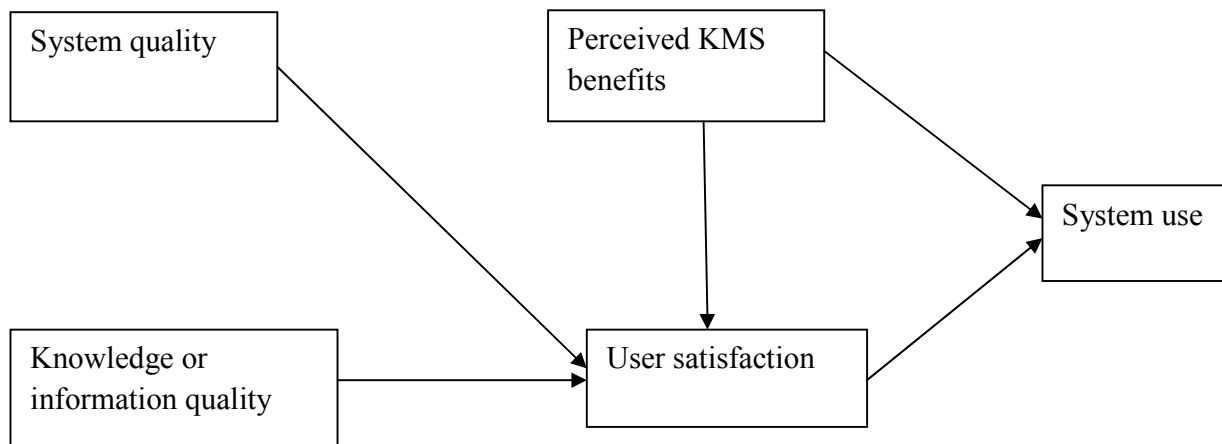


Figure 2.3 Wu and Wang (2006) KMS success model

The empirical results of Wu and Wang study indicated that system quality and knowledge or information quality have a significantly positive influence on user satisfaction. In addition, user satisfaction and perceived KMS benefits had a direct effect on KMS use. In other words user attitude is affected by beliefs about system quality and knowledge or information quality, which then affected KMS use. Users' beliefs about the KMS quality shape their attitude and this affects their KMS use.

From the above literature review it is clear that there is no single way to measure success of KMSs implementation. On the other hand, measurement of KMS success is crucial to

understanding how these systems should be built and implemented. To meet this need several KM and/or KMS effectiveness models are found in the literature. Each model listed several KMS success measurement instruments. Some of these KMS success measurement variables are presented in the literature review. For this research it is necessary to propose a framework for assessing the usefulness of these models. The framework uses these criteria's: how well the model fits actual KMS and the degree to which the model has assessable evaluation criteria's. The framework is then applied to three KMS success models found in the literature and is determined to be a useful framework for assessing KMS success models.

Based on the above criteria, the researcher believes that on Maier KMS Success Model some of performance indicator variables are complex to measure. Specifically measuring impacts of KMS use on organization level and as a group is so difficult. Leila et al. (2008) said that the effects of KMS use on the organizational level are difficult to measure. This is due to the significant challenges that are required for the isolation of organizational impacts due to the use of KMS from the abundance of other factors that influence organizational performance. Furthermore, each individual impact will in turn have an effect on the performance of the whole organization. Organizational impacts are typically not the summation of individual impacts, so the association between individual and organizational impacts is often difficult to draw (Jennex and Olfman, 2004). In the case of impact on collectives of people, the researcher believes impacts observed on groups can be easily measured on individual level. Because KMS use impact on the groups of people, the impacts can be reflected on members of that group. And the other reason is measuring group performance is a complex task. Therefore Perceived Benefit construct will combine all impacts (Individual Impact, Impact on Collectives of People, Organizational Impacts) into a single construct. This combination is also supported by Jennex & Olfman (2003). Wu & Wang, (2006) also suggest that perceived KMS benefits are good predictors of net benefits.

Finally , from a review of the literature and for the purposes of this research six dimensions are identified to measure the case study KMS success, these are: KMS Quality, Service Quality, Knowledge/Information Quality, User Satisfaction, System Use, and Perceived Benefit.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Study Area**

##### **3.1.1 Overview of National Bank of Ethiopia (NBE)**

National Bank of Ethiopia established by Order No. 30/1963 on Federal Negarit Gazeta of the federal democratic republic of Ethiopia. The purpose of the Bank is to maintain stable rate of price and exchange, to foster a healthy financial system and to undertake such other related activities as are conducive to rapid economic development of Ethiopia. The bank has a vision to be one of the strongest and most reputable central banks in Africa. To attain this vision, the bank has stated several goals in relation to maintain price and exchange rate stability, to foster a sound financial system and undertake such other functions as are conducive to the economic growth of Ethiopia (<http://www.nbe.gov.et>, 2014).

##### **3.1.2 Overview of National Bank of Ethiopia Knowledge Management System (NBE KMS)**

To cope with the rapidly changing technologies and in new ways of doing the bank activities, NBE had implemented Business Process Re-engineering (BPR) in 2009. Based on this new reform the bank had developed a KM strategy and created a KM team. This KM team is responsible for the implementation of the bank's KM strategy. By taking developed countries central banks KM practice as a benchmark, NBE KM team had proposed to develop and implement a KMS.

The KMS development proposal was approved by the bank management. In 2010, the bank KM team had developed the first version of NBE KMS. This version only allows employees to share documents and send internal mails. After implementation of the first version NBE KMS, the team had conducted a user need assessment to enhance the system capacity.

In 2011, based on the user need assessment results the team had incorporated some additional features to the previous version NBE KMS. To mention some of these features:

- Share what you have: enable users to attach and send documents to KMS administrators (NBE KM team). Using NBE KMS any employee who had access to the bank intranet and can upload a knowledge document. However this does not mean all uploaded documents will be available on NBE KMS because some of them may be irrelevant or inappropriate for the system. Therefore NBE KM team will first accept all uploaded documents from employees and evaluate the significance of the content of each document. If the document is important it will be posted in its proper category. The categorization of knowledge documents in NBE KMS is based on disciplines that are used intensively in the bank.
- Skill bank repository: provides a collection of reliable documents that will help the bank employees in the construction of knowledge.
- Training materials: this page is designed to share previously conducted training materials for those of who do not get a chance to attain the training.
- Workshop/seminar materials: NBE organize plenty of workshops and seminars for its employees and for other organizations. Therefore with the help of this page workshop/seminar materials will be documented for future use.
- Searching tools: assist the bank employees to find documents from KBE KMS knowledge repository.
- Staff paper: most of NBE directorates are required to conduct a research in each three months interval. With the help of Staff Papers page these research documents will be accessible for every NBE employee.
- NBE LAN Forum: enable NBE employees to exchange ideas with their colleagues. This allows employees to get feedback from experts. It also enables the bank employees to book their views and comments and feedback on the web site.
- Current Awareness: from different sources it provides latest monetary related news around the globe.
- Expert profile: contains employees personal information such as employee's picture, address, skills, expertise and project/research participation information. It provides the necessary information for identifying colleagues and/or experts with the experience sought.
- Online Links: provides external knowledge sources address.

Currently the NBE KM team primary focus is on developing knowledge-friendly behaviours among employees, which should be supported by appropriate process and technology. They had also a plan to develop some additional tools to support knowledge sharing between employees the bank. To mention some of these technologies: Organizational Outlook service, E-library, information service and record management systems.

### **3.2. Methodology of the study**

This research used a mixed research methodology. Both qualitative (i.e., semi-structured interviews) and quantitative methods (i.e., a detailed questionnaire) of data collection are used for depth investigation of the problem.

As described previously, to measure the success of KMS implementation in NBE, the researcher used six factors which are used by Jennex & Olfman (2003), Wu & Wang (2006) and Maier (2007). These three KMS success models were also used as a benchmark for the development of the questionnaire.

### **3.3. Sample Design**

#### **3.3.1. Study Population**

The organization selected for the purpose of this study is National Bank of Ethiopia (NBE). NBE is found in Addis Abeba, Ethiopia. Based on NBE's organizational structure, the bank is organized in 15 directorates (departments). From these directorates some of them are core directorates (which handle the main tasks of the bank) and the rest are supportive directorates. Given that, NBE KMS is designed mainly to support knowledge sharing process between core directorate employees of the bank. Therefore the main target sample population of this research are employees who work in these core directorates.

Derived from strategic plan document of NBE and with the help Knowledge management team, the researcher have selected eight core directorates ( these are: Domestic Economic Analysis and Publication Directorate, Internal Audit and Risk Management Directorate, Economic Analysis and International Relations Directorate, Monetary and Financial Analysis Directorate, Economic Modelling and Statistical Analysis Directorate, Bank Supervision Directorate, Insurance Supervision Directorate ,and Micro Finance Institutions Supervision

Directorate). And only office workers were taken in to consideration to distribute questionnaire.

### **3.3.2 Sample Size**

The survey method is used to collect data on the personal and organizational dimensions of KMS in the organization from the user's perspective. The sample size of employees required for the study was calculated using Cochran's (2007) formula (detail of sample size calculation in presented on Appendix III). Accordingly, among a total of 578 employees working at NBE, 82 employees was selected for the study. Then representative participants are taken from each core directorates. There were a total of 4 employees working in KM team at NBE. Since they were small in number, the total population of NBE KMS team was taken as a sample for the interview.

