

**Knowledge Management:
Understanding the Emerging Role and Contribution of
Knowledge Management in project management
practice in the UAE**

إدارة المعرفة:
فهم دور الناشئة ومساهمة إدارة المعرفة في مجال إدارة المشاريع
في دولة الإمارات العربية المتحدة

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Declaration



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Knowledge Management:

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Abstract

Knowledge management (KM) is a discipline that is increasingly gaining ground in Abu Dhabi and the United Arab Emirates as a whole. Even so, knowledge management has received the least amount of attention from researchers in the country, especially with regard to its contributions and role to project management. This dissertation sets out to: explore the impacts of successful knowledge management implementation; assess the influence of knowledge management systems in project management; determine the slow acceptance rate of knowledge management in the UAE particularly in multinational corporations; and assess potential barriers to KM implementation. The researcher used a case study methodology to obtain data on the abovementioned objectives from three organizations located in Abu Dhabi. Semi-structured interviews were conducted for 15 participants and documental reviews undertaken for purposes of triangulation in order to meet the objectives of the study. The results obtained from the interviews indicated that KM plays a significant role in ensuring the successful rates of projects completion and continuous improvement in project management systems. Trust and difficulty of sharing knowledge were identified as the two leading barriers to knowledge management.

ملخص

إدارة المعرفة هو انضباط التي يكتسب بصورة متزايدة في أبو ظبي ودولة الإمارات العربية المتحدة ككل. وحتى مع ذلك، تلقت إدارة المعارف أقل قدر من الاهتمام من الباحثين في البلد، ولا سيما فيما يتعلق بالمساهمات، ودورها في إدارة المشاريع. تحدد هذه الأطروحة إلى : استكشاف آثار تنفيذ إدارة المعرفة الناجحة؛ تقييم تأثير نظم إدارة المعرفة في إدارة المشاريع؛ تحديد معدل القبول البطيء لإدارة المعرفة في دولة الإمارات العربية المتحدة وخاصة في الشركات متعددة الجنسيات؛ وتقييم العوائق المحتملة لتنفيذ إدارة المعرفة. استخدمت الباحثة منهج دراسة الحالة للحصول على بيانات حول الأهداف المذكورة أعلاه من ثلاث منظمات التي تقع في إمارة أبوظبي. وأجريت مقابلات شبه منظمة لخمسة عشر من المشاركين وتم اخذ ملاحظات التوثيقية المضطلع بها لأغراض تثليث بغية تحقيق أهداف الدراسة. النتائج التي تم الحصول عليها من المقابلات التي أشارت إلى أن إدارة المعرفة يلعب دوراً هاماً في ضمان معدلات النجاح لإنجاز المشاريع، والتحسين المستمر في نظم إدارة المشروع. وقد تم تحديد الثقة و صعوبة تقاسم المعرفة من اهم الحواجز الرائدة لإدارة المعرفة.

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Abbreviations

Knowledge Management (**KM**)

United Arab Emirates (**UAE**)

Knowledge Management Systems (**KMS**)

Information Technology (**IT**)

Total Quality Management (**TQM**)

International Business Machines (**IBM**)

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Introduction

1.1 Research Overview

Organizations in the United Arab Emirates (UAE), just like any other organization in the world, struggles with the challenge of identifying and utilizing sources of wealth and success as part of the current globalization trend and the ever dynamic and competitive environment. One such source of wealth and success is the way organizations use knowledge in both the private and public sectors. As a result, organizations in the UAE are increasingly producing a torrent of research projects in this regard with a particular objective of fostering the creation and sharing of knowledge within and across organizations, and how to implement systems designed to protect such knowledge from loss in today's workplace marked with dynamics and diversity which have the potential of disrupting an organization's business operations (Biygautane & Al-Yahya 2011).

Many organizations, both in the public and private sector, have and continue to acknowledge the significance of and need to implement knowledge management (KM) programs and strategies which can aid the transfer and sharing of information between employees involved in project management. Even so, it is important to point out that knowledge management did not mean much for many organizations until after the outburst of the financial crisis which hit the Arab world. Needless to say, knowledge management is not a new concept per se. In as much as knowledge is no new phenomenon, it has only recently been appreciated as an explicit forum through which enquiries for managing organizational knowledge are made. It is common understanding that knowledge is transferred progressively from one generation to the next, especially via informal channels in an effort to share experiences, expertise, technical-know-how, or skills within organizations and the society as a whole. This helps ensure the sustainability of their groups.

This provides an opportunity for organizations to use the know-how, experience, and skills of their employees for purposes of effective management of their institutions. Knowledge management has only become methodically, systematically, and explicitly

developed during the last two decades. It is during this time that many organizations realized the importance of knowledge sharing and transfer and became interested in the development of various initiatives to encourage the use of knowledge among employees in the workplace. The importance of knowledge management as a primary driver for effectiveness and competitive advantage in organizations cannot be stressed enough. In fact, Batten (2008) argues that organizations' number one agenda in embracing knowledge management is to come up with a competitive advantage so as to create a niche for their operations and services.

Knowledge management is an effective way to address economic challenges such as losses associated with high turnovers and retiring workforce. In order to stay on top of things, organizations have embraced the use of research and development to sustain their competitive edge in any particular industry. This explains why organizations are increasingly investing heavily on researches related to knowledge management and investment in more advanced technologies associated with boosting an organization's efficiency and effectiveness of processes (Batten 2008). Research helps in keeping knowledge management systems updated and avoiding obsolete systems which might derail an organization's processes hence poor quality and performance. Organizations which seriously assess their usage and sharing of knowledge come to the realization that they possess more knowledge than they had initially imagined (Becerra-Fernandez & Sabherwal 2010).

In addition, knowledge management (KM) has increasingly secured a place in organizations as a tool for managing challenges and altering the strong competition especially with regard to the creation and retention of organizational information. Organizations are interested in enhancing value from project management through the use of knowledge-based practices which are essential in gaining and sustaining a competitive edge over rival businesses in the industry. In project management, this is achieved through improved knowledge access and management of knowledge assets. Therefore, organizations that have since embraced knowledge management do so primarily with the intent of sustaining their survival in the industries in which they find themselves in (Becerra-Fernandez & Sabherwal 2010). It is no doubt that the manner in which an

organization transfers and shares knowledge contributes a great deal to improving project efficiency and quality of work as it allows employees to collaborate and share ideas throughout the processes concerned in a project.

Evidently, it seems as though the hand of knowledge in project management is inextricably interwoven in the creation of value. One thing that comes out of all this is the dearth in existing research studies on the contributions and the role played by knowledge management in effective project management. It is for this reason that this research focuses on the same in an attempt to bridge the existing gap in literature. In order to do so, the researcher conducts a comprehensive research study on knowledge management and its unavoidable role in project management in the context of United Arab Emirates public sector. Even though KM principles are more or less the same, the implementation procedure is quite different and specific to an organization. The main driving issue which led the researcher into investigating knowledge management is its role and contribution in the management of projects in the United Arab Emirates (UAE). In other words, the current study seeks to provide elucidation on the best way of developing and implementing strategies in effective and efficient ways through knowledge management in project systems. This is simply because a lot of research has been focused on countries other than the UAE like the U.S.A.

1.2 Research Problem

The role of knowledge management in project management is a topic worth studying especially when it comes to its roles and contributions to the management of projects. In addition, knowledge management has been associated with the increased success of projects because of shared ideas, experiences, and skills. Even though knowledge management is rapidly gaining grounds in the business management, organizations in the UAE are yet to be influenced by this new kind of management which has a potential of increasing the effectiveness and efficiency of projects. This is primarily because organizations breed a lot of mistrust between employees who prefer to sit on knowledge than share it with their colleagues. Therefore, there is a gap as far as KM contributions to project management are concerned. This also means that there is no

empirical evidence explaining any relationship in this regard. It is this gap that led to the current dissertation's topic.

1.3 Research Scope

The current study seeks to establish the contributions attributed to the development and implementation of knowledge management systems and how such a step affects UAE organization's project management. The present study sets in Abu Dhabi where it studies organizations' use of knowledge management systems to enhance project performances. This therefore means that only organizations in the UAE concerned with project management are considered for this study. In addition, the current study focuses on the immediate context of UAE organizations which have successfully implemented knowledge management systems in their day-to-day practices, and those that are yet to embrace knowledge management as an instrument of propelling their operations to greater heights of success.

1.4 Research Aims and Objectives

The primary aim of this research is to gain an understanding of the impact of knowledge management in project management by investigating different aspects identified as potential factors affecting the success of knowledge management system (KMS) development and implementation. The current study aims to explore the critical success factors of knowledge management so as understand what propels or derails the installation of knowledge management systems in organizations. The current study also looks at project systems with the objective of establishing if the presence or absence of knowledge management influences the level of efficiency of project teams and completion rates. The current research is guided by the following research objectives:

1. To explore the impacts of successful KM implementation;
2. To assess the influence of knowledge management systems in project management;

3. To determine the slow rate of acceptance of knowledge management in the UAE particularly with respect to multinational corporations doing business in the country;
4. To assess potential barriers to successful implementation of knowledge management.

The research aim and objectives will be analyzed in a clear and expansive manner in the presiding chapters of this research. For instance, the literature review will look at what other researchers have done relating to the current research topic. The discussion and conclusion sections of the research will draw from the findings of the research in making a comprehensive exploration of the issue identified as research objectives. It is only then that the research will summarize the findings and give a determination whether the objectives were successfully met during the research.

1.5 Significance of the Study

The present research is supposed to provide clear-cut and relevant factors which influence the implementation of knowledge management and its associated benefits in project management. In so doing, this research will bridge the gap that exists in literature of knowledge management particularly in the Gulf region as a whole and UAE in specific. This study is thus aimed at helping organizations that are interested in developing and implementing effective knowledge management systems based on the success factors and case studies derived from organizations that have successfully adopted knowledge management as a means through which their organizational objectives are driven. To make this research even more reflective of the real world situation, it explores the barriers expected during the implementation stages and measures that can be used to mitigate such barriers. Additionally, this research will benefit organizations that are interested in having their employees to contribute to knowledge application, competitive advantage strategies, and innovation processes. Consequently, this can help organizations to exploit and capitalize on resources based on knowledge. Last but not least, this research is important because it will address issues related to reduction of production costs and completion of projects in cost-effective manners while maintaining organizations' performance.

1.6 Research Strategy

A detailed explanation on the methodology adopted for this research is provided in Chapter 3 of this research. Even so, a brief outline is provided of what to expect in this research. See figure 1 below for an illustration. First and foremost, the researcher conducted literature review to gain an understanding of the theoretical perspective on knowledge management and its contributions to effective project management. This paved way to settle on using case study as well as interviews and document review to carry out the research. The decision to settle on a case study was mainly influenced by what was found from the literature review. Professionals actively involved in knowledge management and with vast experience were approached with semi-structured interviews in an effort to get their views on the current research topic. Also, to help facilitate and validate the findings of the case study, document review came in handy. Finally, qualitative methods of data analysis were used to analyze and interpret the data collected. The analyzed findings are discussed in reference to what other researcher have done. A conclusion was then drawn and recommendations provided for future research.

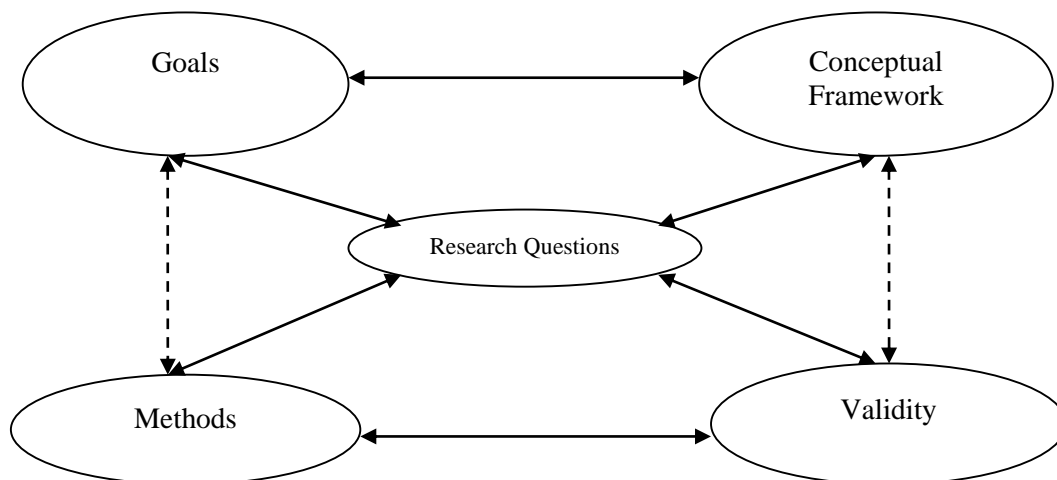


Figure 1: Research Strategy - adopted from Maxwell (2005)

1.7 Limitations of the Study

The limitations identified in this research are presented as follows:

1. Due to the unique geographical and cultural scope of the present research, transferability might be difficult since it is specifically tailored for the Gulf region and the UAE in particular. This is attributed to the fact that transferability is influenced by the participants' language and cultural settings. As a result, the outcomes of the current research might only make sense in the UAE context.
2. The role of culture in effective implementation of knowledge management is presented in the literature review even though it is out of scope of the current research. This is because the role of culture is big and requires a great deal of attention if a conclusive insight is to be gained to this effect. Also, there are time limitations and word restrictions which demand proper organization and implementation of additional methods which could hardly be afforded at the time of writing this research.
3. With regard to the research approach, this research is limited to only three organizations used as case studies. As such, generalizations may be difficult since different organizations are influenced by different factors. Furthermore, the document review used in the current research was limited in relation to access to databases, confidentiality of papers as well as documents, and the years of publication. In as much as only three organizations were used, this research strategically selected the organizations to help describe what goes on in organizations using knowledge management.
4. Finally, qualitative research, just like the one adopted for this research, is time consuming especially when semi-structured interviews are used. A longitudinal approach would have helped solve this limitation by prolonging the time of the case study.