### **3.3.3. Sampling Technique**

For questionnaire administration appropriate sample was determined by using Stratified random sampling. Stratified random sampling is used in order to avoid bias and to ensure that each employee had an equal chance of being selected and randomization is effective in creating equivalent representative groups. To apply this technique, first the population need to be stratified into sublists (or stratum) according to some relevant trait and then sample from the sublists. In this study grouping system is based on core directorates of NBE. Then from eight core directorates of NBE, representative sample are selected using Systematic random sampling technique.

## **3.4 Data Collection Procedure**

Firstly, the researcher observed KM related works of NBE. Then interview sessions were conducted with KM team members (they are four in number) about their progress on the implementation of KMS and their expectation from this research. Some of the interviews were recorded and an interview report is produced. The interview also used as an input for the development of questionnaire. Finally, a questionnaire survey was conducted. The design of the questionnaires is based on several successful instruments as described in works conducted by Jennex and Olfman (2003), Maier (2007) and Wu and Wang (2006), some modifications

and contextualization were made in order to meet local context (terms used in the bank were included). The questionnaire contains open-ended and close-ended questions.

### **3.5. Data Analysis Procedure**

In this section, the findings from the questionnaire survey are systematically analysed. The quantitative data collected mainly through questionnaire from the users answer were fed to Statistical Package for Social Scientists (SPSS) version 17.0 for analysis. Simple descriptive statistical tools such as percentage, frequency, mean and standard deviation were used to analyse the survey data.

Qualitative data were analysed manually. Some speech marks from the qualitative data that best explain the factors influencing usage of KMS are identified and presented by the participants own words in parallel with the quantitative information to give more insight for the study.

### **3.6 Validity and reliability of data**

The questionnaire was pre-tested by circulating it to 10 employees from different directorates in the Bank to determine the understandability of the items included in the questionnaire. The pre-test was conducted to assure whether they can understand the questions. Since most of the employees are first or second degree holders', they do not face that much difficulty in understanding the questionnaire items. However a few changes have been made on technical terms used in the questionnaire to make all items clear for the participants. This is due to the fact that language can be one of the factors which can lead to misunderstanding and wrong interpretation of the results.

## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSIS

#### 4.1. Introduction

In this section, the responses to the questionnaires that were handed out to employees at NBE are organized, compiled, analysed and interpreted. To gather more information about NBE KMS development process and the overall challenges, structured interview questions were forwarded to the KM team members of the bank. Accordingly, the interviewee's responses are presented to supplement responses obtained through questionnaires. The questionnaires results are supplemented with interview answers collected from NBE Knowledge Management team members.

#### 4.2. Demographic Data

A total number of 72 responses (87% response rate) from the employees were found valid and included in the analysis. Among the respondents 59 (81.9%) were males and 13 (18.1%) were females. Socio demographic characteristics of the respondents are given in Table 4.1.

**Table 4.1. Respondents' demographic profile**

| Descriptions of Respondents | Classification | Frequency | Percentage |
|-----------------------------|----------------|-----------|------------|
| Gender                      | Male           | 59        | 81.9%      |
|                             | Female         | 13        | 18.1%      |
|                             | Total          | 72        | 100        |
| Age                         | <20            | 0         | 0.0%       |
|                             | 20-30          | 55        | 76.4%      |
|                             | 41-50          | 13        | 18.1%      |
|                             | 61 and above   | 4         | 5.6%       |



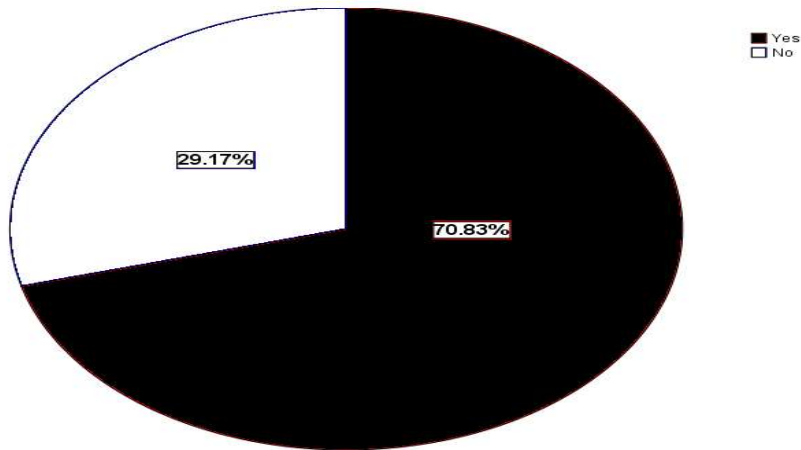
| Descriptions of Respondents | Classification    | Frequency | Percentage |
|-----------------------------|-------------------|-----------|------------|
| Educational level           | Third degree      | 0         | 0.0%       |
|                             | Second degree     | 5         | 6.9%       |
|                             | First degree      | 67        | 93.1%      |
|                             | College diploma   | 0         | 0.0%       |
|                             |                   |           |            |
| Work experience             | <5 years          | 48        | 66.7%      |
|                             | 5-9 years         | 19        | 26.4%      |
|                             | 10-14 years       | 1         | 1.4%       |
|                             | 15-19 years       | 1         | 1.4%       |
|                             | 20 years or above | 3         | 4.2%       |

Based on table 4.1, most of the respondents (76.4%) age is between 20 and 30years. The highest number of respondents (66.7%) stayed in the bank for not more than 5 years. As shown in table 4.1 93.1% of the respondents are first degree holders and the rest 6.9% are second degree holders. This indicates most of the respondents in this study are first degree holders that contribute to both the quality and quantity of the information they will provide.

### **4.3 KMS usage in NBE**

In organizations, KMS can meet its goal when employees use the system effectively in their day to day work activities. System use is one of the most commonly used dimensions for measuring KMS success. Use of KMS could evaluate the extent of KMS usage by measuring frequency, regularity and use of specific KMS functions (like knowledge creation, storage, sharing, and reuse).

**Figure 4.1 Amount of KMS users**



In relation to utilisation of the KMS, respondents were asked about their experience in use of NBE KMS to manage knowledge. There were 51 respondents (70.8%) who said they had used the system, while 21 respondents (29.2%) said they did not use KBE KMS at all. This shows that some of the bank employees are not familiar with NBE KMS.

Even if NBE KMS started giving service 3 years ago, 92.2% of the respondents exercised the system for less than a year. The mean period of KMS usage is 5.96 with the standard deviation value of 5.5. This indicates that most of respondents began to use NBE KMS recently. As NBE KM team leader explanation, a year ago the KMS team had conducted a seminar on the benefits of KMS to NBE employees, which plays a great role in encouraging employees to make an effort to use KMS.

The following questions were asked to participants who said they had used NBE KMS. General questions about usage of KMS, respondents were asked to evaluate what extent the users actually use KMS to make decisions, record knowledge and communicate knowledge and information with colleagues.

**Table 4.2 Extent of specific KMS functionalities utilization**

| Question Items   |   | Strongly disagree | Disagree | Moderate | Agree | Strongly Agree |
|--|---|-------------------|----------|----------|-------|----------------|
| I use NBE KMS to contribute knowledge                                  | N | 22                | 21       | 6        | 1     | 1              |
|  | % | 43.1%             | 41.2%    | 11.8%    | 2.0%  | 2.0%           |
| I use NBE KMS to search knowledge in my work.                          | N | 2                 | 3        | 9        | 31    | 6              |
|  | % | 3.9%              | 5.9%     | 17.6%    | 60.8% | 11.8%          |
| I use NBE KMS to help me to record my knowledge                        | N | 9                 | 29       | 8        | 2     | 3              |
|  | % | 17.6%             | 56.9%    | 15.7%    | 3.9%  | 5.9%           |
| I use NBE KMS to communicate knowledge and information with colleagues | N | 9                 | 24       | 14       | 3     | 1              |
|  | % | 17.6%             | 47.1%    | 27.5%    | 5.9%  | 2.0%           |
| I use NBE KMS to help me make decisions                                | N | 12                | 22       | 12       | 4     | 1              |
|  | % | 23.5%             | 43.1%    | 23.5%    | 7.8%  | 2.0%           |

The amount of knowledge contributed by users is essential to the success of the KMS, which relies on employees' initiative, their willingness to contribute knowledge, and also their actual knowledge contribution. Regarding users' knowledge contribution to NBE KMS, 84.3% of the respondents disagreed or strongly disagreed that they use NBE KMS to contribute their knowledge. This shows most of the respondents does not share their knowledge documents to their colleagues using the bank KMS.

The actual status of the system also supports this view. Based the researcher observation on NBE KMS's database, there were only 30 knowledge documents presented on the system.

From interview with KM team members of the bank, these knowledge documents are collected from 14 different employees of the bank. From this shows only a few employees are contributing their explicit knowledge to NBE KMS. As one of the NBE KM team member disclosed in the interview, in order to motivate employees' knowledge contribution they are

sending appreciation letter for users who had contributed their knowledge to KMS. But this effort did not make that much difference on user's knowledge contribution to the system.

Conversely, knowledge documents which are stored in KMS should be accessed by other users that led to effective reuse of knowledge. Concerning to knowledge utilization, 72.6% of the respondents indicated that they use NBE KMS to search knowledge in their work. From this, it is clear that there is a demand from employees to access knowledge from the KMS. On the other hand, this shows employees prefer to exploit knowledge from KMS rather than contribute their knowledge to KMS.

KMS should be able to support communication, collaboration and interaction between users. Furthermore users should also have to efficiently use these communication tools to enhance tacit knowledge sharing practice in organizations. Regarding to this responses show that most of participants (64.7%) choose disagree and strongly disagree on the use of KMS to communicate knowledge and information with other colleagues. This implies that most of the staffs did not use NBE KMS to exchange tacit knowledge with their colleagues.