1.8 Structure of the Dissertation

This dissertation is organized in the following chapters:

Chapter 1 –Introduction: This section of the dissertation includes the research overview, spells out the research problem, and states the research aim and objectives, the significance of the study, limitations of the study, the research strategy, and a summary of the structure of the dissertation. Basically, the introduction gives a skeleton of what to expect in the research.

Chapter 2 –Literature Review: In this section, the researcher presents other researchers' ideas of knowledge management and its contributions to project management. Special attention is paid to the factors influencing the successful implementation of knowledge management. The researcher also looks at the effect of employees' cultural background on the effectiveness of knowledge management. Also, a review of knowledge management as an instrument of value creation is provided.

Chapter 3 – Methodology: The methodology section of the research provides detailed information on the research instruments adopted for the present research. Additionally, it consists of important areas such as data collection, research philosophy, data analysis, ethical considerations, conceptual framework, research approach, research sampling, and population of study, pilot study, and time horizon.

Chapter 4 –Findings and Discussion: This section of the dissertation analyses results obtained from the data collection instrument from the case studies. Such analysis was guided by the research objectives. As such, it gives special coverage to the factors influencing the effective implementation of knowledge management and continuous improvement in project management. In the discussion section, the researcher integrates personal views with the intent of critiquing the findings in relation with past research studies.

Chapter 5 – Conclusion and Recommendations: This chapter sums up the findings of the present research and also makes recommendations on what organizations can do to implement knowledge management successfully. In addition, the researcher also recommends future research opportunities not far cast from the current research topic.

Literature Review

2.1 Introduction

This chapter of the dissertation presents the development of the idea of knowledge management and its rapidly growing importance in the field of project management. This chapter includes up-to-date review of literature. First, it will shed light on the theme of knowledge management by approaching it with regard to the present study. That is, it will look at the background of knowledge management and how it has influenced the management of organizations over the years after its conceptualization.

To clearly understand and clear the air about knowledge management, definitions of knowledge, information, and data are provided in this chapter of the dissertation. This is very important because many people, including scholars, often use the words interchangeably when that should not be the case. After a clear understanding of the definitions, the researcher goes ahead to explore into the concept of knowledge management and how it contributes to an organization's enhanced performance. This is critical as it helps create a link in the subsequent chapters and allow understanding of how KM fits in project management systems.

To effectively capture the full aspect of knowledge management, the researcher looks at knowledge management processes, knowledge creation, knowledge transfer and sharing, the application of knowledge in everyday activities, knowledge management critical success factors, and knowledge management strategies associated with moving an organization toward the achievement of a competitive advantage in an industry. Second, it will elaborate other research themes such as project management which is also in focus of this study. Third, it will explain the connection between the two themes: knowledge management and project management.

2.2 Background of Knowledge Management

Trends of globalization have provided opportunities for organizations to provide products and services to larger markets. Such trends have also increased the intensity of competition. In order to survive in such competitive environments, organizations are thus pushed to utilize knowledge resources in an effective manner that allows them to create competitive advantage over their rivals in the market (Huang et al. 2011). However, this is only achievable if organizations act and adapt to current systems of management such as knowledge management. Knowledge management (KM) is basically defined as the systematic process through which an organization acquires, organizes, and communicates knowledge so that other persons can utilize it for more efficient and productive outcomes. The idea of knowledge management has become an unavoidable concept for many organizations due to the increased awareness of the growing significance of knowledge for businesses' survival and prosperity. As a result, many of today's organizations are launching KM initiatives with the intent of:

- a. Making financial savings;
- b. Improving business processes;
- c. Boosting user acceptance;
- d. Generating greater revenues; and
- e. Enhancing competitive advantage (Ajmal, Helo & Kekale 2010).

The aforementioned aspects of management are part and parcel of the process that identifies, manages, and leverages the collective knowledge essential for supporting an organization to gain a strong competitive edge (Huang et al. 2011). In other words, knowledge management has become a primary instrument for enhancing a business's process so as to increase its competitiveness. Furthermore, increased availability of information technology (IT) has prompted organizations to store, distribute, and manage knowledge. According to the knowledge-based perspective, knowledge is viewed as a key resource and is, as such, seen as a development of the conventional resource-based view which was long identified as the source of organizational competitive advantage (Easterby-Smith & Prieto 2008). These thoughts are largely shared by Magnier-Watanabe, Benton,

and Senoo (2011) who argue that knowledge is widely recognized as a strategic asset and a significant source of competitive advantage for businesses. Knowledge management therefore stands as a central source to innovation, organizational adaptation, executive decision making, and renewal.

Nevertheless, the creation of knowledge remains a complex process subject to the influence of a number of factors which continue to evade the understanding of the typical KM practice (Magnier-Watanabe, Benton & Senoo 2011). Among the most common factors are: organizational control, organizational culture, and work style. These have the likelihood of affecting the nature and flow of knowledge by which an organization processes certain attributes of knowledge. Even so, the most outstanding factor relates to that of costs involved in undertaking the development process of knowledge management. It is critical that the management of an organization estimates whether organizational ability can outweigh the costs involved in the undertaking of such a system (Coakes 2003). Managers who are most interested in intellectual exploration support knowledge management primarily to incite change. Such leaders ensure that the growth of knowledge is not over-controlled because it is recognized as an organizational resource which provides market leverage (Figallo & Rhine 2002). Effective management of the aforementioned factors has the potential of determining whether an organization achieves a successful KM system that can encompass each and every aspect of an organization so that it drives the key aspects of project management.

2.3 Knowledge Management and Value Creation in Project

Management

On numerous occasions, knowledge is identified as an elusive or intangible asset which is generated from people's experiences, expertise, values, and information through collaborative efforts (Newman 2002). According to Newman (2002), knowledge has a significant influence on both the actions an organization takes and the decision it makes. As a result, the efficiency of knowledge management is inextricably linked to the achievement of an organization's objectives. This helps to explicate why organizations are increasingly

investing in knowledge asset management. Among the most common reasons cited for such investments are: enhancing organization's capacities, fostering performance effectiveness, and increasing decision making via strategic application of knowledge assets. Organizations therefore go out of their way to ensure that all factors related to an organization's strategy, work relationships, membership, and organizational structure are considered as the KM system is developed and implemented because these aspects affect how successfully knowledge is managed.

Past research further reveals that organizations are overtly depending on the application of KM so as to make sure that both their operations and activities of projects are completed and objectively realized in an efficient way (Al-Shammari 2012). Knowledge, in this sense, can only be equated to a set of strategies and applications utilized by organizations to identify, create, distribute, represent, and enable more experience and insight adoptions. In so saying, it would appear as though knowledge drives the world's markets. In the same stroke, Al-Shammari (2012) found that knowledge management can also be identified by the effect employees have on each other in terms of the knowledge they possess and share to facilitate an organization's processes and structures. Furthermore, this study laid a lot of emphasis on using organizational culture as the greatest enabler of KM implementation in project management.

2.3.1 Knowledge, Information, and Data

Evidently, organizations have recognized the potential of improvement that lies in a conscious dealing with knowledge. According to Gongera and Okoth (2012, p. 71) there are certain forces that bring about change which include: new technology, varying consumer demands, globalization as well as dynamic political and economic structures that are reshaping the world of business. Gebba (2013, p. 2) indicates that knowledge has over the years evolved into being one of the "most valuable asset and strategic competitive advantage for organizations". He goes on to say that knowledge is perhaps the only organizational resource that cannot be easily copied by other competing organizations.

The definition of knowledge has for a long time been largely debated and it is likely that the discussions will go on. Often, knowledge, information and data are common concepts mentioned in literature pertaining to knowledge. A hierarchy can be perceived from data over information to knowledge with each level possessing distinct values of context, interpretability and usefulness. Here, data refers to the discrete facts about transaction numbers, records or events. By adding a particular context, data transforms to information (Gebba 2013, p. 3). According to Davenport and Prusak (1998), knowledge refers to as states:

“a fluid mix of framed experience, values, contextual information, and expert insight that provides the framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it is not only embedded in documents or repositories but also in organizational routines, processes, practices, and norms”

This commonly associated with the storage of knowledge (Davenport & Prusak 1998, p. 5).

According to Henrik et al. (1999), the most appropriate definition of knowledge is: “the accumulated practical skill or expertise that allows one to do something smoothly or efficiently” (p. 439). As for Leidner, Alavi and Kayworth (2006, p. 19), knowledge refers to “a form of high value information (either explicit or tacit) combined with experience, context, interpretation, and reflection that is ready to apply to decisions and actions”. Note that knowledge is not at any point equal to information but then it is a little bit closer to action (McInery 2002). In addition, it is a blend of modified and organized information, absorbed with a set of regulations, procedures, operations learnt through experience and practice (Bhatt 2001). Typically, more knowledge is created through interaction with information from other people (Clarke & Rollo 2001).

Knowledge is categorized into tacit and explicit knowledge. Whereas explicit knowledge is simple to articulate, represent and disseminate in a variety of formats, tacit knowledge, on the other hand, is unspoken and concealed (Easterby-Smith & Prieto 2008, p. 238). The authors further reiterated that most scholars in the field of knowledge management find it difficult to comprehend the processes as well as the nature of tacit knowledge. Representing, codifying, adopting and disseminating tacit knowledge is not an easy task simply because individuals cannot articulate this type of knowledge easily (Bhatt

2000). It can as well be viewed as the know-how that is earned through personal experience (Perez & de Pablos 2003). Additionally, acquisition of tacit knowledge occurs when the participants engage in activities in the company of experts (Lubit 2001, p. 166). Nevertheless, by being tacit that makes it nearly impossible to copy. Tacit knowledge has been rated as an exclusive competitive advantage. Chen (2010) states that “to enhance the core competitiveness of industry clusters lies in how to effectively manage tacit knowledge”. Perhaps this explains why Easterby-Smith and Prieto (2008, p. 238) acknowledged that organizational knowledge is maintained through social processes such as in communities of practice and not necessarily in combining of individual cognitions.

2.3.2 Knowledge activities

Amidst increased competition, ongoing changes and mergers in industries, there is the risk of losing valuable knowledge due to transfer or termination of employees. As indicated by Biygautane and Al-Yahya (2011, p. 2), the movement of workers from one organization or sector to another in Dubai’s public sector without proper documentation and transfer of workers’ knowledge put the organizations’ intellectual capital and memory in jeopardy. That being so, organizations are under obligation to preserve their knowledge base and take steps to make effective use of both the internal and external knowledge which of pertinence to their operations and make it clearly available to their employees (Lai & Lee 2007).

Primarily, requisite activities for knowledge fall under four categories namely transferring, diffusing and innovation of domain knowledge (Chua 2004). Knowledge transfer involves identifying and acquiring knowledge either through exploitation, exploration or codification (Manor & Schultz 2001). Knowledge diffusing involves flow of knowledge from one part of the organization to other parts. If this process is not managed satisfactorily, sources of knowledge worth a great deal in the organization will continue to exist as local or disconnected and internal expertise under-leveraged.

Knowledge storing refers to the articulation of tacit knowledge into formats such as manuals, prescriptions, or documentation that are easy to understand and available to

others. Swan, Newell and Scarbrough (2010, p. 330) considers knowledge articulation as a “deliberate process through which individuals and groups figure out what works and what doesn’t in the execution of organizational task”. Knowledge innovation involves refining knowledge already in existence into new knowledge with the aim of promoting effectiveness and efficiency. In other words, Knowledge activities can be understood as actuators for stimulating the evolution of new knowledge to realize standards as well as vision through identifying, capturing, reusing, and leveraging admissible knowledge. Nonetheless, whether referring to individuals or groups, adopting new meaning structures and modifying associated behaviours require time and effort, especially causes from cultural barriers (Lai & Lee 2007)

2.3.3 Knowledge and learning

The concept of knowledge management and learning organization has to a large extent impacted on the way in which organizations transform themselves in the wake of external or internal change being imposition. Organizational learning occurs when organizational activities undergo changes as a result of new understanding and knowledge. More so, “an organizations can be said to change when actions has been modified as a result of reflection on new knowledge or insight” (Swan, Newell & Scarbrough 2010, p. 367). A learning organization is therefore skilled at creating, acquiring and transferring knowledge and modifying its behavior to reflect new knowledge insights. In other words, a learning organization is one that involves creating systems which put in place long-term capacities to capture knowledge to support creation and empower continuous transformation (Yeong 2010, p. 13). As Senge (1990, p. 345) indicates that a leader is tasked with designing learning processes that gives people the ability to constructively deal with the issues as they encounter.