One of the main goals of KMS is to support decision making by providing the right knowledge at the right time to the right person. In addition users also should have to refer KMS in interpretive problem solving tasks. Latterly they will develop the necessary skills or procedural knowledge to solve problem. With respect to decision making process in the bank, 66.7% of respondents reported that they did not exploit NBE KMS to get help for making decisions. This shows use of KMS for decision making in the bank is low.

In addition to cooperate KMS tools that are implemented in an organization in a centralized fashion, based on users request some additional tools can be added to KMS (e.g. personal knowledge capturing tools). From the interview held with NBE KM team members noted that they have developed a tool to enable individuals to store their research documents and accept comments from their colleagues. This will help the bank to control employee's research progress. In relation to personal knowledge development, most of respondents (74.5%) strongly disagree and disagree on their use of KMS to record personal knowledge. This shows most the respondents did not use KMS to record and maintain their personal knowledge.

#### 4.4 KMS Quality

KMS quality depends on the intended functionalities of the system. System quality measures the reliability and predictability of the system independent of the knowledge it contains. It is concerned with the quality of the system performance and the functions provided. KMS quality measures KMS's quality using different dimensions such as accessibility, response time and system flexibility. Table 4.3 shows participants response on NBE KMS quality.

**Table 4.3 KMS Quality**

| Question Items  |   | Strongly disagree | Disagree | Moderate | Agree | Strongly Agree |
|---|---|-------------------|----------|----------|-------|----------------|
| NBE KMS is easy to use  | N | 1                 | 6        | 11       | 25    | 8              |
|   | % | 2.0%              | 11.8%    | 21.6%    | 49.0% | 15.7%          |
| NBE KMS response time is acceptable   | N | 0                 | 5        | 12       | 28    | 6              |
|   | % | 0%                | 9.8%     | 23.5%    | 54.9% | 11.8%          |
| Information, Knowledge and files are accessible anytime.  | N | 4                 | 8        | 9        | 23    | 7              |
|   | % | 7.8%              | 15.7%    | 17.6%    | 45.1% | 13.7%          |
| The functionalities of NBE KMS are useful   | N | 1                 | 3        | 18       | 20    | 9              |
|   | % | 2.0%              | 5.9%     | 35.3%    | 39.2% | 17.6%          |
| The functionalities of NBE KMS are appropriate  | N | 1                 | 4        | 15       | 25    | 6              |
|   | % | 2.0%              | 7.8%     | 29.4%    | 49.0% | 11.8%          |
| The functionalities of NBE KMS are sufficient   | N | 6                 | 34       | 9        | 1     | 1              |
|   | % | 11.8%             | 66.7%    | 17.6%    | 2.0%  | 2.0%           |
| In general, this system has all the functions and capabilities that I expect it to have at this stage | N | 1                 | 5        | 17       | 23    | 5              |
|   | % | 2.0%              | 9.8%     | 33.3%    | 45.1% | 9.8%           |

Participants were asked to rate the extent of user friendliness of NBE KMS, 64.7% of the respondents agree and strongly agree that the system is easy to use. And, 21.6% of them has

average attitude towards easiness of the system. While, 13.8% of them are disagree and strongly disagree with the user friendliness of NBE KMS. This implies that the majority of respondents feel that KBE KMS is user friendly.

One of KMS performance measure is response time. Download time, uploading time and knowledge access time are examples of qualities that are valued by users of a KMS. 66.7% of respondents believe that the response time of NBE KMS is acceptable, 23.5% of them have a moderate feeling and 9.8% of the respondents are unsatisfied with the speed of the system. As reflected in above statement, most of the respondents were satisfied with NBE KMS response speed.

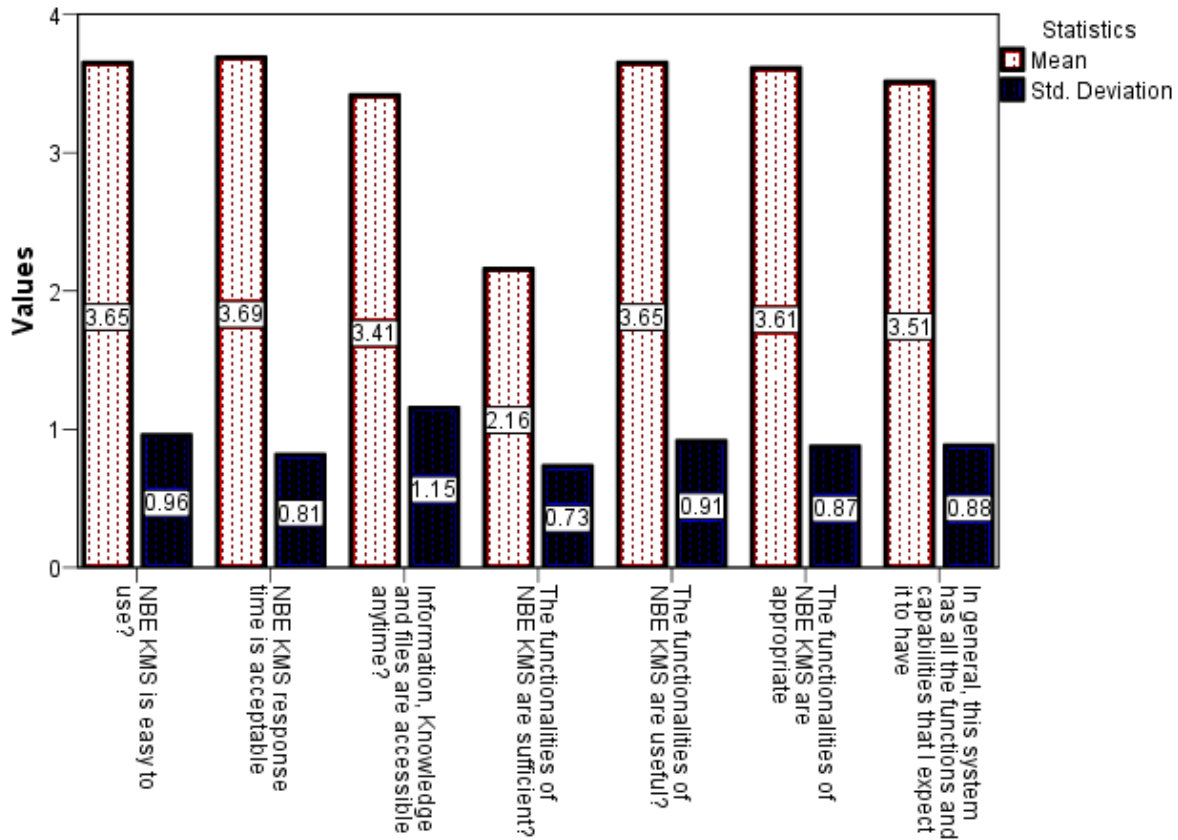
Accessibility of information and knowledge is another aspect used to evaluate KMS quality. Existing Information, Knowledge and files on KMS must be available whenever it is needed for all who need them. For the question that intended to evaluate availability of knowledge documents on NBE KMS, 58.8% of respondents agreed that Information, Knowledge and files on NBE KMS are accessible anytime. However, 23.5% of the respondents disagree with the above response. Based on this result I can say that most of the documents are accessible at any time.

KMS design is consists of the tools and systems that provide the required functionality for effective implementation of knowledge management. Therefore KMS should have to comprise adequate and appropriate functionalities for its users. From this point of view 60.8% of respondents believe that NBE KMS included appropriate functionalities and more than half of them (56.8%) find NBE KMS functionalities important for communication and knowledge sharing practice.

In general most of the respondents (54.9%) believe that NBE KMS has all the functions and capabilities that they expect it to have at this stage. However 78.5% of the respondents believe that only these functionalities are not sufficient to support future KM efforts of the bank. This indicate that majority of the respondents satisfied with the existing NBE KMS functionalities and expect to be added more functionality to NBE KMS in the future.

On a Likert's five point scale a value of 1 was assigned to 'Strongly disagree', 2 'Disagree', 3 'Neutral', 4 'Agree', 5 'Strongly agree'; as such, a low mean score represents high intensity of that variable in terms of reasons for dissatisfaction.

**Figure 4.2 Mean and standard deviation values of KMS Quality phase**



As on figure 4.3 depicted the highest mean value from the KMS Quality phase is 3.69, which is for the question of NBE KMS response time with the standard deviation value of 0.81. The lowest mean value in this phase is for the question related to sufficiency of NBE KMS functionalities (2.16) and the deviation from the mean value is relatively small (0.73). This indicates the respondents need for the bank to improve NBE KMS functionalities is high.

#### **4.5 Knowledge quality**

Knowledge quality assures the quality of the content and the documentation of KMS. This dimension evaluates whether knowledge is timely, relevant and actualized. It uses different measurements to assess the quality of knowledge, such as understandability, up to datedness, accuracy, conciseness, relevance and the quality of the format.