Plainly, the key objectives of KM and learning organization are related, as they seek to boost business performance and address data-information-knowledge processes for acquiring, referring, storing and sharing content in an organizational setting. For that reason, KM is viewed as a subset of the learning organization (King & Ko 2001). According to Swan, Newell and Scarbrough (2010, p. 365), organizations are productive

and ample sites for organizational learning. Nevertheless, there is also a lot of evidence showing that projects often do not succeed due to minimal learning within the projects and furthermore, organizations have consistently failed to learn from projects as evidenced by the proneness to “reinvent the wheel”, replicate mistakes and unsuccessfully transferring lessons from one project to another.

Using knowledge gained to learn from failures or successes that have occurred in projects is vital for the long-term sustainability and competitiveness of business. Learning from project experiences can create communities of practice within organizations and possibly between organizations where strategic alliance exists, whose purpose is to create cycle of application, assessment, reflection and renewal. A culture that is able to harness knowledge as a transferable asset and can be used to enhance future projects and in certain cases expand the scope of an organization’s project capability can and should be created.

2.3.4 Knowledge management

For any particular organization, knowledge management is ascribed to organizational assets (Yeong 2010, p. 9). These assets may include procedures, databases, policies, documents and expertise in individual employees that may not have previously been touched. Basically, Knowledge management (KM) refers to the systematic process of identifying, capturing, organizing and disseminating or sharing both tacit and explicit knowledge assets that add value to the organization (Bukowitz & Williams 1999, p. 2; Alavi & Leidner 2001, p. 107). It is majorly denoted by these processes: knowledge generation, capture, sharing (transfer) and application.

In the recent times greater attention has been geared towards knowledge management (Ajmal et al. 2010, p. 156). Denford and Chan (2011, p. 102) reveals that in an economy that is extensively knowledge-based “the sustainable competitive advantage of business firms flows from the creation, ownership, protection, and use of difficult-to-imitate commercial and industrial assets”. In spite of KM’s fashionableness as a source of competitiveness, its literature has been widely disapproved for absence of empirical evidence and the strong prominence on the conversion of individual knowledge into organizational knowledge through the use of information technology. Furthermore, the

idea of “managing” knowledge has also been a subject of thorough discussion (Easterby-Smith & Prieto 2008, p. 240). Some critics assert that owing to knowledge’s intangible nature, there is no way that it can be managed. Nevertheless, previously organizations have employed management of other intangible phenomena such as motivation (Davenport & Volpel 2001).

Generally, it is argued that considering KM programs in the context of resource-based view is beneficial since knowledge-based view appears to be a further development of the resource-based view centering on knowledge as an organizational resource. But in this case, Approaching KM from knowledge-based point of view is useful because it capitalizes on the understanding the processes through which knowledge held by the members of an organization is accessed and used (Zheng et al. 2010, p. 765). Whereas knowledge-based view focuses mainly on IT, many scholars concur that knowledge cannot by itself be a source of competitiveness. As Easterby-Smith and Prieto (2008, p. 238) mentioned, organizations have increasingly embraced knowledge management because IT has also become more available thereby easing the process of storing, distributing and managing knowledge in general. In contrast to this technology-driven view, some scholars have suggested that the novel contribution of knowledge is to bring out in the open the benefit of collaboration at each and every level of collective work arrangements. Before, development of tools and techniques for project management such as earned value analysis and critical paths was emphasized. Afterwards, there was a shift in project management to evaluation-based success criteria. The senior management of the organization is responsible for ensuring that they create an environment in which projects can prosper.

The advantage of managing knowledge in projects is that they can deliver successfully and remain competitive (Zheng et al. 2010, p. 763). Successful management of knowledge potentially promotes organization’s innovation, customer focus, competitive advantage and employee development as well as relations (Zheng et al. 2010, p. 763). As Zheng et al. (2010) explain, “... knowledge management plays a potentially mediating role in organizational context and strategy with organizational effectiveness.” As a result, there is need for organizations to learn to manage the knowledge that they acquire and

accumulate from their previous projects more effectively so that other projects in the organization can gain.

Knowledge can be embedded within a group, an individual or an organization. According to Lucas (2006, p. 260), knowledge is embedded in routines, individuals, technologies and practices that allow for implementation new techniques aimed at bettering performance. In addition, knowledge acquired is learned from the successes or failures of the projects, which is a critical aspect of long-term sustainability and ability to compete in business environments (Jugdev 2012, p. 14). Projects, unlike organizations lack organizational memory for the reason that they are naturally temporary. Therefore, the types of knowledge found in a project may include organization, technical and sector knowledge. Knowledge management is of paramount importance in all those areas and promotes sharing of the project's vision among the staff.

Knowledge management is a fast-moving field that has been created by the collision of several others such as organizational development, human resources and organizational development. In addition, knowledge management is an action discipline and as consequence it is necessary that knowledge is used and applied for it to have an impact. However, in order to survive in such an extremely competitive environment, organizations ought to use their knowledge resources with a lot of efficiency so as to build a greater capacity to act as well as adjust. (Huang et al. 2011, p. 58). Huang et al. (2011, p. 58) recognizes that efficient management of knowledge can create value for clients, improve performance and create new opportunities. Moreover, for KM to flourish there has to be assessable impacts from knowledge reuse. Decision making here is something that can be measured and judged. That is, Organizations make out if they are making the same decisions over and over and if they are using past knowledge to make these decisions more quickly. Decision making is the ultimate application of knowledge. In other words, is the practice of applying knowledge in a selective manner from previous experiences of decision making to present and future decision making activities with the express aim of improving organization's efficacy.

The importance of KM has exponentially grown over the last decade. Whilst knowledge management could be disregarded as yet one more long line of management

fads, the fundamental problems it seeks to address are, as it is argued, more enduring (Swan & Scarbough 2001). These centrally concern the difficulties of transferring diffusion, storing, and innovating knowledge in the context of new structural forms of organization. Their efficacy in these activities comparative to competition, determines performance. But the endeavors of many companies to manage knowledge have not accomplished their objectives and there is a growing sense of dissatisfaction among executives about the practicality of trying to enhance organizational knowledge.

Jantunen (2005) states that knowledge is advanced in an organization as a strategic asset which can help the firm sustain its competitive capacity in an unstable environment. KM has such as a strategic value that organizations should include it as one of the key pillars of their human capital strategy (Liebowitz 2004). Alavi and Lediner (1999) reported that the perceived organizational benefits of KM scheme could be shown in two primary dimensions: organizational outcomes such as increase in sales, reduction in cost, increased profits and reduction in the number of personnel and the second dimension is process improvement which include better communication, improved client service and accountability and a decrease in the time used when solving problems.

2.3.4.1 KM processes

In essence, knowledge management not only involves production of knowledge, but also the capture of data at the source, the transmission and analysis of this data as well as the communication of this information based on or derived from the data to those who can act on it. Integral to KM is incorporating the socio-technical perspective of people processes and technologies. Broadly speaking, knowledge management involves four key steps of creating/generating knowledge, representing/storing knowledge, accessing/using/re-using knowledge and disseminating/transferring knowledge.

2.3.4.2 Knowledge creation

Organizational knowledge originates from various places. Besides the type of product knowledge that is generated from research, there is also knowledge that may come

from processes and may occur just about anywhere within the organization in the course of daily work and at times it may even be accidental. Undoubtedly, other sections of organization such as those that deal with quality assurance come up with such knowledge through analysis of the processes in place. Importantly, organizational knowledge is not static; it changes and evolves during the lifetime of an organization. Furthermore, it is possible to change the form of knowledge.

The process of creating knowledge ought to begin with a clear comprehension of the organizational specifics such as the structure as well as the organization type, technology and processes, dynamics of people, the multi-faceted nature of knowledge as well as the various approaches that are likely to be used in the creation of knowledge. Given that knowledge creation is the first step in any KM initiative, it naturally has a significant effect on the other consequent KM steps thus making knowledge creation a key focal point of many theories presently in the literature (Uriate 2008, p. 45).

Words such as problem solving, creativity as innovation are associated with creation of knowledge, even though they may somehow vary in meaning. Creativity, for instance, refers to the mental process of connecting and rearranging of knowledge in order to generate new knowledge. Therefore, it is an important element of knowledge creation, but does not encompass the whole of it. It refers only to the flexibility required of the human mind, not issues of organizational or technological support. The concept of creativity may be better understood by not considering it as some mystical way of coming up with new and in some sense, better ideas, but rather as an art of shifting one's perspective in order to see new possibilities relevant to the problem at hand. On the other hand, problem solving is a more general term, and is related to knowledge creation in so far as a solution found for the problem constitutes new knowledge. Problem solving may be based on insight or on trial and error; creativity may play an important role, but so will analytical thinking. Innovation refers not only with coming up with new ideas but also implementing them successfully. Innovation therefore is a broader term than knowledge creation: it is not just about creating knowledge, it is about putting it to use as well.

The most frequently cited framework of knowledge creation in organizations is the one by Nonaka and his colleagues (2000). Knowledge creation in their view is the result of

social process between individuals involving the interaction of tacit and explicit knowledge (Alwis & Hartman 2008, p. 136). This leads them to consider four modes of knowledge conversion and their resulting types of knowledge. They include; Socialization (from tacit to tacit) creates what is called sympathized knowledge, externalization (from tacit to explicit) results in conceptual knowledge, combination (from explicit to explicit) produces systematic knowledge, and internalization (from explicit to tacit) yields operational knowledge.

2.3.4.3 Knowledge transfer and sharing

For organizations to earn competitive advantage Wang and Noe's (2010, p. 115) advice to such organizations is that hiring and training employees who possess certain skills, knowledge or competencies is not enough rather they ought to ensure that knowledge and expertise move from those who possess it to those who lack. More so, those organizations should focus attention on and more constructively make the most of knowledge-based resources existing within those organizations.

Knowledge sharing or transfer is for all time a popular expression in the literature as writers attempt to highlight the human aspect of knowledge management. There is always a distinction between knowledge transfer that occurs naturally or informally and that which takes place in more formalized routines. Davenport and Prusak (1998) highlight the dissimilarity between the more formalized transfer methods such as documents, groupware, databases and intranets and informal exchanges which are more casual events that generally take place face to face such as in conversations. Through successful sharing of knowledge, organizations can achieve better efficiency; lower training costs and minimize risks attributable to uncertainty (Song 2001).

Bartol and Srivastava (2002) defined knowledge sharing as individuals sharing organizationally pertinent expertise, information, suggestions and ideas, suggestions with one another. It can as well be described as a set of behaviors that involve the exchange of information or assistance to others. In addition, Donate and Guadamilas (2010, p. 85) define knowledge sharing as “a process through which an individual or an organizational

unit is influenced by the ‘experience’ of an individual or unit which becomes apparent by changes that are produced in the knowledge base”.

In literature knowledge sharing is viewed in two ways. For some theorists, knowledge sharing is largely seen as part of exploitation (e.g McElroy 2003) and others consider it part of exploration phase (Swan et al. 1999). Exploitation refers to the processes where existing knowledge is captured, transferred and deployed in other similar situations. Exploration, on the other hand, involves processes where knowledge is shared; synthesized and new knowledge is created (McElroy 2003). In their study, Alrawi's et al. (2011, p. 259) conclusion was that immediately any particular kind of knowledge is developed, it is proper for the management to ensure that the same knowledge is transferred as well as retained by the organization. After acquiring knowledge organizations are charged with the responsibility of ensuring that the same knowledge is readily available to its members (Uriate 2008, p. 61). This can be accomplished by centrally storing information and putting place adequate provisions for painless retrieval.

2.3.4.4 Knowledge application

This is the final step in the knowledge management cycle where knowledge has been captured, coded, shared and otherwise availed for use. In the event that this step is not completed successfully, all of the efforts put into knowledge management will have been in vain since knowledge management can flourish only if the knowledge is put into use. Nevertheless, it then becomes all-important to understand which knowledge is of use to which group of people and how best to make it available to them so that they not only understand how to use it but believe that using this knowledge will improve their work. The use of profiling techniques, learning taxonomies, task support systems or personalization can help see to it that the best possible match between the user and content is achieved. Expertise location systems and other collaboration aid can help groups of people find and apply valuable knowledge and know-how. Content management systems can be designed to optimize knowledge application on an organization-wide basis.

2.3.4.5 KM Success enablers

Yeong (2010, p. 9) reveals that most of what has been done in knowledge management has majored on KM components meanwhile factors affecting KM processes has received very little attention. Yet, in order to flourish in the market, there are particular things that an organization must achieve. Knowledge sharing does not take place naturally. This is because knowledge stored in human minds is not usually given out or taken in easily without incentives or a system of exchange (Magnier-Watanabe, Benton & Senoo 2011, p. 18). Even so, previous studies have identified several enablers of knowledge management.