**Table 4.4 Knowledge Quality**

| Question Items   |   | Strongly disagree | Disagree | Moderate | Agree | Strongly Agree |
|--|---|-------------------|----------|----------|-------|----------------|
| The knowledge provided by NBE KMS is easy to understand.                       | N | 1                 | 6        | 11       | 25    | 8              |
|  | % | 2.0%              | 15.7%    | 25.5%    | 41.2% | 15.7%          |
| The knowledge provided by NBE KMS is accurate                                  | N | 1                 | 1        | 16       | 29    | 4              |
|  | % | 2.0%              | 2.0%     | 31.4%    | 56.9% | 7.8%           |
| The knowledge provided by NBE KMS is up to date                                | N | 16                | 28       | 5        | 1     | 1              |
|  | % | 31.4%             | 54.9%    | 9.8%     | 2.0%  | 2.0%           |
| The organization of the information/ knowledge on NBE KMS is clear             | N | 6                 | 25       | 12       | 7     | 1              |
|  | % | 11.8%             | 49.0%    | 23.5%    | 13.7% | 2.0%           |
| The words and phrases in contents provided by NBE KMS are consistent           | N | 10                | 25       | 11       | 3     | 2              |
|  | % | 19.6%             | 49.0%    | 21.6%    | 5.9%  | 3.9%           |
| NBE KMS provide helpful expert directory for my work                           | N | 13                | 27       | 6        | 3     | 2              |
|  | % | 25.5%             | 52.9%    | 11.8%    | 5.9%  | 3.9%           |
| The knowledge or information provided by NBE KMS is meaningful and practicable | N | 8                 | 25       | 12       | 5     | 1              |
|  | % | 15.7%             | 49.0%    | 23.5%    | 9.8%  | 2.0%           |
| In general, NBE KMS provides appropriate content                               | N | 4                 | 35       | 9        | 2     | 1              |
|  | % | 7.8%              | 68.6%    | 17.6%    | 3.9%  | 2.0%           |

Respondents were asked different questions to evaluate the quality of knowledge provided by NBE KMS. The first question asked was about understandability of the knowledge presented on NBE KMS. And respondents response show that, 56.9% of them found it easy to understand and 25.5% of the respondents have moderate attitude. Only 17.6% of the respondents find it difficult to understand. Generally, the impression one gets from the employees' responses is



that they do not face that much problem to understand messages of knowledge documented existed on the KMS.

The other indicator of knowledge quality is correctness of the knowledge. Relating to accuracy of existing knowledge in KBE KMS, 64.7% of the respondents believes that NBE KMS contains accurate knowledge and 31.4 % of them have average feeling about the accuracy of knowledge provided by NBE KMS.

In addition, KMS should provide latest knowledge for its users. In relation to this, more than 85% of the respondents are strongly disagree and disagree on the up to datedness of knowledge documents published on NBE KMS for consumption. This indicates most of the respondents found that majority of the knowledge documents stored on NBE KMS are out dated. Low amount of knowledge document contributions from employees may contribute for this.

The other aspect of knowledge quality is organization of knowledge on KMS. Evaluating knowledge organization aspect allows us to understand whether the classification of knowledge in the KMS matches users' understanding. In other words, the organization of knowledge determines how easily the users can navigate to the knowledge needed. Concerning to organization of knowledge in NBE KMS, 60.8% of respondents strongly disagree and disagree on clarity of knowledge organization on NBE KMS and 23.5% of them have average feelings on this idea. This shows most of the respondents face a problem in finding documents from NBE KMS repository.

The other criterion for measuring knowledge quality is consistency of words and phrases used in labels to represent each knowledge elements in KMS. In relation to uniformity expressions used in NBE KMS, 68.6% of the respondents think that the words and phrases in contents provided by NBE KMS are inconsistent. This may have an effect on efficient utilization knowledge resources of the system.

Most of the above questions focus on the explicit (codified) knowledge. But users can also share their tacit knowledge with the help of KMS, so it is necessary to evaluate the system whether it creates a good environment to support this knowledge sharing. Expert directory is used to quickly provide employees with people who have the desired expertises tacit

knowledge. Moreover an up-to-dated and accurate expert directory helps users to finding the right expert for their problem. In relation to quality of expert directory, 78.4% of the respondents strongly disagree and disagree on the helpfulness of expert directory provided by NBE KMS.

Interviews with the bank KM officer regarding to challenges on the implementation of KMS, he pointed out that there is a problem in finding employees profile from human resource. As a result they have included only few employees' information on Expert directory. This response gives us a clue for why NBE KMS expert directory is not that much helpful for employees.

In KMS, available knowledge should be organized, formatted, and stored in a way that represents meaningful knowledge to the users. From this point of view, 67.7% of respondents strongly disagree and disagree on the meaningfulness and practicability of the existing knowledge or information in NBE KMS. The implication of above result is the knowledge provided by NBE KMS is not helpful for their day to day work task.

In Table 4.4 majority of respondents agreed on easy to understand and accuracy of knowledge provided by NBE KMS. On the other hand the analysis also shows that the respondents have disagreed on knowledge up-to-datedness, clarity of knowledge classification, helpfulness of expert directory , consistency of words and phrases used in contents and practicability of knowledge or information provided by NBE KMS for their work.

Overall most of the respondents (76.5%) do not think that NBE KMS yields appropriate content for its users. Regarding to Knowledge quality related questions result; numbers of negative responses are more than the positive responses. This shows NBE KMS content quality is poor. The bank should have to reassess the content quality of documented presented on the KMS and encourage others to contribute their knowledge to the system.

**Figure 4.3 Mean and standard deviation values of Knowledge Quality phase**

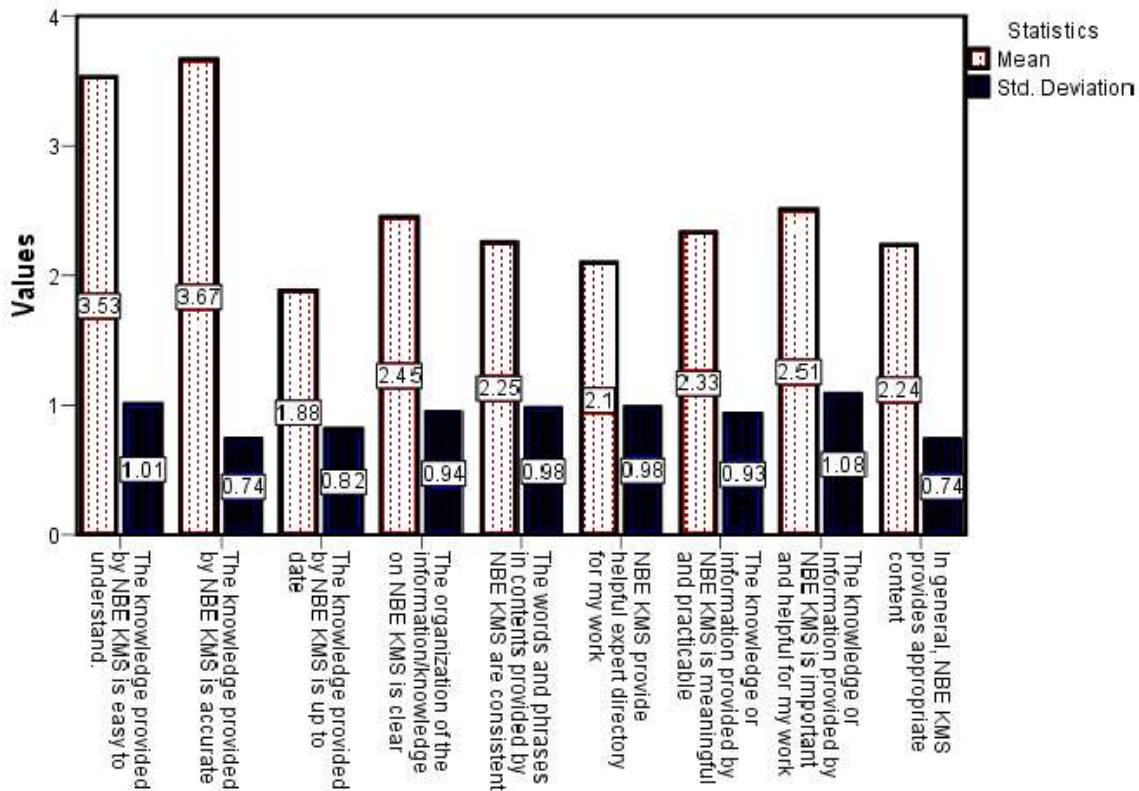


Figure 4.4 shows respondents' views were on the Quality of knowledge available on KMS to promote knowledge sharing. A very strong case in this category is the question in relation to accuracy of knowledge provided on NBE KMS. Another strong case was the understandability the knowledge by the users (3.53). This means the respondents find the knowledge documents on NBE KMS precise and easy understand. In contrast they feel these knowledge documents are not show latest information.

#### 4.6 Service Quality

Service quality refers to the support provided by user organizations to help their personnel to utilize KM. Service quality dimension assesses to what extent the organization KM and ICT staff members give support to end-users. A number of measures are adapted from the literature review to measure KMSs Service Quality, (e.g., reliability, responsiveness, understanding of employees need, and a helpline).