More organizations are beginning to recognize that deployment of knowledge management is not something that can be done in a day rather it is a complex shift in organizational processes and strategies, something that requires thorough planning and end users' involvement is paramount. Factors underpinning the success of KM can be extracted from authors who have written specifically or generally on this subject. An in-depth literature review reveals that numerous factors have been identified as important for accomplishing KM. In spite of the fact that different authors have presented these factors in different vocabularies they can be represented by generic themes. A comprehensive set of critical success factors will remind an organization of all important issues that should be addressed when designing and implementing a KM initiative. In addition, it will assist them to understand the entire spectrum of important factors involved.

According to Alazmi and Zairi (2003, p. 200), critical success factors in management of knowledge “are aimed at creating a KM environment that provides the company with some sustainable competitive advantage through continued creation of knowledge, maintenance of current knowledge resources, and creating environment in which the KM functions can survive and grow”. Analyzing and assessing success factors gives better insight as it identifies the key areas that are essential in the implementation of KM. Thus, KM efforts should be geared towards assessing these key areas to measure possibility of the knowledge management system's success. The two scholars outlined more than thirty basic factors which are further classified into nine driving forces: cultural

factors, training, and support from the top management, knowledge transfer, creation of new knowledge, knowledge infrastructure, and sharing and knowledge strategy.

Green, Stankosky and Verndergriff (2010, p. 8) highlight thirteen factors that are most likely to influence the success of knowledge management identified by Anantatmula and Kanungo in 2007. They include leadership, culture, and measurement of results, standard KM practices, collaboration, communication, technology infrastructure, top management support, content quality, budgetary support, strategic focus and top management involvement. Additionally, the same study tried to show the link between those enablers.

Among the thirteen factors, KM leadership, top management involvement as well as organization's culture form the key driving factors upon which successful efforts of knowledge management can be created. With the participation of the top management, it means that the senior officials of the organization will offer more support to knowledge management initiatives (Jonas 2010, p. 825). In addition, this would ensure that the KM initiatives will encompass strategic focus. The use of information technologies, for instance, can create an environment and build infrastructures that would contribute to management of knowledge in organizations by supporting; actualizing, reinforcing and augmenting knowledge processes at deeper levels through strengthening their rudimentary dynamics, timing, scope and general synergy (Alavi & Leidner 2001, p. 124).

In another study conducted by Ward and Bell in 2001, Geisler and Wickramasinghe (2009, p. 172) note the seven drivers for successful knowledge management in the pharmaceutical industry. They included:

“clear leadership and vision, a strategic fit of KM with organizational goals, resources for KM identified and acknowledged and their business value demonstrated, effective selection of KM projects, organizational development to support KM activities, marketing of KM initiatives and involvement of all staff and an infrastructure that enables creation, sharing, and reuse of knowledge”

It is worth noting that a critical factor for KM's success is the organizational culture (Zheng et al. 2010, p. 763; Donate & Guadamillas 2010, p. 82). This is because organizational culture defines the core values, social customs, beliefs and norms that

govern the way individuals act and behave in an organization (Donate & Guadamillas 2010, p. 82). According to Zheng et al. (2010, p. 765), organizational culture shapes the behavior of its employees. On the other hand, KM practices deal with the process involved absorption, digestion, positioning as well as integration of new information both from within and outside the organization into the memory of an organization. Here, the capacity to absorb means the ability to recognize the value of new external information, assimilate it, and apply it to commercial ends (Minbaeva et al., 2002). Yet, when constructing meaning employees' values and behaviour act as a filter thus the entire process is conditioned by the existing culture.

Generally, a culture that encourages management of knowledge is one that highly rates knowledge and promotes its creation, sharing and application (Connelly & Kelloway 2003). Despite, the importance of culture, this is as well the biggest impediment that organizations face in developing a knowledge-based business. Since culture is a broad concept, it carries many facets. Collaboration is one element of organizational culture that is critical in management of knowledge. More so, collaboration has empirically been found to contribute substantially to creation of knowledge.

A culture that is knowledge-friendly without a doubt cannot thrive in the absence of trust. Azudin, Ismail and Taherali (2009) consider lack of trust among employees as one of the greatest hindrance to knowledge sharing and agree with view that for knowledge sharing to take place participants must trust one another. When there is no mutual trust, people tend to be skeptical about the intentions and behaviours of others and therefore it is highly probable that they would hold back their knowledge. Nurturing trustful relationships opens the door for a more proactive and an open process of sharing knowledge. It has been established that a culture that upholds trust is most likely to assist in mitigating the negative effects of discerned costs on sharing. It has as well been associated with the implementation of intranet-based Knowledge management systems, the ability of organizations to exchange and combine knowledge and individual sharing (Wang & Noe 2010, p. 115).

Yeong (2010, p. 8) notes that presently organizations are experiencing dynamic market competitions as well as advances in technology which have in turn led to generation of unique knowledge through innovation and as a result organizations have become

sustainable in the market place. For that reason, it is necessary for organizations to promote an innovative culture one in which workers are constantly urged to produce new concepts, knowledge as well as solutions. As Mathews (2003, p. 2) notes, “the need for innovation arises from our understanding that the competence, skills, knowledge, product services and structure of the present will not be adequate over time”. To add on that, Skyrme (1999) established that innovation is found as a set of interacting knowledge processes which include:

“the absorption of existing knowledge from external environment, the creation of new knowledge through creative thinking and interchange of ideas, the rapid diffusion of ideas and insights through knowledge networking; the validation, refining and managing of innovation knowledge, matching of creative ideas to unmet customer needs and in solved problems and encapsulating and codifying knowledge into an appropriate form such as tangible product, a product of new internal process, training material for a new service and a marketable design patent” (p. 51)

Similarly, a culture that encourages seeking and solving problems is important and employees should be allowed to question practices in existence and be as well empowered to take actions. By doing so, the workers will be in a better position to explore new possibilities and knowledge. Additionally, openness is critical as it ensures that mistakes are freely spoken of without the fear of being penalized. In this respect, fair mistakes should be viewed as an investment process in individuals because it can be a key source of learning. Tools such as incentives and rewards can be used to shape employees’ behavior and often times they portray the kind of organizational knowledge culture that is in place. Rewards may include; recognition, work selection, money and so on. For rewards to have an impact, they should be issued more often. Donate and Guadamillas (2010, p. 82) sum up it all by saying that a good organizational culture should ease the implementation of KM thereby contributing to the establishment of an organizational vision that is shared by every member, commitment, team work; autonomous decision making and stimulate continuous innovation.

2.3.4.6 KM strategies

Denford and Chan (2011, p. 103) adopt a definition which refers to Knowledge strategy as “the overall approach an organization intends to take to align its knowledge resources and capabilities to the intellectual requirements of its business strategy”. Therefore, whereas knowledge strategy deals with business outcomes and reinforces competitive advantage, knowledge management strategy deals with technical and structural issues of management. A significant number of organizations majorly focus on one or the other two of widely defined strategies of knowledge management which are personalization or codification. Basically, codification is carried out in the form of electronic document systems that codify and store knowledge and allows for it to be disseminated and re-used with much ease and as many times.

On the other hand, personalization focuses on building networks to facilitate sharing as well as transfer of knowledge between people. It is founded on directing individual expertise to others with less expertise and may use it to improve the objectives of the organization. Liebowitz (2004) suggested that KM strategy should be used to supplement other strategic initiatives such as competency, performance and change management. KM can help to capture, share and leverage knowledge before it leaves the organization. A successful project manager constantly supplements the system of acquiring knowledge with his or her vision. Therefore, organizations combine their knowledge, broaden it and create new innovative ideas (Laissen 2007).

2.4 The project

Projects are found in each and every realm of markets, industry, business and segments. They come in a multitude of sizes, types and complexities and from small initiatives to medium size through mega-projects. Swan, Newell and Scarbrough (2010, p. 325) note that most organizations invest in projects with the main aim of completing tasks particularly those that include innovation. Finding a definition that bounds all kinds of projects has engaged the minds of many academics and practitioners for quite some time. Turner and Muller’s (2003, p. 7) proposed definition of a project is as follows: “a project is a

temporary organization to which resources are assigned to undertake a unique, novel and transient endeavor managing the inherent uncertainty and need for integration in order to deliver beneficial objectives of change”. Rather than reproducing a long list of definitions developed by various writers, the simplicity and completeness of the definition provided by Project Management Institute seems most appropriate. The Project Management Body of Knowledge defines a project in terms of its distinctive characteristics “a project is a temporary endeavor undertaken to create a unique product or service” (Project Management Institute 2008, p. 6).

Most definitions of projects attempt to define every aspect of what a project comprises and they seem to be long and complex. Several common threads are found in these definitions and they include:

- Temporal nature
- progressive elaboration
- involvement of people working outside their usual functional areas
- uniqueness
- constraints brought about by scope, cost, time and quality
- complex endeavors to do work that creates change

Project’s main objective is to deliver a beneficial outcome or change. Manifestations of the change can be in terms of tangible output such as a physical asset or facility or an intangible output including organizational change. Projects are in most cases constrained by resources such as manpower, time, quality and budget. Owing to the complex nature of projects, they require multidisciplinary team input. Organizations are increasingly adopting the project-organizing approach to sub-divide tasks among their employees, which causes projects to be dispersed throughout organizations. Projects can be initiated from within an organization to develop internal activities or externally to provide solutions to businesses (Yeong 2010, p. 15).

In a business context, it is important to differentiate between business outcomes and project outcomes. Projects deliver outcomes that assist the organization to achieve its

business outcomes. Integrating project results as soon as possible into the business and transferring ownership will contribute to the organization's business outcomes. Although projects are critical components in the achievement of an organization's business strategy, they can rarely ensure business outcomes. Rather, they are vehicles through which organizations achieve their changes. Even though there is no universal agreement on the definition of a project, considering most general definitions, usual understanding is nonetheless that it is a unique, specific and nonrecurring task that has to be completed by a certain date, for a certain amount of money, and within some expected level of performance and that it is complex in implementation and subject to evaluation.

2.4.1 Project life-cycle

A project has a life cycle with a number of phases. It is also worth noting that project phases vary by project or industry, but some phases in traditional project management are often called the concept, development, and implementation and close-out phases. Furthermore, these phases should not be confused with the project management process groups of initiating, planning, executing, monitoring and controlling and closing. The first two traditional project phases namely concept and development focus on planning whereas the last two phases focus on delivering the actual work. The project life cycle offers better management control as well as appropriate links to the ongoing operations of the organization.

It begins slowly in the concept and development phases, builds during development to a peak in the implementation phases and then starts declining steadily until termination. In most cases, it may be difficult to distinguish between the phases in a project life cycle for the reason that some overlapping of tasks or activity is bound to occur. Even so, it makes much sense to think in terms of discrete life cycle phases because that facilitates identification of typical project management activities and the associated skills and tools to accomplish them.

In the concept phase of project, the managers usually develop some type of business case which describes the need for the project and basic underlying concepts. A preliminary rough estimate is developed in this first phase and an overview of work involved is created.

Work breakdown structure outlines project work by decomposing the work activities into different levels of tasks. After the concept phase is completed, the development phase begins. In this second phase, the project team creates more detailed project management plans, a more accurate cost estimate and more thorough work breakdown structure. This phased approach minimizes the time and money spent on developing inappropriate projects. A project idea must pass the concept phase before proceeding to the development phase.

Implementation comes third in the traditional project life cycle. At this stage, the project team creates a very accurate cost estimate, delivers the required work and provides performance reports to the stakeholders. Usually, it is in this phase that the project team spends the bulk of their efforts as well as finance. Often, a project that is well-planned and structured is less likely to experience changes during implementation. Obviously, some changes are unavoidable, especially as risks noted in the first and second phases occur, but this should be taken care of with minimal disruption if the project was planned and resourced well.

The final phase is the close-out. In this phase, all the work is completed and there ought to be some sort of customer acceptance of the entire project. Ultimately, the project team should be in a position to document its experiences on the project in the lessons-learned report. By doing so, the project members would be aware of what could be improved if in the future they would be required to do a similar project. Additionally, this phase ought to include getting customer's feedback so as to establish customer's satisfaction as well as recommendations from the team members on how to improve such projects in future.

Many projects, nevertheless, do not follow this traditional project life cycle. They still have general phases with some similar characteristics as the traditional project life cycle, but, they are much more flexible. Regardless of the project life cycle's phases it is good practice to think of projects as having phases that connect the beginning and the end of the project, so that people can measure progress toward achieving project goals during each phase. Projects are to a large extent characterized by a degree of uncertainty. Before starting a project, a plan is prepared founded on certain estimates and assumptions. It is useful to take note of these assumptions because they will impact on the development of the

project schedule, budget and work scope. A project is normally based on a unique set of activities as well as estimates of how each activity should take, different resources and assumptions about the availability and capability of those resources and estimates of the costs associated with the resources.

This combination of assumptions and estimates causes a degree of uncertainty that the objective of the project will be wholly achieved. Take for instance, the scope of the project may be completed by the target date, but then the final cost may be much higher than the anticipated owing to the low initial estimates for the cost of particular resources. As the project continues, some of the assumptions will be refined or placed with factual information. The challenge to the project manager is to prevent, anticipate and overcome such circumstances in order to complete the project on schedule, within budget as well as to the satisfaction of the customer. For that reason, the project manager is expected to be proactive in planning, communicating and providing good leadership to the project team so as to attain project objective.