**Table 4.5 Service Quality**

| Question Items   |   | Strongly disagree | Disagree | Moderate | Agree | Strongly Agree |
|--|---|-------------------|----------|----------|-------|----------------|
| NBE KMS provides adequate user help manual.  | N | 13                | 20       | 13       | 2     | 2              |
|  | % | 26.0%             | 40.0%    | 26.0%    | 4.0%  | 4.0%           |
| I trust NBE KMS's security measures.   | N | 12                | 17       | 16       | 3     | 3              |
|  | % | 23.5%             | 33.3%    | 31.4%    | 5.9%  | 5.9%           |
| NBE offers appropriate user training programs regarding to Knowledge Management Systems                                | N | 13                | 19       | 13       | 4     | 2              |
|  | % | 25.5%             | 37.3%    | 25.5%    | 7.8%  | 3.9%           |
| I get quick response from IT technicians and KM team members of the bank whenever I have problem in accessing NBE KMS. | N | 4                 | 6        | 13       | 25    | 3              |
|  | % | 7.8%              | 11.8%    | 25.5%    | 49.0% | 5.9%           |
| NBE knowledge management team discusses consistently with the staff in order to improve the quality of NBE KMS         | N | 5                 | 7        | 31       | 6     | 2              |
|  | % | 9.8%              | 13.7%    | 60.8%    | 11.8% | 3.9%           |

A user manual is developed to assist users in learning to use the KMS, and helps to understand strategies for finding specific knowledge from knowledge base. The manual should guide the users to explore the functionalities of KMS. In this regard, respondents were asked to evaluate completeness of NBE KMS user manual, the result shows 66% of respondents believes that NBE KMS user manual do not have sufficient information about the system. The response implies that NBE KMS user manual is incomplete.

Security is a key concern for KMS. KMS should be well protected from internal and external attacks. In addition, for knowledge documents that will be published on KMS for consumption, KMS need to verifying ownership and protect copy-right of the owners. Therefore KMS

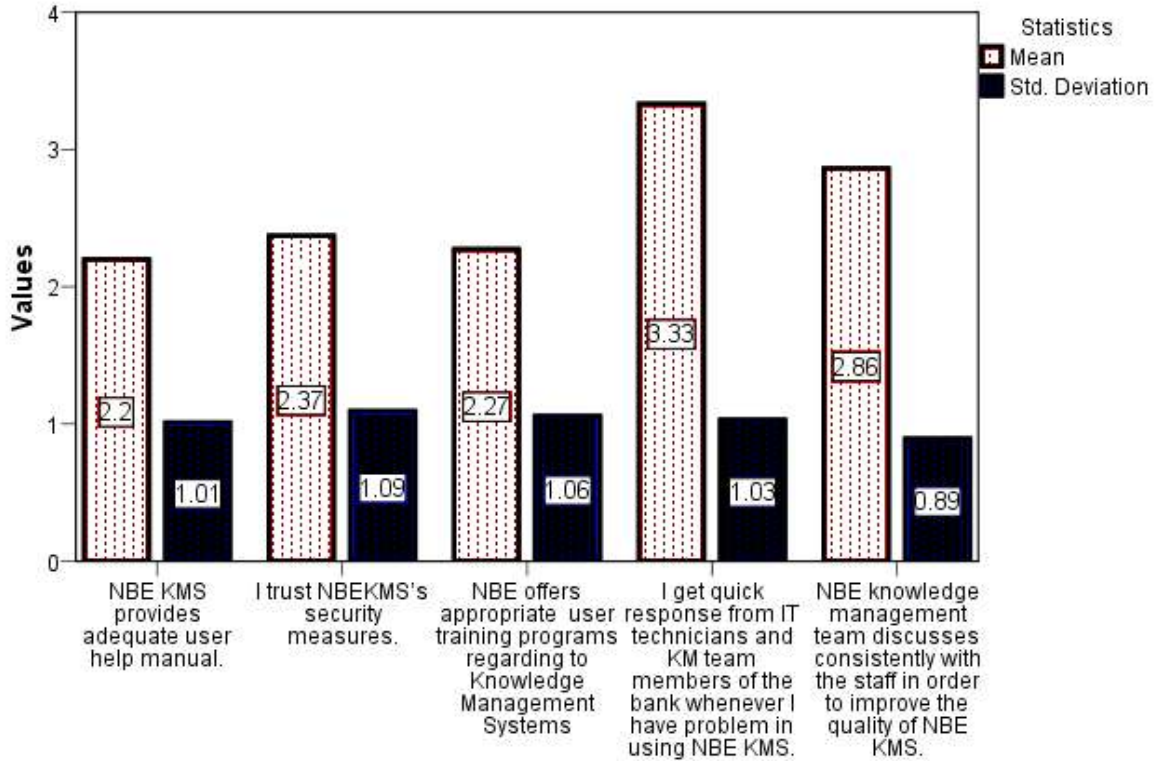
should implement compatible security controls for existing applications to secure access to diverse range of resources. Security measures helps to insure that the right people are engaged in their proper activities. This will increase user's confidence on KMS. More than 56% of respondents stated that they disagree and strongly disagree with the following statement "I trust NBE KMS's security measures". This could be taken to mean that respondents think that NBE KMS security measures are not strong enough to protect the system resources.

Since KMSs are computer based systems, users should have to able to use computes efficiently and be familiar with KMS environment. User training can play great role in reducing a user's cost of searching knowledge from KMS and increases users' efficiency to utilize KMS resources. Organisations should spend additional efforts and resources after the KMS has been fully implemented in teaching, guiding, and coaching users on how to use it (Hasanali, 2002). The quality of the training to use the KMS provided for the participants is an important factor determining success of the KMS's use (Maier, 2007). In case of NBE, most of the respondents (62.7%) reply shows that they strongly disagree and disagree on appropriateness of user training programs given by NBE regarding to KM Systems. In addition, interviewees with the bank KM team also confirmed that they have given training only one time for few selected employees from each department. This may added to the poor user participation and the poor user acceptance of the KMS.

KMS apply technical tools to facilitate operation of the technology-based capabilities. These technical tools may stop working because of different reasons (like network problem, programming error and run time errors). Therefore, organizations should provide speedy technical support for maintaining them. In this case, almost 55% of respondents indicate that they get quick response from IT technicians and KM team members of the bank to maintain KMS related problems. This response implies that the bank takes immediate measures when problem happens on KMS.

Like any other information systems (IS) programs, user's participation plays a critical role in KMS development and maintenance in organizations. 60.8% of the respondents had moderate attitude towards NBE knowledge management team effort to gather users need.

**Figure 4.4 Mean and standard deviation value of Service Quality phase**



The highest mean value in this category is 3.33, which is for the question of whether the users get a quick response from the IT technicians and KM team of the bank or not, with standard deviation of 1.03 values. This shows most of the users think they get a quick response from the bank in relation to IT problems. On the other hand, there is a strong need from the respondents for the bank to provide a better (or complete) user manual for NBE KMS users.

#### **4.7 Perceived KMS Benefits**

The Perceived Benefit is an instrument that can be adapted to assess perceptions of the benefits and impacts of the KMS by users. It is important to understand user's mind-set and benefits they got from KMS, because KMS use depends on meeting current and future user needs. The perceived benefit of using KMS is one of the most frequently cited predictors of systems usage behaviours. Different questions were asked to understand how NBE employees perceive the benefits they got from KMS.

**Table 4.6 Perceived KMS Benefits**

| Question Items   |   | Strongly disagree | Disagree | Moderate | Agree | Strongly Agree |
|--|---|-------------------|----------|----------|-------|----------------|
| NBE KMS helps me to acquire new knowledge and innovative ideas           | N | 13                | 24       | 8        | 4     | 2              |
|  | % | 25.5%             | 47.1%    | 15.7%    | 7.8%  | 3.9%           |
| NBE KMS helps me to effectively manage and acquire knowledge that I need | N | 1                 | 7        | 33       | 8     | 2              |
|  | % | 2.0%              | 13.7%    | 64.7%    | 15.7% | 3.9%           |
| NBE KMS enables me to accomplish tasks more efficiently                  | N | 4                 | 25       | 16       | 3     | 3              |
|  | % | 7.8%              | 49.0%    | 31.4%    | 5.9%  | 5.9%           |
| NBE KMS helps me to make decision  | N | 11                | 30       | 6        | 3     | 1              |
|  | % | 21.6%             | 58.8%    | 11.8%    | 5.9%  | 2.0%           |

One of the main objectives of KMS is providing up to date knowledge and encourage employees’ to come up with a new idea for solving work related problems. In relation to knowledge creation, 72.6% of respondents strongly disagree and disagree on “NBE KMS helps me to acquire new knowledge and innovative ideas” item. This result clearly shows that NBE KMS is not playing its role in encouraging employees to come up with new ideas to the bank.

Organizations need to capture, manage and store knowledge from employees and accumulate it in KMS. Then after, the knowledge will be available to users for easy retrieval and sharing. More than 64% of the respondents have a moderate attitude insight about the following statement “NBE KMS helps me to effectively manage and store knowledge that I need”, which shows employees were to some extent beneficiary from NBE KMS in managing their knowledge effectively.

From the knowledge utilization perspective participants were asked to rate the extent that they assistance from access to the knowledge they needed to accomplish their job. Response results show that more than 56.8% of the participants strongly disagree and disagree with the assist of KMS in their work efficiency. The remaining respondents were choose either moderate

(31.4%) or disagreed (11.8%) with the help of NBE KMS to accomplish tasks more efficiently. This shows NBE KMS is not helping majority of the bank employees to do their tasks efficiently.

The one of the primary goals of KMS in literature is supporting better decision making. As previously mentioned in literature review, KMS can greatly enhance group problem solving and decision making through the support of alternative generation by the development of a group memory. In regard to this more than 80% of respondents strongly disagrees and disagree that NBE KMS helps employees to make decision. This implies NBE KMS is not assisting employees to make a knowledge based decisions in the bank. Furthermore as on system use discussion indicated, on the first place employees do not have intention to use KMS when they make decisions.