2.5 Project management

According to Project Management Institute (2008) project management refers to:

“The application of knowledge, skills, tools, and techniques to projects activities in order to meet or exceed stake holder’s needs and expectations from a project. Meeting or exceeding stakeholder needs and expectations invariably involves balancing competing demands among: scope, time, cost and quality; stake holders with differing needs and expectations; and identified requirements (needs) and unidentified requirements (expectations)” (p. 6).

The authoritative traditional view of the project management gives special importance to normative techniques and methods for planning, controlling and evaluating the use of resources to complete a project where the owner or client’s objectives needs to be met. These tools and techniques are developed primarily by consultants, project managers, and engineers and are usually prescriptive in nature. The basic assumption of primary function of project management is to get something done on time, within budget, and to a specified quality or function level (Yeong 2010, p. 13).

The traditional project management approach views projects as separate entities that are detached from other projects and activities. This short-term focus on tasks may result in the loss of localized learning. Compared with a functional manager in an organization, who manages a particular function within an organization, a project manager only manages that individual project. The widely accepted traditional view of project management is focused on the systematic applications of the tools and techniques for project management practitioners and has been questioned in the past decade for ignoring the many different nuances of the project concept.

Project management involves planning, organizing, and managing the resources need to bring about a successful conclusion (Project Management Institute 2008). The most important resources that need to be managed skillfully are expertise, skills and competencies of the people working on the project. Unlike the most repetitive and permanent operations within an organization, projects are limited by time and funding. They are undertaken to meet certain goals and objectives and yet remain within the constraints of time and funding. Several approaches to project management include agile, interactive, incremental and phased approaches. The traditional approaches to project management are built on sequence of stages: project initiation, planning and design, execution and production, monitoring and controlling, completion and project post mortem.

Certainly, not all projects go through systematic process or follow the typical project management stages and phases. The levels of detail in each step may also vary from one project to another. Most information or knowledge management undertaken to support projects is focused almost entirely in the information needed to control the project and remain on time and within budget. That narrow approach risks leaving important and critical details and thinking vital to successfully completing the project in silos unconnected to the project. More often, than not, the results are project failure, delays, cost increases and lost opportunities.

In the same way every project has an object, it is also structured (Love, Fong & Irani 2006). The structure of the project is the set of tasks that have to be specifically done in order to accomplish the project. Many a times, the members of the project team will be required to discuss and point out all the tasks that need to be carried out in the whole

project. Generally, such information is available via a work Breakdown structure which outlines the major chunks of tasks to be completed in the project.

One critical aspect of project management is managing project resources normally including people, equipment, material, time and money. The most problematic and difficult aspect of managing project resources is managing people. This is because managing people requires having the right people with right skills and competencies as well as exhaustive understanding of what needs to be done on the project. The most important aspect of managing people may as well be managing the knowledge resources, the tacit knowledge needed to get the job done. Yet, tacit knowledge is formal, simple to garner, measure and store (Clarke & Rollo 2001) and Transfer of knowledge does not take place with a lot of ease (Easterby-Smith & Prieto 2008, p. 677). Managing people on projects is no-longer a zero-sum game. To be successful, the manager will be required to “deploy” the knowledge resource where that worker’s specialized knowledge can make the greatest contribution. Swan, Newell and Scarbrough (2010, p. 330) assert that when it comes to decision making those involved in projects have higher levels of autonomy as well as discretion thereby permitting organizations to respond to outside demands in a more flexible and hasty manner.

Sophisticated project management practices according to Rad and Anantatmula (2010, p. 2) is a vehicle through which project success is attained over and over. Sophisticated projects constitute features such as work ethic, experience, knowledge as well as dedication to build successful practices. For sophisticated organizations, recognizing the cause and effect relationship offers an explicit association between organizational strategies and profits. Furthermore, business profit forms the basis for the adoption of a formalized project management philosophy, for sponsoring project management enhancement initiatives and for creating a project management office. Nonetheless, profit alone is not the only motivating factor that drives sophistication. Often times it is combined with the desire to become the best organization when it comes to project management. A review of literature reveals that nearly all projects that are well-studied are characterized by the following: they all go through a standard sequence, their sponsors set out to attain very

specific and clearly defined goals and they are all physical and very important undertakings.

2.6 Knowledge Areas in Project Management

Nowadays, there are several areas of knowledge recognized in management of projects. One is the project scope management whose main aim is to ensure that the project is inclusive of all the work needed to accomplish the project successfully and covers scope definition, initiation, verification, planning and all-inclusive change control (Project Management Institute 2008). The second one is project integration which touches on the processes needed to ensure that different aspects of the project are coordinated properly including development, execution and well as overall change control of the project. Thirdly, time management includes actions and decisions needed to ensure that the project is completed in good time including sequencing, activity definition, development and control of schedule as well as estimation of duration.

2.6.1 Connection between knowledge management and project management

Knowledge is a powerful tool in a project if it is readily accessible, organized, analyzed and disseminated to meet the needs of a project (Chang & Wang 2009, p. 355). In Projects, knowledge management is focused on proper access and methods of delivering explicit knowledge on the desktop as well as concentrating on tacit knowledge not known and available to majority of those involved in projects. Jalote (2003) categorically states that the primary aim of KM is to compile and organize knowledge located within an organization such that it is contained in systems that are available for use and in improving project execution. Notably, Knowledge is implanted all through the project life cycle at both explicit and tacit levels. What is more, the process of capturing and using tacit knowledge occurs in the form of individual knowledge contributed by members of the project team (Yeong 2010, p. 13).

In spite of the fact that there are numerous publications on knowledge sharing less has been said about knowledge sharing in projects (Yeong 2010, p. 11). Due to technological advances in information and communication, management of knowledge in projects has continuously gained more importance. Taking into account that project management is an information-intensive activity therefore the knowledge or information obtained during a particular project is either archived or by default destroyed or it becomes cumbersome to retrieve tacit information locked away in a silo. Consequently, managing information in the course of the project life cycle is indispensable. On the other hand, it is important to keep in mind that information is not knowledge except if the information is meaningfully organized and processed. Nowadays, information overload is a serious problem. Whereas technology facilitates information generation and organization it can as well hinder efficiency hence impacting on productivity. In the present time's work environment, working rotates around these technologies.

2.6.2 Importance of managing knowledge in projects

There are a number of reasons behind the push for management of knowledge in projects. One is the overflowing nature of information and especially online information. Currently, prints are slowly being replaced with digital information in various fields. Digital information is extensively becoming part of our culture thereby making knowledge management functionally necessary. Secondly, with improved technologies in communication, the web, internet as well as the mobile devices alongside accessible internet connectivity has significantly changed the way business is carried out and working environment. The advantage of tapping this technology for use in management of knowledge has given organizations that successfully manage their knowledge assets a competitive advantage (Easterby-Smith & Prieto 2008, p. 239).

The third reason is that in a project environment, organizations are impacted by their style of management as well as external conditions of the economy. Presently, the environment drives organizations to increase using minimal resources and therefore to do so, knowledge regarding the project ought to be managed correctly. For that reason, experts in knowledge management must come up with knowledge management systems in

projects to accomplish the aim of increasing collaboration as well as productivity even while resources are limited. Fourthly, with the fast-growing global environment, organizations have come to realize that the culture of managing projects should move away from knowledge hoarding to sharing. Lubit (2001, p. 165) suggests that an organization can only maintain its competitive advantage if knowledge readily spreads within that organization. However, this cannot happen when knowledge is in the hands of a few individuals.

Availing necessary motivators and getting rid of inhibitors to experience as well as knowledge sharing promotes effective and efficient knowledge sharing in projects and as a consequence the probability of the project succeeding is also increased (Yeong 2010, p. 11). Thus, the systems of knowledge management built in projects are meant to encourage the culture of sharing knowledge. Examples of KM practices used mostly in project management include: content and document management systems, shared repository of project artifacts and best practices and lessons learned repositories (Yeong 2010, p. 12).

Knowledge management offers solution to the problem of knowledge inaccessibility as well as inadequacy, poor organization and quality in projects. As Chang and Wang (2009, p. 355) observe, KM is an important resource in building organization's core competitiveness, solving problems and initiating new solutions presently as well as in the days to come. The concept of Continuum by Davenport and Prusak (1998) sheds light on project knowledge. According to these authors, knowledge management begins with data which is founded on raw figures, facts or statistics. Contextualization, categorization, calculation, correction and condensation of these raw facts results into codification which converts it into information. When the users apply the information by making connections, comparisons or in conversations, it becomes knowledge. That is to say, knowledge pays attention to values, experience and the context in which the information is applied to a message and consequently embraces both implicit and explicit knowledge. Continuum's final segment is wisdom which reflects on effective and sound decision making based on knowledge. Wisdom refers to applying knowledge collectively in action by wise individuals. In a nutshell, decision making in projects result from data, information,

knowledge and individuals' experiences, all of which are in the long run reflected in the decisions made.

2.6.3 Application of KM in management of projects

Knowledge is generated and flows through all the areas of project management as well as all the phases of the project. Project managers alongside their staff are often in constant search for knowledge to address different problems: deadlines, team composition, conflicts, planning, resources, deliverables, communication, objectives/goals and so on. A key feature of this postindustrial era is that knowledge is considered as one of the most important organization's resources (Chang & Wang 2009, p. 355). Thus, this has also led to the development of ways to involve all stakeholders in the project for their unique input of knowledge. As a knowledge-intensive activity, often times a project involves cross-functional linkages where different members join a team with varying points of view. Subsequently, this interaction brings about the need to organize, integrate, filter, condense and annotate the collaborative data and other relevant information that the members of the project contribute.

Managing new knowledge and perspectives is an essential component when developing projects. With numerous constraints faced by projects, project members are faced with the challenge of utilizing diverse knowledge in order to meet stringent requirements and fulfill ever-changing needs (Jugdev 2012, p. 13). Members in the project have to incorporate new information into their understanding in order to solve the technical challenges they face. As noted earlier, KM has been largely driven by information technology and the realization of the importance of internet technologies including knowledge portals, intranets and social software (Srikantaiah & Koenig 2008, p. 10). Organizations, especially the large ones, have recognized that if they exercised knowledge sharing they would increase their profits. As a result, information technology is employed to the fullest extent and concentration is placed on the internet and intellectual capital. Here the principal term is "best practices" which over time has been replaced with "lessons learned" and in many projects knowledge management is still carried out in this style. Even so, Leonardi and Bailey (2008, p. 412) argue that communication technologies do not

convey contextual cues effectively and as a result it deters individuals from sharing unique knowledge, creating common knowledge and deciphering new knowledge.

Jugdev (2012, p. 15) outlines the impacts that lessons learned has on project management practice as follows: assists in delivering projects more successfully, enlightens project team members about successful as well as unsuccessful practices, involves sharing and dissemination functions, deals with learning within and between projects thus aiding externalization of implicit knowledge and assists in correcting problems related with process effectiveness and efficiency without delays. The other area in which KM is applied regards to recognition of the human capital as well as cultural aspect (Mentzas et al. 2003, p. 16). Relying heavily on technology could be disastrous if human factors are not adequately considered. Thinking of this, two main themes from the business literature were brought into knowledge management. The first being the learning organization and the second one is tacit knowledge and the official mark of this phase is “communities of practice” (Parise & Sasson 2002). A community of practice comprises of a group of individuals “who share a passion for something that they know how to do, and who regularly interact in order to learn how to do it better” (Wenger 2004). Jugdev (2012, p. 15) sees communities of practice as “structures that enable peer-to-peer learning among practitioners”. He further adds that communities of practice permits those involved to share knowledge-explicit and tacit- as they develop a culture of sharing informal project knowledge continuously. Uriate (2008, p. 89) states that “it is common sense that people working together in a project perform better if they often communicate”.

Awareness of the importance of the content and specifically, awareness of the importance of organization of knowledge is another significant stage (Easterby-Smith & Prieto 2008, p. 236). The main theme in this stage is management of content which includes ontologies, taxonomies, metadata among others. Finally, one more area involves the use of advanced technologies and tools to improve performance and sustain competitiveness. Among the KM tools relevant for use here are knowledge auditing, environmental scanning, and competitive intelligence.

As a consequence, when carrying out projects, knowledge should be managed on the following basis: Firstly, Knowledge management is directly linked to what people

know, and how what they know supports business and organizational objectives. Successful accomplishment of KM to a greater extent depends on the motivation and competence of the participants. Hence, implementation of an appropriate strategy for managing human resource is a must. Secondly, knowledge management is inextricably tied to the strategic objectives of the organization this is for the reason that it only uses meaningful, purposeful and practical information. Thirdly, knowledge management is ever changing because knowledge is constantly tested, updated and revised and oftentimes knowledge that was applicable at one time may no longer be practical and is therefore it is an ongoing process.

Fourthly, KM draws upon pooled expertise, relationships, and alliances and organizations can further the two-way exchange of ideas by bringing experts from field to advise or educate managers on recent trends and developments. Fifthly, knowledge management can be integrated with other organizational learning initiatives such as Total Quality Management (TQM). Consequently, it is important for knowledge managers to show interim successes along with progress made on more protracted effort such as multilayer systems developments infrastructure (Hemmatfar et al. 2010, p. 159). Finally, KM is characterized by vision which is expressed in strategic business terms rather than technical terms and in a manner that generates enthusiasm as well as motivation for managers to work together towards reaching common goals. Lubit (2001, 171) states that “changes in the nature of strategic decision making have added the importance of knowledge management” this is because currently to succeed in the market, a company must be capable of establishing the emerging opportunities in the market, quickly developing and spreading the knowledge needed to exploit the opportunities instead of carefully planning for a long period.

In a situation where knowledge is captured and managed appropriately, then the project would:

- i. Provide quicker access to either or both knowledge and information to the people involved in the project leading to creativity and new concepts. With virtual projects, knowledge management is fundamental because it eases the sharing of the same information and knowledge in every single one of the locations (Ho, 2012).

- ii. Improve the process of decision making in terms of time and quality if knowledge efficiently shared.
- iii. Promote coordination and collaboration, since teams would look at the same knowledge base. Briefly, it would aid in building a collaborative environment (Ajamal et al., 2010, p. 157)
- iv. Enhance productivity as well as offer improved customer satisfaction and relations.
- v. Exhibit intellectual capital through human capital assets' experiences and collective wisdom (Ho, 2012). This boosts performance in the project and project work quality.
- vi. Identify risks by addressing the different risks existing in a project and tasks related to it.
- vii. Avoid duplication and waste by encouraging reuse of knowledge thereby cutting on time and cost.
- viii. Mitigate risks and as a result enhancing knowledge flow in every other direction and integrating processes.

Promote quality training and reduce the amount of time used in training trainees.

Among the key advantages of knowledge management is the notion of the big picture and the system's connectedness. It is the ability to see the big picture and the dependency of the various components of the project on one another. In some knowledge areas, knowledge is obvious while in other areas it needs to be assessed to establish whether the knowledge is essential for that kind of project. When a project leader employs knowledge management to come up with the project team, he/she is transforming implicit into explicit knowledge. Once that knowledge is gathered, a profile with core set of information for every project can be created using a taxonomy, metadata and descriptors. Once this is done, a detailed knowledge of the project can be captured, which will enable users to access knowledge in those projects with context in mind.

Project profiles can appear in a range of informal and formal sources of document. A typical good starting point can be a project proposal. This will give relevant information on project planning such as the name of the project, sector, objectives and goals, budget, benefits of the project, key elements of the project, clients, related projects with the clients,

risks or constraints of the projects, lessons learnt from similar projects, operational plan, expected outcome of the project and implementation details. Once the project is ongoing, knowledge can be recorded on challenges or difficulties faced by the project, difficulties or challenges solved by the project, questions responded and efficacy of the responses, knowledge needed at every stage, knowledge sharing tools used, unexpected outcomes of the project, factors influencing the project's outcomes, products as well as the amount of knowledge captured on the project.

Project team's details recollection should elicit crucial aspects of the project that can add value. Human feedback is capable of providing details regarding project work that are more fine than those reported in documents. It is a known reality that most documents are more purified and do not include or discuss the undesirable dimensions of implementation of projects, yet those are details that knowledge likely to have immense value in the design of projects in the future. Notwithstanding that documents generally provide details, the depth is always provided by human interviews. That being so, in order to maximize knowledge capture from objects, a technique has to be created to debrief project members sporadically (Hemmatfar et al. 2010, p. 161). This enables recording of issues, failures, successes as well as other qualitative knowledge/information aspects that are applicable. The product of this process can be used as project knowledge leading that could be used in other areas. This ought to be an ongoing process. Otherwise, information and knowledge creeps away if it is not immediately collected.

In the absence of project memory or infrastructure in some project organizations, the collection of critical project knowledge as well as experience is affected. That is to mean that without such infrastructure, the repository will end up not being used as individuals will not know where to find the knowledge and there will be no method for distributing knowledge to new projects. Additionally, there may be excessive dependence on the "transactive memory" of knowing who within project organization affects individuals' connection to the right people who have the right experience. According to Lindner and Wald (2011, p. 879) the memory system of a project should not hold codified knowledge such as documents and databases alone rather it should also include the processes and contexts behind those documents.

Many organizations are not fully aware of the knowledge they possess and they cannot therefore fully utilize their expertise as they either have only a few people who realize that particular types of expertise exist or only a few who know how to locate them. Moreover, limited social network in the receiver project such as lack of connections with past or concurrent projects reduces the receiver project's capacity for identifying sources of relevant knowledge and expertise. Meanwhile, a greater awareness of who knows what, for example, expert locator systems will greatly improve how project teams are staffed, as people with relevant knowledge can be assigned to projects that require such expertise.

From the point of view of knowledge management, carrying out a project not only means focusing on the project itself, such as the final product produced or service rendered, but also on the learning possibilities that a particular project can provide. It is recommended that the twofold approach to project management is adopted. Such an approach has a focus on both the resources perspective and the learning and knowledge perspective regarding project management. This approach signifies the meeting of the project objectives and the long-term goal of learning within and between projects are taken into consideration. This will enable organizations to learn from successful as well as failed lessons and to reuse the lessons in the same or other projects. This will create awareness of the knowledge synergies and the productive use of organizations' resources.

Love, Fong and Irani (2006, p. 83) believe that "project organization ought to be in a setting that is highly conducive to innovation". This is for the reason that typically projects involve creation of new processes as well as products thereby availing clear opportunities for new concepts to emerge in a context that involves individuals from different disciplines working together as a team: a condition that is fundamental in promoting organizational learning. Nowadays, projects are seen as means of change especially in organizations that have traditional structures. According to Chen and Huang (2009, p. 104), innovative companies are at a better position in terms of adjusting to changes and building new capacities that permits them to perform better. On the other hand, innovation initiatives extensively rely on workers' expertise, knowledge as well as commitment in the process of creating value.

Therefore, management of knowledge in projects has broad implications for understanding the process of learning as well as change in organizations. As indicated by Love, Fong and Irani (2006, p. 83), some studies have insisted on the hardships faced by organizations in capturing learning based on projects and diffusing learning and knowledge to other projects. When carrying out projects, organizations come across serious barriers that deter them from capturing and re-using project-based learning that have their origin from the “one-off” relatively free-standing nature of many projects. The finite essence of the project in itself creates discontinuities in the flow of personnel, information and other resources from one project to the next. Capturing and diffusing knowledge as well as learning across projects (or even phases within projects) becomes difficult, as does avoiding aptness to “reinvent the wheel” when faced with problems and decisions on new projects. In the construction sector, for instance, additional problems are created by the composite division of labor between occupational groups involved in the construction management process. Inevitably, such fragmentation of expertise along organizational lines has adverse effects on attempts to develop shared perspectives on innovation, knowledge and learning.

Successful implementation of knowledge management as indicted by benchmarking studies conducted by the American Productivity and Quality (Love, Fong & Irani 2006, p. 9) is characterized by the following:

- An important senior champion or group that identified the strategic value of managing knowledge and endorsed what turned out to be an investment in it.
- Making connections of either between people or people to information which drives the use of information technology in knowledge management initiatives.
- Communities of practice which are the key elements of knowledge management strategy. That is, membership, measurement and accountability, sponsorship, responsibilities and roles are some of the elements that ought to be in place for development of communities.
- Functional silos which in some cases poses as a cultural hindrance to the implementation of knowledge management. Thus for an organization to overcome such a barrier it is important that it solicits support its top leadership.

Among the major components of knowledge management strategy that is stressed by practitioners is: culture or process, people and technology (Uriate 2008, p. 13). Out of the three, people and culture/process take the largest percentage compared to technology. Technology here is utilized as an enabler for knowledge sharing but people and culture/process are the toughest aspect of KM. Why would a person, for instance, want to share his/her expertise with his/her colleagues? Additionally, why would project managers and members want to get involved in KM yet they already been assigned other responsibilities?

With reference to both cases, it is indeed clear that in an attempt to develop and nurture a culture of sharing knowledge in any organization, the process and people elements are principal. Looking at the first question, it is evident that a structure for recognizing and rewarding individuals within the organization who practice knowledge sharing should be put in place. It is important for organizations to encourage knowledge sharing and even incorporate it into day-to-day work activities. In simple terms, there is need to embed KM processes into the usual processes of work so that they do not appear as burdensome on individuals. Some of the approaches that could be used to embed KM throughout each employee's job are mentoring, exchange experiences and stories at staff meetings, sharing lessons learned and applying knowledge retention/capture activities and so on (Uriate 2008, p. 22). In the long run, the goal is to utilize KM is to "work smarter" not necessarily "harder" and hopefully to stimulate innovation, improve productivity among the workers, maximize employee fulfillment and increase customer satisfaction.

As a consequence, for knowledge management to be effective, it must be aligned and incorporated with the organization's strategic goals (Meskendahal 2010, p. 807). If by any chance the two are disjointed and unsynchronized then KM's failure is inevitable. Furthermore, the knowledge management plan must be well thought up and drafted, and should be in harmony with the culture existing within the organization. For complete realization of KM's effectiveness, support from the organization's top management must be very strong (Ajmal et al. 2010, p. 157). Having in mind that knowledge management has a long-term vision and deals with intangible assets, some managers may be unwilling to

invest resources in this area, especially if the budgets are stretched and there more urgent short-term needs.

2.7 Barriers to Knowledge Management

Many organizations find it very difficult to design and implement knowledge management systems (KMS) that incorporate their organizations' strategy, systems, and structure for purposes of utilizing knowledge to drive innovation and adaptation (De Long & Fahey 2000). Even so, culture remains the single-most significant barrier to knowledge management. Organizational culture is recognized as a leveraging factor of intellectual assets. De Long and Fahey (2000, p. 113) further write that their interviews "revealed that, while most managers intuitively recognize the importance of culture, they find it difficult or impossible to articulate the culture-knowledge relationship in ways that lead to action." These sentiments are widely shared by McDermont and O'Dell (2001) in a study which indicates that despite an organization's strong commitment, a weak culture can paralyze the implementation process of knowledge management systems. The authors further state that organizations which change their culture with the sole intent of fitting their knowledge management approach fail in their efforts to achieve effective knowledge sharing and transfer. As such, McDermont and O'Dell (2001) advice that companies should instead strive to "build their knowledge management approach to fit their culture."

The findings above are widely supported by another study conducted by Riege (2005) in which it is advised that knowledge management systems should be implemented to fit a company's culture and not the other way round. McDermont and O'Dell (2001) take note of Ford, Price Water House Coopers, and IBM as companies which have managed to successfully integrate knowledge-sharing activities into their corporate culture. Nevertheless, Riege (2005) points out that most companies do not live to achieve knowledge sharing goals because they simply fail to establish a clear link between knowledge management strategy and their companies' goals. Oftentimes, these companies perceive knowledge sharing as a separate activity which can be managed independently. This is a major undoing on the part of many companies for reasons already discussed above. Below is a scheme that provides an explanation on a formalized KM system.

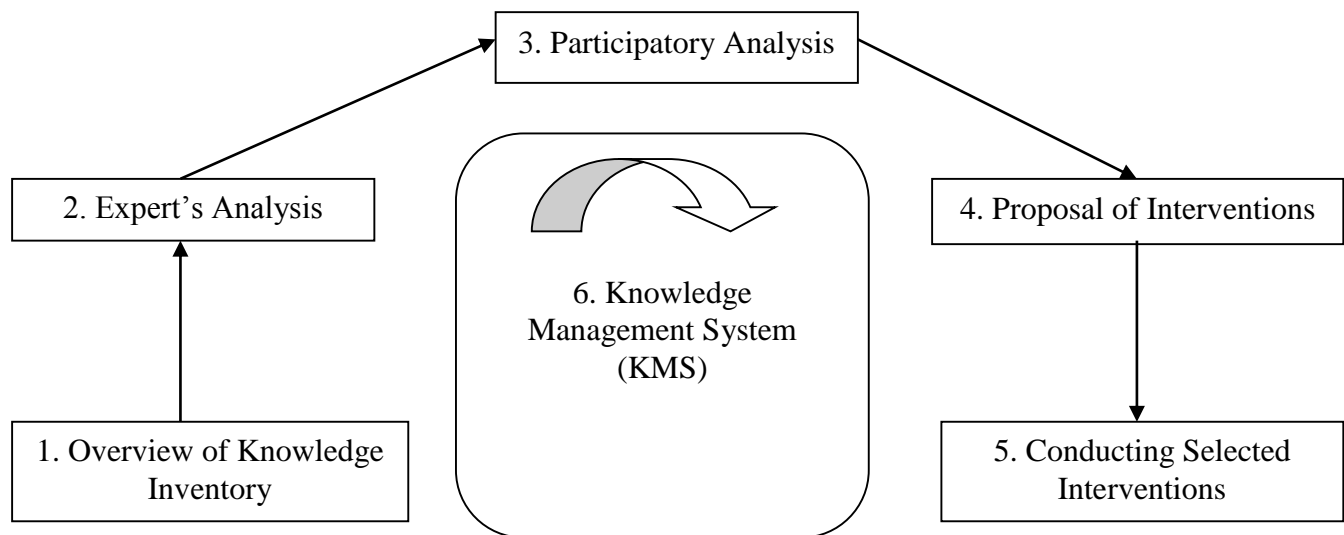


Figure 2: Scheme of a formalized KM scheme

McDermott and O'Dell (2001) believe that the integration of knowledge sharing into existing organizational values and style has the potential of propelling an organization toward high levels of interaction instead of changing a company's corporate culture to suit knowledge management. According to Riege (2005), miscommunication and conflicts might rise in an organization, rendering KM implementation unachievable, because of the following reasons:

- a. Unclear or totally absent integration of KM strategies and sharing initiatives in an organization's goals and strategic approach;
- b. Absence of leadership and managerial direction as far as clear communication channels and knowledge sharing practices are concerned;
- c. Inadequate spaces to store both formal and informal knowledge hence inhibiting the generation and reflection on new knowledge;
- d. Lack of transparent systems for recognizing and rewarding employees deprives them of the motivation to share their knowledge;
- e. Restricting the flow of communication and knowledge in certain directions especially from the top-down;

- f. High internal competitiveness within a company's functional areas, business units, and subsidiaries;
- g. High external competitiveness within a company's functional areas, business units, and subsidiaries; and
- h. Hierarchical organization structure which slows down or inhibits knowledge sharing practices.