**Figure 4.5 Mean and standard deviation values of Perceived KMS Benefits phase**

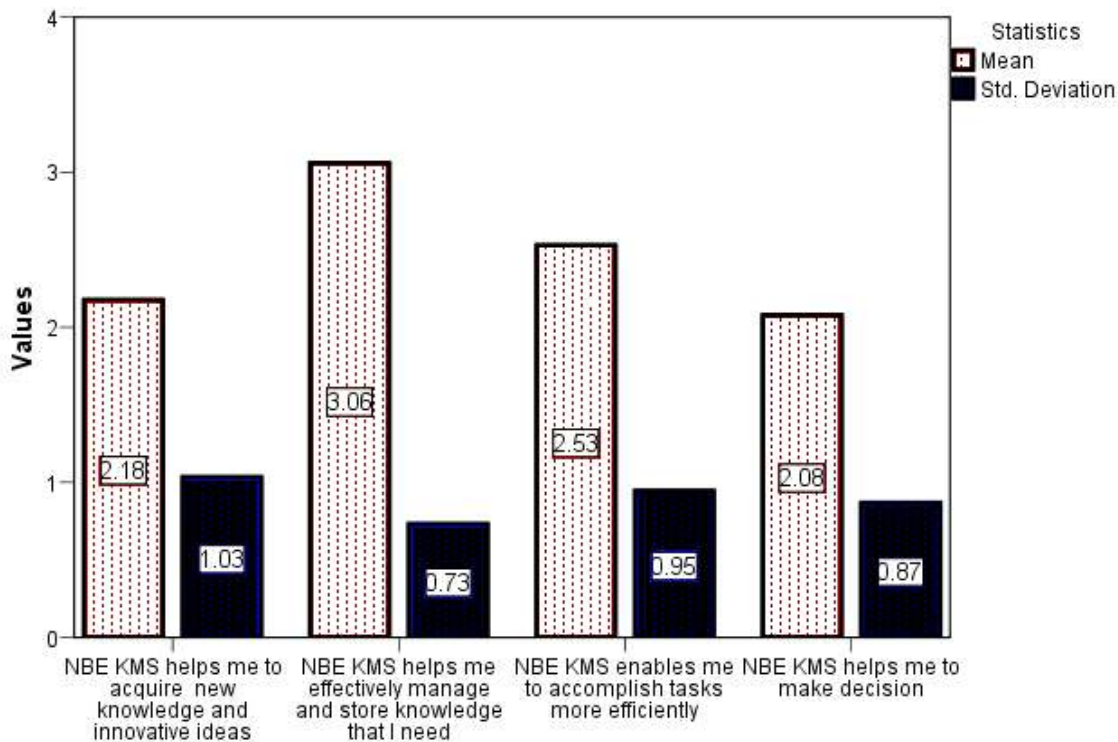


Figure 4.6 shows respondents' views on the benefits they got from KMS. The respondents believe that the primary benefit they acquire from NBE KMS is that it helps them to manage and store knowledge. However there is a lack of NBE KMS capability to help employees in



decision making. According to Mohammed (2011), the most valuable of knowledge utilization in the organization, is most efficiency and effective decision-making, where that valuable knowledge, cannot be achieved unless the organization shed a light on improving and enhancing the resources.

#### 4.8 User Satisfaction

User satisfaction is the most widely applied measure of KMS success. This instrument is adapted to measure users' satisfaction level with KMS. In this section, participants will be asked for their satisfaction with the contents, interface and services of the KMS. Furthermore, User Satisfaction is considered as a good complementary measure to increase KMS and effectiveness of use depends on users being satisfied with the KMS.

**Table 4.7 User Satisfaction**

| Question Items  |   | Strongly disagree | Disagree | Moderate | Agree | Strongly Agree |
|---|---|-------------------|----------|----------|-------|----------------|
| I am satisfied that NBE KMS meet my knowledge or information processing needs | N | 13                | 26       | 10       | 2     | 0              |
|   | % | 25.5%             | 51.0%    | 19.6%    | 3.9%  | 0%             |
| I am satisfied with the NBE KMS interface                                     | N | 1                 | 3        | 8        | 34    | 5              |
|   | % | 2.0%              | 5.9%     | 15.7%    | 66.7% | 9.8%           |
| I am satisfied with the services provided by the bank in relation to KMS.     | N | 7                 | 23       | 14       | 6     | 1              |
|   | % | 13.7%             | 45.1%    | 27.5%    | 11.8% | 2.0%           |
| I am satisfied with the NBE KMS operating methods                             | N | 1                 | 3        | 8        | 33    | 6              |
|   | % | 2.0%              | 5.9      | 15.7%    | 64.7% | 11.8%          |
| In general, I am satisfied with NBE KMS                                       | N | 2                 | 9        | 36       | 2     | 2              |
|   | % | 3.9%              | 17.6%    | 70.6%    | 3.9%  | 3.9%           |

A number of participants (39, 76.5%) stated that NBE KMS does not meet their knowledge or information processing needs. This suggests that most respondents are not satisfied with the knowledge provided by NBE KMS for information or knowledge seeking activities.

In order to attract more users, KMS need to be easy to use. To make a KMS user-friendly the interface must be clean, good-looking, organized and simple. From this point of view most of the respondents (76.5%) are satisfied with NBE KMS's interface.

KMS services are directly related to ICT services, user trainings and actions to motivate employees to use KMS. From this point of view most of the respondents (58.8%) are not satisfied with the services provided by the bank KMS. This shows there is lack of efficient user support in the bank.

In order to utilize KMS efficiently, KMS operating methods should be easy to learn and use. From this point of view most respondents (96.5%) choose agree and strongly agree, when they asked whether they are satisfied with the operating methods of NBE KMS. This indicates that operating mechanisms such as searching, posting messages, downloading, and uploading process on NBE KMS matches employees need which shows they can easily operate KMS. Overall, most of the respondents (70.6%) have a moderate feeling about NBE KMS performance.

**Figure 4.6 Mean and Standard deviation for users' satisfaction**

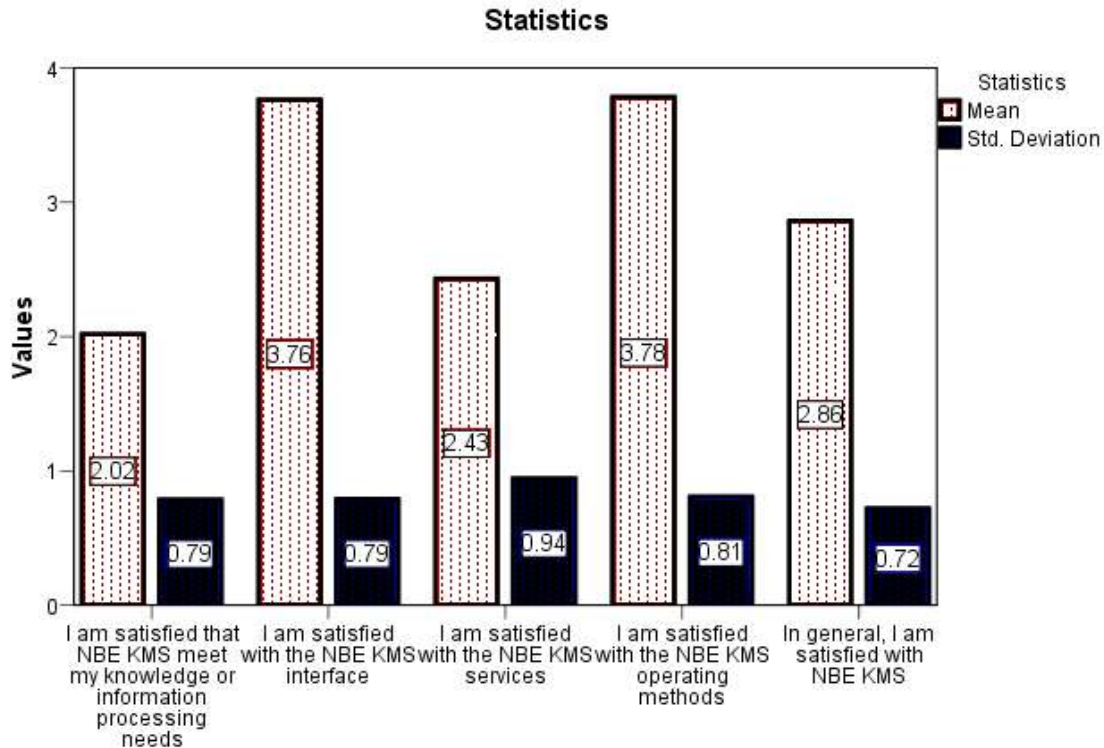


Figure 4.7 shows the extent users satisfaction level on different aspects of KMS. The strongest case was observed for users' satisfaction by the operating methods of NBE KMS (3.78), followed by interface of the NBE KMS (3.76). This result indicates that most of the employees of NBE are pleased with the operating methods and the interface of NBE KMS. On the other hand, most of the respondents agree that NBE KMS did not satisfy knowledge or information needs of its users.

## **4.9 Challenges and Improvement Areas of Existing NBE KMS**

### **4.9.1 Challenges of NBE KMS Implementation**

In an effort to explore the main improvement areas of KMS in the study area survey respondents were asked to identify major challenges in the process of NBE KMS implementation. In relation to this, participants who said they had never used the NBE KMS were asked to mention some of their reasons for not to use KBE KMS. This helps to identify what reasons prevent employees from accessing NBE KMS. The major challenges mentioned by the respondents are summarized in the table below.