Another source of barrier arises from individuals whose social status, economic well-being, and psychological comfort zone are all interwoven in an organization's current context so that it causes an emotional barrier which hinders a unique transfer of knowledge (Sun & Scott 2005). In other words, such persons operate in ways that prevent the sharing of knowledge from one person to the next, or from an individual to a team. Such individuals hinder effective knowledge transfer because they fear losing the ownership and control of the knowledge that they possess. This is primarily because they do not have a trusting relationship which allows comforting sharing know knowledge. As such, conflicting and divergent views find their way into team work hence inhibiting the solution finding process. In the event that individuals and teams fail to shelf their socio-economic needs, this inhibits their ability to make progress toward team learning. The underlying factor, it seems, is that self-efficacy or an individual's ability to carry out knowledge management tasks plays a significant role in effecting knowledge sharing practices in organizations (Young & Kuo 2012).

Davenport and Prusak (1998) found that effective communication skills, both verbally and written, define the very existence of effective knowledge sharing among employees. Additionally, individuals can be a form of hindrance to an organization's implementation process of knowledge management system. Riege (2005) summarized a number of factors which act as barriers to the successful implementation of KMS. These include:

- a. Lack of time to engage in knowledge sharing. Such individuals hardly have the time to identify workmates and colleagues who need specific knowledge;
- b. Individuals might fear sharing knowledge in order to reduce or jeopardize their job security;

- c. Lack or low levels of awareness of the importance, value, and benefit of sharing knowledge with others;
- d. Inadequate contact time between sources and recipients of knowledge;
- e. Lack of trust in the credibility and accuracy of knowledge because of the bearer of the knowledge;
- f. Absence of social network;
- g. Poor interpersonal, and verbal and written communication skills; and
- h. Differences in individuals' education levels.

Apart from the rather obvious reasons highlighted above, it is of great surprise that the incorporation of more technology, usually complex, can impede the successful implementation of knowledge sharing (Young & Kuo 2012). For instance, some knowledge management systems have complex features which make the generation of reports extremely difficult. Although architects of KMS need such features to enhance the applicability of a knowledge management system, employees may not be familiar with the interface used by a particular KM system hence reducing its efficiency. Consequently, it is always recommended that a good KM system should serve to internalize, combine, socialize, and externalize employees' knowledge through the usage of simple and easy to use features which permit fast access to knowledge stored in such a system. This way, employees are not overwhelmed with the use of most advanced and best information technology.

Technology, as is evident from above, requires a delicate marriage with an organization's culture or behavioral awareness. Quite a good number of companies find it challenging to create an environment conducive for people to share their knowledge and utilize what their colleagues know (Riege 2005). Regardless of the appreciation that technology has contributed immensely to the instant access to mass data and information, companies, business units, and subsidiaries still find it difficult to share knowledge, particularly in cases where there is a long distance involved. This is primarily because companies lack the expertise of choosing and implementing suitable technology that can provide a close between an organization and its people. Among the potential technology barriers to knowledge management identified by Riege (2005) include:

- a. Some organizations are reluctant to use IT systems because they lack familiarity and experience with such systems;
- b. Unrealistic expectations born from the employees' assumptions of what technology can or cannot do as far as knowledge management is concerned;
- c. Lack of internal and external technical support especially with regard to immediate maintenance of integrated KM systems. This in turn obstructs communication and work flows;
- d. Incompatibility between an organization's processes and IT systems;
- e. Companies that fail to integrate IT systems and processes in KM on the manner in which people carry out their roles;
- f. Some organizations fail to undertake training aimed at familiarizing employees with the KM systems and processes; and
- g. Lack of demonstration and communication about the benefits of formal and informal KM systems over existing ones.

In multi-national corporations, knowledge sharing barriers are evident through individual and employee levels mirrored by the lack of communication skills, social networks, lack of trust and time to share knowledge, differences in national cultures, and with a lot of emphasis paid to position status especially with regard to Saudi Arabia (Riege 2005). The author further writes that at the organizational level "barriers tend to be linked to, for instance, the economic viability, lack of infrastructure and resources, the accessibility of formal and informal meeting spaces, and the physical environment" (Riege 2005, p. 23). There are also other instances where employees are unwilling to use KM applications due to mismatch with their needs, unfriendly user interface, unrealistic technologies, and difficulties in modifying, integrating, and developing technology-based systems.

2.8 Conceptual Framework

A theoretical framework for the current research paper is forged from the interviews, a complete and exhaustive literature review, and a well-defined research problem (Sekaran & Bougie 2010). It seeks to provide a foundation upon which the author of this research paper presents a study on how knowledge management systems impact

project management processes. The author of this study believes that organizations that employ the use of KM systems experience effectiveness and efficiency in equal measure as they engage in projects. As Orlikowski (2002) notes, knowledge and practice are inextricably interwoven so that organizations and people alike have to treat the two as mutually interdependent. The current research subscribes to this school of thought together with the findings brought forward in a study by Ajmal, Helo, and Kekale (2010) on “critical factors for knowledge management in project business”. The author further believes that knowledge management plays a critical part in ensuring that people share knowledge so that change their practices to fit the dynamics of the prevailing project management systems and boost their competitiveness in the marketplace.

2.9 Chapter summary

This is a key chapter of the dissertation as it provides the way forward and presents what the audience should expect as far as the results and discussions are concerned. In this chapter, studies by other researchers on knowledge management and project management are reviewed with special attention paid to project processes, management, implementation, and planning and how knowledge management plays a role and makes contribution to all these. Also, the discipline of knowledge management is covered in great length.

Research Design and Methodology

3.1 Introduction

This section of the dissertation discusses the methodological aspect of the research. As such, it covers key methods of research such as research methodology, research approach, data collection methods, sampling techniques, ethical consideration, population of the study, and data analysis. The aims and objectives of the current research are covered in the first chapter of this dissertation.

3.2 Research Approach

This research does not get into the classifications of research approaches but goes right into choosing qualitative research as a preferred approach because it focuses on thick description, context, and self-reflexivity (Tracy, 2012). Qualitative research provides an excellent avenue through which the author studies the development of knowledge management in the UAE and how its emergence is contributing to project management systems. A qualitative research design is beneficial because it provides an insight into cultural activities which might otherwise go unrecognized in structured surveys and/or experiments. To help illustrate the research approaches available to researchers, the author of the current study uses the figure below:

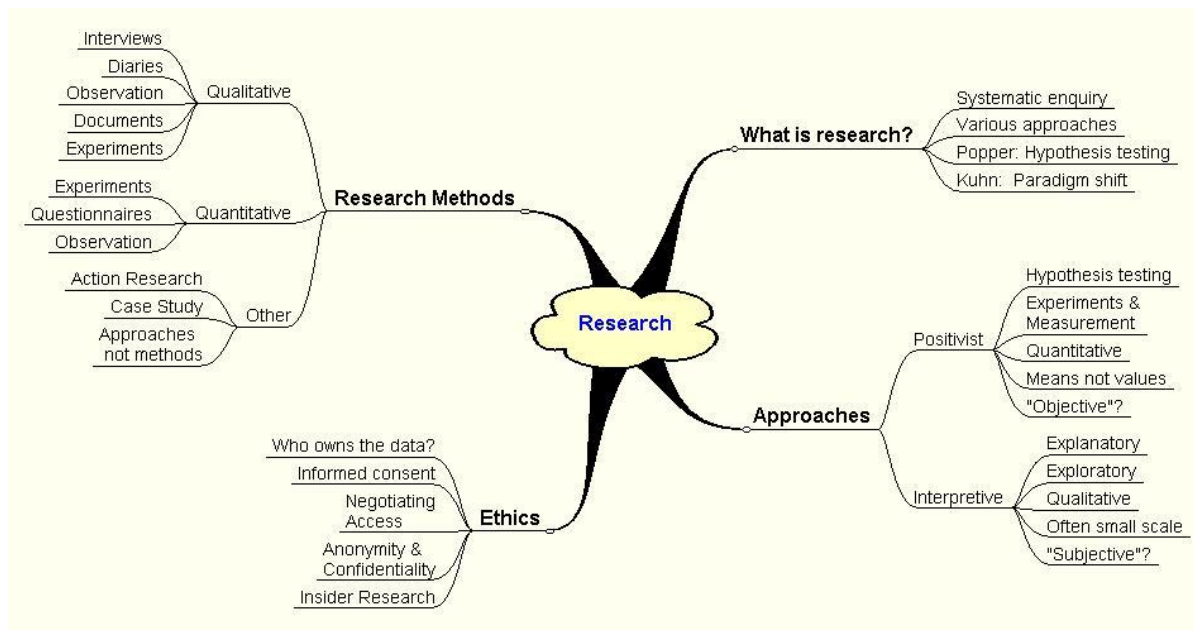


Figure 3: Research Method and Approach Diagram

Adopted from: <http://sst-web.tees.ac.uk/external/U0000504/Notes/NegLearn/ResearchApproach.html>

Since this is a qualitative research, the author employed the use of interpretive approach because it offers an advantage when it comes to explanatory and exploratory research which the current study is most interested in. An interpretive approach was deemed most effective because it focuses on interpretation, understanding, and seeking meaning (Hesse-Biber & Leavy 2010). In addition, the current research focuses on finding the meaning of knowledge management systems and the role and contributions it plays in enhancing the performance of those people involved in interactions in project management systems. Knowledge, as this study will show, exists interdependently with human interpretive processes. According to Hesse-Biber and Leavy (2010), one can conclude that “researchers working from interpretive traditions value experience and perspective as important sources of knowledge” (p.17). In other words, the researcher is most interested in understanding the effect knowledge management has on project systems. This approach advocates for seeking those directly enmeshed in using KM in project systems. Consequently, this helps bring out the role and contributions of KM in project management.

3.3 Research Sampling

Three leading companies in the United Arab Emirates were used as a sample for this research with a focus on those fully or partially involved in knowledge management as well as project systems. Five participants from each case study were chosen to respond to the interview questions. Even so, the author was categorical in picking on the project managers, knowledge management experts, and room was allowed for information managers given that knowledge management is still very young in the UAE. This is known as the convenience sampling technique used by a researcher to select easier cases that represent the general population that has experience in KM or have participated in its implementation. This decision was also informed by the fact that these are some of the people charged with the cardinal role of ensuring that employees share and transfer knowledge within and across organizations so as to achieve the highest levels of efficiency possible. As Tracy (2012) notes, respondent interviews best achieve the objectives of the research if people with unique depths and breadths of experience on the research topic are sought to share their behaviors, motivations, and experiences with the researcher.

The three organizations selected as cases include a banking institution representing case A, an oil and gas company representing case B, and an information technology company representing case C. Case A organization was a private limited bank situated in Umm All Quwain. In the last decade, the bank has grown to be one of the best and most profitable in the UAE. Based on its track record in the banking sector and a successful implementation of a knowledge management system, it was only reasonable to include the institution in the case study. Case B organization is an oil and gas company located in Abu Dhabi. It remains one of the largest oil and gas companies in the UAE today with an approximated production of one million six hundred barrels of crude oil. This constitutes 76% of the United Arab Emirates' oil production. Being one of the largest producers of oil and gas in UAE, the organization presented itself as a viable case of study. Case C organization is a private multinational information technology company also situated in the Abu Dhabi. The company has a remarkable record of working for business leaders such as Qatar and Oman. The researcher was particularly attracted to the company because it has a

budding knowledge management system and as such was worth including in the current case study.