**Table 4.8 Barriers of KMS utilization**

| Challenges                   | N  | Percent | Percent of Cases |
|------------------------------|----|---------|------------------|
| Lack of awareness            | 12 | 23.5%   | 75.0%            |
| I don't know how to use KMS. | 11 | 21.6%   | 68.8%            |
| Lack of time                 | 10 | 19.6%   | 62.5%            |
| Lack of incentives           | 8  | 15.7%   | 50.0%            |
| I don't think it is useful   | 6  | 11.8%   | 37.5%            |
| Lack of trust on the system  | 2  | 3.9%    | 12.5%            |
| Lack of infrastructure       | 2  | 3.9%    | 12.5%            |

As indicated in Table 4.8, the most chosen (23.5% of respondents) reason for not to use KMS is lack of awareness about the system. The second problem listed by participants is employees technical skill incompetence problem, 21.6% of the respondents responded that they do not know how to use NBE KMS. On the third place, 19.6% of the respondents mentioned lack of time as a problem for not using NBE KMS as needed. The next most chosen problem directly relates to employee's motivation, 15.7% of respondents do not use NBE KMS because of lack of incentives from the bank to employees who use the system efficiently. From this I can say that user's awareness about KMS, employee's technical skill in relation to use computer systems and lack of time and lack of incentives to knowledge contributors are major obstacles that inhibit employees from accessing NBE KMS.

To gather more information concerning challenges with regard to KMS development and implementation at NBE, structured interview questions were forwarded to the KM team members of the bank. It is proved that there are some problems concerning management and users as presented below.

One of the problems mentioned by interviewee in relation to management support to KMS implementation is lack of clear vision for the usage of the KMS and lack attention to KMS's usage enforcement issue. NBE management has a desire to involve all employees in KMS practice. However there are no specifications for in what conditions KMS should be used in the

bank. The bank did not develop any instructions on KMS's usage. In addition, NBE management is reluctant to organize necessary training or guidelines to employees.

One more interviewee also stated that NBE management has a positive approach to the development of additional KMS tools, but motivating employees to use NBE KMS has not been effective or even non-existent. NBE management bodies did not give emphasis on motivating employees to use KMS effectively and achieve the bank KM goals. The interviewee also believes that this problem holds back NBE KMS's from being as effective as it could be.

Another challenge mentioned by the interviewees is lack of KMS acceptance among NBE staff members. Based on their observation KMS acceptance among the NBE employees is low. Most of the interviewees claimed that employees see KMS's as additional burden to their work. This leads employees being apathy towards the KMS. The interviewees tended to claim to the lack of management effort and the lack of users awareness for the reasons behind employees resistance to use KMS.

#### **4.9.2 Improvement Areas**

In KMS implementation process possible problems can be notified by the users. To noticeably identify these problems, an open ended question was used. The following main points are summarized from open ended question.

One of the functionalities offered by NBE KMS is online links. Online links provide addresses of external knowledge sources. This allows employees to find the knowledge they need quickly. However in case of NBE respondents found it that most of the links are misaligned and outdated. Hence it is difficult for the users to find important resource through these links.

The other problem raised by respondents is related to NBE KMS address. In general Uniform Resource Locators (URL) should be easy to remember for the users. In this regard respondents had faced a big problem in remembering NBE KMS address. This is because it does not use a formal Domain Name System (DNS). So users are forced to remember server address of NBE KMS web page. This may prevent employees from using KMS.

NBE KMS incorporate an online forum that enables employees to sharing ideas and opinions. However NBE KMS forum topics are not properly organized. According to respondents explanation this creates confusion on employees in understanding the concept of the forum conversations.

Finally respondents have also pointed out some additional functionality they want to see incorporated to the current KMS. Based on respondents reply, Multimedia sharing system is on the first place. The second selected one is Bookmark sharing systems. A document management and Blog services got the same vote from respondents and placed on the third place.

## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATION**

#### **5.1. Conclusion**

This study evaluates effectiveness of KMS implementation at NBE. To do this, primary and secondary sources were collected and analysed carefully. The results also interpreted and explained to meet this research objective.

As observed in this study findings, there are some employees of the bank who are not still started accessing KMS. The main reason for this is employees' lack of awareness about the KMS. On the other hand from respondents who have said they have used the KBE KMS, most of them began to use NBE KMS more recently. From this the researcher can conclude that at the initial stage of NBE KMS it has only a few users.

Majority of users had accessed NBE KMS to explore knowledge for their work. Whereas, most of them are not involving in other tasks (like make a knowledge contribution, recording their knowledge, communicate tacit knowledge using of KMS and use KMS as a reference for making decision).

In terms of KMS quality, users think NBE KMS has all the functions and capabilities that they expected it to have at this stage. However they also believe that the existing functionalities are not enough to support future KM efforts of the bank.

About the quality of Knowledge provided on KMS, users find it accurate and easy to understand. On the other hand users were more concerned about up-to-datedness, clarity of knowledge classification, helpfulness of expert directory, consistency of words and phrases used in contents and practicability of knowledge or information presented on NBE KMS in their day to day work activities.

Regarding to service quality, in most cases respondents were not pleased by NBE KMS services except with the response and attention they get from IT technicians and KM team members of the bank.

In terms of users perceived benefits from KMS, most of the employees think that NBE KMS did not help them to acquire new knowledge and innovative ideas, accomplish tasks more efficiently and in making knowledge based decision. This depicts NBE is not getting the benefits that could be achieved from KMS.

Based on this study finding, it is clear that the current NBE KMS is well accepted by the users in terms of its operating methods and the system interface. However, there is a problem in meeting user's knowledge processing needs. NBE KMS also lacks a proper content organization. Besides, the staff perception towards KMS is still in infant stage. In addition, NBE management is reluctant to change the employees' attitude about KMS.



## 5.2 Recommendations

On the basis of this study, the following recommendations are suggested for practical action.

- In order to get the maximum benefit from KMS, NBE needs to improve its staff awareness about KMS. This can be achieved by preparing consistent KMS seminars and training sessions to NBE employees.
- NBE management have to develop a clear vision for the utilization of the KMS in the Bank. They need to develop specific policies and instruction in what circumstances employees have to access KMS.
- In order to increase the number of KMS users, NBE management bodies have to give emphasis on motivating employees to use KMS effectively and achieve the bank KM goals. Supervise employees who access and contribute to NBE KMS and reward them.
- The Bank should have to improve KMS security measures to insure that the right people are engaged in their proper activities. This will increase the system's reliability to KMS users.
- Online forum contents should be organized by considering about the reasons users will come to NBE KMS. NBE KM team should only create more general topic definitions because once your online community launches, users will show you what they want and need.
- Based on the user's needs assessment NBE need to improve functionalities of the existing KMS (like expert directories and online links). The address of KMS should be easy to remember for the users. It is better to add a link to NBE KMS on the web site of the Bank.
- To satisfy future users need, NBE KM team need to add more services to the existing NBE KMS.
- In addition to the functionalities of KMS the NBE KM team have to give attention to the quality of Knowledge documents and contents of NBE KMS.

Finally, future research could test this study outcome in other contexts and could strengthen the evaluation criteria by including other social and organizational factors which could affect KMS Success, such as management support and organization readiness. Since the development of

effective KMS is an on-going phenomenon within organizations, a future longitudinal study with a longer post-implementation period may help to reveal more findings.

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# Appendix

## Appendix I : QUESTIONNAIRE

JIMMA UNIVERSITY  
SCHOOL OF NATURAL SCIENCE  
DEPARTMENT OF INFORMATION SCIENCE  
MASTERS OF INFORMATION AND KNOWLEDGE MANAGEMENT PROGRAM

QUESTIONNAIRE TO BE FILLED BY NATIONAL BANK OF ETHIOPIA STAFF  
Researcher: BISLAT BELAYHUN

Research Topic: - Evaluating Success of Knowledge Management System  
Implementation in National Bank of Ethiopia

Dear Respondents:-

I would like to express my sincere appreciation and deepest thanks in advance for your generous time and frank and prompt responses.

### **Objective:**

The main objective of this research is to measure users' satisfaction level of NBE KMS implementation in NBE, with the aim of identifying potential improvement areas to NBE KMS in order to better support knowledge management practice in the bank.

### **Confidentiality:**

The researcher want to assure you that this research is only for academic purpose authorized by the Jimma University MSc program Coordination office and the result will not be presented for other purposes. Thus, your ideas and comments are highly respected and kept confidential.

### **General Guideline:**

Please put a tick “√ “ mark for those questions that are followed by choices and write your short and precise answers for those followed by blank spaces (i.e. open ended questions). For the purposes of this questionnaire, the abbreviation **NBE KMS** refers to National Bank of Ethiopia Knowledge Management System, or NBE intranet.

As an important input this study your frank response is greatly appreciated. Your valuable support in responding to the questions raised is of paramount importance to the success of the study. Hence, I ask you in all regard to fill the questionnaire carefully and at your best knowledge. The quality and quantity of information you provide determines the ultimate reliability of the study.

**Contact Address :** If you have any query, I am available as per your convenience at (tele; 09-13-22-64-82 or e-mail; bisrat.belayhun@yahoo.com.)

### **Part I- Personal Information**

- 1) Gender  
 Male       Female
- 2) Your age?  
 < 20       20–30       31–40       41–50       51–60  
 61 and above
- 3) What is the highest level of education that you have completed?  
 Third degree (PhD)  
 Second degree  
 First degree  
 College diploma  
 Any other \_\_\_\_\_
- 4) Year of experience in the Bank  
 < 5 years       5 - 9 years       10-14 years       15-19 years  
 20 years or above

**PART II- The following questions are related to NBE’s Knowledge Management System (NBE KMS).**

- 5) Have you used NBE KMS?  
 Yes       No →Go to Question 7.
- 6) If your answer to question number 7 is “yes”, how long you have engaged in using NBE KMS? \_\_\_\_\_months/years
- 7) If your answer to question number 7 is “No”, please indicate why you did not use the system? (**More than one answer is possible.**)
- Lack of time
  - Lack of trust on the system
  - Lack of incentives
  - Lack of awareness
  - I don’t know how to use KMS
  - I don’t think it is useful
  - Lack of infrastructure
  - Other \_\_\_\_\_

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8) If your answer to question number 7 is “yes”, please indicate the extent to which you agree or disagree with the following statements by putting a tick (√) mark in the appropriate box.

|   | Strongly disagree | Disagree | Moderate | Agree    | Strongly Agree |
|---|-------------------|----------|----------|----------|----------------|
| <b>A. System Use by the Respondents</b>   | <b>1</b>          | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b>       |
| I use NBE KMS to contribute knowledge in my work.                                       |                   |          |          |          |                |
| I use NBE KMS to search knowledge in my work.   |                   |          |          |          |                |
| I use NBE KMS to record my knowledge  |                   |          |          |          |                |
| I use NBE KMS to communicate knowledge and information with colleagues                  |                   |          |          |          |                |
| I use NBE KMS to help me make decisions   |                   |          |          |          |                |
| <b>B. KMS quality</b>   | <b>1</b>          | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b>       |
| NBE KMS is easy to use  |                   |          |          |          |                |
| NBE KMS response time is acceptable   |                   |          |          |          |                |
| Information, Knowledge and files are accessible anytime                                 |                   |          |          |          |                |
| It is easy to find Information/knowledge I need   |                   |          |          |          |                |
| The functionalities of NBE KMS are sufficient   |                   |          |          |          |                |
| The functionalities of NBE KMS are useful   |                   |          |          |          |                |
| The functionalities of NBE KMS are appropriate  |                   |          |          |          |                |
| In general, this system has all the functions and capabilities that I expect it to have |                   |          |          |          |                |
| <b>C. KMS content/knowledge quality</b>   | <b>1</b>          | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b>       |
| The knowledge provided by NBE KMS is easy to understand.                                |                   |          |          |          |                |
| The knowledge provided by NBE KMS is accurate   |                   |          |          |          |                |
| The knowledge provided by NBE KMS is up to date   |                   |          |          |          |                |
| The organization of the information/knowledge on NBE KMS is clear                       |                   |          |          |          |                |
| The words and phrases in contents provided by NBE KMS are consistent                    |                   |          |          |          |                |
| NBE KMS provide helpful expert directory for my work                                    |                   |          |          |          |                |
| The knowledge or information provided by NBE KMS is meaningful and practicable          |                   |          |          |          |                |
| The knowledge or Information provided by NBE KMS is important and helpful for my work   |                   |          |          |          |                |
| In general, NBE KMS provides appropriate content  |                   |          |          |          |                |

|   |          |          |          |          |          |
|---|----------|----------|----------|----------|----------|
| <b>D. Service Quality</b>   |          |          |          |          |          |
| NBE KMS provides adequate user help.  |          |          |          |          |          |
| I trust NBE KMS's security measures.  |          |          |          |          |          |
| NBE offers appropriate user training programs regarding to Knowledge Management Systems                               |          |          |          |          |          |
| I get fast response from IT technicians and KM team members of the bank whenever I have problem in accessing NBE KMS. |          |          |          |          |          |
| NBE knowledge management team discusses consistently with the staff in order to improve the quality of NBE KMS.       |          |          |          |          |          |
| <b>E. Perceived KMS Benefits</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| NBE KMS helps me to acquire new knowledge and innovative ideas  |          |          |          |          |          |
| NBE KMS helps me to effectively manage and acquire knowledge that I need  |          |          |          |          |          |
| NBE KMS enables me to accomplish tasks more efficiently   |          |          |          |          |          |
| NBE KMS helps me to make decision   |          |          |          |          |          |
| <b>F. KMS User Satisfaction</b>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
| I am satisfied that NBE KMS meet my knowledge or information processing needs   |          |          |          |          |          |
| I am satisfied with the NBE KMS's interface   |          |          |          |          |          |
| I am satisfied with the services provided by the bank in relation to KMS.   |          |          |          |          |          |
| I am satisfied with the NBE KMS operating methods ( like search, download, upload functions)                          |          |          |          |          |          |
| In general, I am satisfied with NBE KMS   |          |          |          |          |          |

9) What difficulties you have faced while you are using NBE KMS?

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10) What additional functionalities (or services) should be incorporated to NBE KMS to better support implementation of knowledge management practice in NBE? (**More than one answer is possible.**)

- Multimedia sharing system** (enables to share videos and audio files)
- Chat system:** for real-time interaction amongst NBE employees
-

**A document management system:** for managing and organizing of documents  
(Example: Policies, Procedures & Reports)

**An email system**

**A news management system** ( enables to post and comment on news)

A powerful and flexible **security system**

**Contact Directory** eg. address book

**FAQs** (Frequently asked questions): lists of commonly asked questions and answers

**Calendar system** (What's happening when and where, events information)

**Blogs** (give users the opportunity to create their own website to publish their opinion about a specific topic.)

**Wikis** ( are special web pages that can not only be viewed but also created and edited directly from the web browser.)

**Bookmark sharing systems:** allow for sharing of bookmarks (URLs) for web sites of interest.

Others \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11) Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**THANK YOU AGAIN!!!**



## **Appendix II: Interview**

### **Interview (for KM team members)**

1. What was the motivational factor to develop KMS in the bank?
2. What was your role in the development of NBE's KMS?
3. How do you make needed knowledge available to users?
4. How do you ensure that your KMS is reliable, secure and user friendly?
5. Is there any motivational method NBE uses to encourage employees who contribute their knowledge to NBE KMS?
6. How do you evaluate your achievements?
7. What were the challenges you have faced while you are developing and implementing this system?
  - From employees
  - From management
  - Technological
8. What kind of comments did you get from KMS users?

### Appendix III Sample Size Calculation

The formula for determination of unadjusted sample size of employee

$$n = \frac{n_0}{1 + \frac{n_0}{N}} \text{ Where } n_0 = \frac{Z_{\alpha/2}^2 pq}{d^2}$$

$$n_0 = \frac{(1.96)^2 \times 0.5 \times 0.5}{0.1^2} = 96.04$$

Where,  $n_0$  = unadjusted sample size

$z$  = the standard normal deviated corresponding to the confidence level (i.e., 1.96 at  $\alpha=5\%$ )

$d$  = margin of error  $10\%=0.1$  (it is common to use in range of 0.01-0.1)

$p$  = the population proportion;  $p=0.5$ , in which the variance is maximum. (this yields the maximum possible sample size as a penalty for unknown population proportion  $p$ )

$$q=1-p=1-0.5 = 0.5$$

The formula for determination of the adjusted sample size of employees:

$$n = \frac{n_0}{1 + \frac{n_0}{N}} = \frac{96.04}{1 + \frac{96.04}{578}} = 82.36, \text{ approximately } n=82$$

Where,  $n$  = adjusted sample size

$n_0$  = unadjusted sample size

$N= 578$ , population size

#### National Bank of Ethiopia staff number

| Directorate  | Staff Number |
|--|--------------|
| 1) Internal Audit and Risk Management Directorate -----                    | 15           |
| 2) Domestic Economic Analysis and Publication Directorate-----             | 13           |
| 3) External Economic Analysis and International Relations Directorate----- | 13           |

- 4) Monetary and finance Analysis Directorate-----13
- 5) Economic Modelling and Statistical Analysis Directorate-----8
- 6) Bank Supervision Directorate-----33
- 7) Insurance Supervision Directorate-----20
- 8) Micro Finance Institution Supervision Directorat-----20

Derived from strategic plan document of NBE and with the help Knowledge management team, the researcher have selected eight core directorates ( these are: Domestic Economic Analysis and Publication Directorate, Internal Audit and Risk Management Directorate, Economic Analysis and International Relations Directorate, Monetary and financial Analysis Directorate, Economic Modelling and statistical Analysis Directorate, Bank supervision Directorate, Insurance supervision directorate ,and micro finance institutions supervision Directorate ).

*Proportional allocation used to allocate the sample size to different directorates*

$$\text{Domestic Economic Analysis and Publicatio n Directorat e} = \frac{82 * 13}{135} = 7.89 \approx 8$$

$$\text{Internal Audit and Risk Management Directorat e} = \frac{82 * 15}{135} = 9.11 \approx 9$$

$$\text{External Economic Analysis and Internatio nal Relations Directorat e} = \frac{82 * 13}{135} = 7.89 \approx 8$$

$$\text{Monetary and financial Analysis Directorat e} = \frac{82 * 13}{135} = 7.89 \approx 8$$

$$\text{Economic Modelling and Statistica l Analysis Directorat e} = \frac{82 * 8}{135} = 4.85 \approx 5$$

$$\text{Bank supervisio n Directorat e} = \frac{82 * 33}{135} = 20.04 \approx 20$$

$$\text{Insurance supervisio n directorat e} = \frac{82 * 20}{135} = 12.14 \approx 12$$

$$\text{Micro Finance Institutio ns Supervisio n Directorat e} = \frac{82 * 20}{135} = 12.14 \approx 12$$

### **Declaration**

I declare that the thesis is my original work and has not been presented for a degree in any other university.

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May ,2014

This thesis has been submitted for examination with my approval as a university advisor.

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Mesfin Belachew (PHD)