3.4 Ethical Considerations

It is mandatory that all ethical research studies using human participants for investigation must seek their informed consent before the commencement of the research study (Hesse-Biber & Leavy 2010). As such, all persons who engaged in the interviewing sessions were asked to sign informed consent forms before the researcher proceeded to ask the interview questions. According to Hesse-Biber and Leavy (2010), informed consent aims to make sure that subject participation is purely voluntary and that they understand what the study entails, its risks and benefits, how the findings are to be used, and the fact that participation can be terminated at any time, especially when they no longer feel comfortable being part of the study through participation. Once the participants signed the informed consent forms, they were instructed to return them to the researcher. Upon receiving the signed informed consent forms, each participant was sent a copy of the interview questions via email or registered mail services two to three days before the actual interviewing date with the primary objective of boosting their confidence levels and readiness to respond to the interview questions.

All participants were instructed to refrain from providing any information that could be used to identify them. The main aim of remaining anonymous was to uphold the participants' confidentiality so as not to expose them to any form of victimizations that have been associated with open identities. All participants should be made to know the degree of confidentiality they will be afforded if they participate (Hesse-Biber & Leavy 2010). An important step in this particular study was letting participants to know that the results of this research were purely for academic purposes. Furthermore, the researcher made sure to convince the participants that their information would remain secure throughout the research period after which all materials that might be traced back to them would be destroyed to ensure that their identity was kept confidential from prying eyes. Moreover, the researcher made sure that all interviewees were identified as numbered respondents such as Respondent 1, 2, 3 and so on.

3.5 Instrumentation

A variety of data collection instruments are available to researchers as far as case studies are concerned. It is common knowledge that choosing the right instrument is a critical component to a successful study and ensuring the validity of collected data (Tracy 2012). For instance, the preferred instrumentation made clarifications of ambiguous items possible since the researcher asked follow-up questions just to be certain that the respondents were consistent in their responses. After permission was sought from the relevant authorities to carry out the current research, the author of this study submitted requests via email or registered mail services and accompanied with interview questions to at least five professions in each of the three selected organizations identified as organizations A, B, and C to conceal their identities for purposes of this research. It is from the three organizations that the current study based its case studies.

The researcher uses interviews and review of research articles published in peer reviewed journals to collect data on the role and contributions of KM in project systems. The decision to use semi-structured interviews was influenced by the need to follow on the respondents' lead in situations where interviews are used. It is worth noting that semi-structured interviews often contain specific research questions to guide the interview sessions even though the interviewer exercises discretion to avoid or add some questions depending on the lead he receives from any particular respondent (Hesse-Biber & Leavy 2010). Subsequently, semi-structured interviews were deemed more useful a tool in gathering professionals' opinions on the issues at hand and as Tracy (2012, p.143) writes, this research uses interview guides made of "less formal lists of questions, which are more flexibly drawn upon depending on the situation and the participants." This is a move that is often welcome for studies employing interpretive approaches such as the current study.

3.6 Data Collection and Analysis

Permission was first obtained from the relevant authorities such as the organization's management and the area research authorities to carry out the research and access the premises of the three organizations. Permission was sought both in writing and

orally when the researcher visited the three organizations and spoke to the relevant management figures in all the organizations forming the case study. Included in the permission request was the objective of the study and how these organizations could benefit from its findings upon conclusion and recommendations. As mentioned earlier, professionals engaged in knowledge management, information technology, and project systems were approached using interviews to give their opinions on the current research. Findings were then verified using a review of documents containing aspects of this study with an objective of proving if the findings from the interviews are valid and consistent with what has been achieved elsewhere around the globe.

Document analysis has over the years been embraced as an effective means through which researchers can enhance the evidence obtained from the data collected and analysis. One of the respondents from organization B made available a document the company used to set up KM systems and continues to use it as a reference for current and future practices. The information contained in this went into forming part of the discussion of this study and possibly making recommendations to companies that are yet to adopt KMS in project systems. In summing, the primary data was collected using interviews while secondary data was obtained mainly from peer reviewed journals and credible academic books published between 2000 and 2013.

When it came to data analysis, the current study analyzed data obtained from interviews and documents such as peer reviewed journal articles and books on the subject of knowledge management in relation to its contributions to project systems and the role it plays in the project management. Responses obtained from the respondents were assessed to determine if the incorporation of knowledge management in project systems had an influence in regard to increase/decrease in effectiveness and efficiency of processes. The most common analytic technique employed in this research is thematic analysis which involves identifying repeated patterns and themes in the data collected (Vaterlaus & Higginbotham 2012). When done well, this allows a qualitative researcher to provide valuable insights which can be used to improve programs in the local industries while also influencing related processes and efforts abroad.

3.7 Reliability, Validity and Limitations

Reliability and validity are important and complex components of a qualitative research study because they help validate a researcher's findings. According to Hesse-Biber and Leavy (2012), reliability is largely dependent on a researcher's awareness, insight, questions, and suspicions on the topic of interest. For valid results, the current study uses data triangulation which allows a researcher to use different sources of data to assess the validity of data collected. In the case of this research, data triangulation was achieved through the incorporation of interviews and document review. Also, to obtain results with high validity, the researcher used discretion to purposively select participants with the sole aim of getting in-depth understanding of the topic at hand. Interviewees were expected to have interacted with KM systems.

Reliability is the stability and consistency of a study's findings. Hesse-Biber and Leavy (2012) highlights that the data collected is reliable if it is internally consistent. That is: if the data is reasonable and fits together. Reliability is determined by the consistency of a study's findings in different contexts. For external consistency, the current research findings were cross-checked with other divergent data sources. Needless to say, this is why the author of the current study used document review to confirm the findings obtained from the interviews. Reliability can also be achieved through follow up questions to make sure that what the respondents said was credible and informed by their professional experience in the use of knowledge as a tool in management. To help achieve reliability, this research paper used Gay and Airasian's checklist to evaluate the reliability of this qualitative study. See figure 4 below:

Gay and Airasian's Checklist for Evaluating Reliability in Qualitative Studies
<ul style="list-style-type: none"> • Is the researcher's relationship with the group and setting fully described? • Is all field documentation comprehensive, fully cross-referenced and annotated, and rigorously detailed? • Were the observations and interviews documented using multiple means (written notes and recordings, for example)? • Is interviewers' training documented? • Is construction, planning, and testing of all instruments documented? • Are key informants fully described, including information on groups they represent and their community status? • Are sampling techniques fully documented as being sufficient for the study?

Figure 4: Reliability Checklist (Source: Gay and Airasian 2003, p.536)

Every study has its challenges and factors which limit it from achieving certain standards and the current study is not any different. First and foremost, the current research was limited to organizations based in the United Arab Emirates only. This is despite the fact the concept of knowledge management and its integration in project management systems is at the birth phase in the UAE. That is, only a handful of organizations have an idea of what KM entails together with its benefits. Secondly, the current study remained limited by the number of participants that responded to the interview questions. Finally, given that KMS is still at infancy in the UAE, the researcher dares to say that the findings of this study might not reflect the general experiences of people who have adopted knowledge management as a strategy of managing projects effectively and efficiently.

3.8 Chapter summary

The methodology chapter of this study commences with an introduction of what methodology entails and its possible components even if it only considers aspects relevant to this research. The chapter outlines the qualitative research design adopted and an interpretive research approach. For data collection, the author uses semi-structured

interviews and document reviews. Interviews were conducted in a manner that took into account the ethical considerations demanded of all studies dealing with human participants. A total of 15 respondents were selected to provide information on the interview questions. The researcher asked follow-up questions to ensure validity and reliability of data collected. Data triangulation was especially effective in securing data validity. All the procedures on how the data was collected and analyzed are provided in this chapter. The researcher explains on the procedures used to request for permission to access the premises of the case organizations and undertake the actual research.

Findings and Discussion

4.1 Introduction

The primary aim of this chapter is to report on the findings obtained from the interviews and analyze the data collected from both the interviews and document reviews. The interviews formed the primary source of data while document review provided secondary data which the author of the current research used to verify results from the primary data collection instrument. In total, this chapter analyzes 15 interviews undertaken in three case organizations A, B, and C as already elucidated in chapter three. This is immediately with a document review, which as has been mentioned, is a critical aspect for achieving data triangulation for purposes of determining the validity of the research findings obtained from the interviews. All the interviewees were assigned predetermined titles such as Respondent 1, 2, 3, ... with the sole aim of protecting their identity and upholding the confidentiality pledge made to them by the researcher.

The first part of the analysis focuses on the exploration of the impacts of successful knowledge management systems implementation such as continuous improvement. This is in line with the first objective of this study. To assess whether the second objective on the influence of KM systems in project management is met, the second part of this chapter analyzes data on KM in relation to project management systems. With respect to objective three which set out to “determine the slow rate of acceptance of knowledge management in the UAE particularly with respect to multinational corporations doing business in the country”, the author of the study analyzes data on why UAE experiences such a low rate of acceptance towards KM systems in everyday business and project activities which could help boost their operations and heighten their competitive advantage. This is in regard to case C organization. To sum the analysis of primary data, the researcher analyzed potential barriers which have hindered successful implementation of knowledge management systems in country. Finally, a document review is included to check whether the findings of this research are consistent with what other researchers have found out elsewhere in the world since the idea of KM is still very young in the county. Special preference was given

to studies by Orlikowski (2002) and Ajmal, Helo, and Kekale (2010) as mentioned earlier in the conceptual framework in chapter two of this study.

4.2 Research Results

4.2.1 Continuous Improvement

When asked about the evident impacts of knowledge management on their everyday work lives, all the interviewees from the three case organizations agreed that knowledge management has provided a platform through which employees learn from other people's experiences, mistakes, and achievements hence the realization of improved outcomes. This, they say, is a continuous process which employees have embraced as a way of ensuring that there exists a proper interface between project parties. Respondent 2 from case organization A responded by saying the following:

“KM has provided organizational dynamics and weeded out stagnation. Knowledge is power which has enabled this institution to share knowledge and expertise within and across its structures in order to achieve continuous improvement in the banking sector.”

All the interviewees held that knowledge management has made possible for their organizations to share important knowledge on how to undertake certain roles, transfer expertise within and across their organizations, and business strategies which is responsible for their competitive edge and creation of a niche in their respective industries. This in turn ensures objectivity in attaining efficiency when it comes to operation costs and time management.

Responses received from interviewees of organization B were particularly top-notch as they described the repetitive nature of their work and how this creates faster and better personnel that help save time and reduce avoidable errors. They associate this with learning. The interviewees further elaborate that knowledge management is more of a systematic approach which takes this kind of unconscious learning so as to provide a framework that enables employees to identify, document, and profit from lessons learnt from other peoples and organizations' experiences. These views are largely shared by interviewee of organization A who contends that shared learning shortens the learning curve on each and every new project that they are assigned to undertake. This in turn

translates to improved teamwork culture and transparency thought to have a direct relation with improved performance and completion rates.

The issue of repetitive projects and/or projects is similarly common in organization C where interviewees admitted that they do processes over and over again which leaves them familiar with project components and processes hence boosting their technical know-how of what to expect in future projects. This, they reveal, yields an accelerated learning among employees coupled with shared intelligence, higher levels of innovativeness, and overall improved performance. Respondent 6 of organization B shares these sentiments but elaborates that they have been able to achieve what they have a create a name for themselves in the UAE through mentorship programs, on-the-job discussions, and professional training which are all unique examples of the informal KM system used by the organization.

4.2.2 Influence of KM systems in Project Management

One thing that stood out from all the interviewees was that knowledge management significantly reduces the total time spent on undertaking projects. In addition, out of the 15 interviewees, 13 concurred that KM systems help project team members to share and transfer knowledge in an effective and efficient manner which ensures that less time is spent on the planning phase of the project so that actual project execution commences in earnest. Respondent 4 of organization A reveals that he has experienced an improvement in project planning because KM systems has always enabled them to focus time on pre-project planning through on-the-job discussions which avail a platform for step-by-step planning of the project. Subsequently, this enables the project team to work smarter, increasing the success rate of projects.

According to Respondent 8 of organization B, knowledge management plays a key role in enhancing team sharing through peer assist sessions and expert interviews on specific subject matter. Knowledge management encourages learning from other players who have the capacity to given project teams knowledge so that they can enter the execution stage of the project with confidence. Knowledge management, in project management systems, helps employees to identify key activities otherwise not captured in initial project plans so as to exceed the expectations of the client and create unrivalled

marks in the market. Interviews from organization C attest that knowledge management has played a fundamental role in creating an unshakable foundation for the information technology company's breakthrough in project performance processes. This is what the interviewees associated with the company's strong and sustained competitive advantage in the industry of information technology.

Interviews involved in project systems from the three case organizations pointed out that knowledge management was a central source of their companies' innovative ideas in project management, executive decision-making even in cases where other players have failed and clients thought such paths beyond imagination to navigate. Nonetheless, one interviewee from organization B noted that many employees in the oil and gas company identified knowledge as an elusive and intangible asset and as such did not warrant as much attention has the managers advocated for in their request to have employees adopt the system as a change initiative aimed to improve project team's performance so as to achieve effectiveness and process efficiency in all projects undertaken by the oil and gas company.

4.2.3 Factors responsible for the slow acceptance rate of KM systems

A senior manager at the oil and gas company said that KM grapples to thrive because it is a new discipline in management for UAE managers and project teams. In elaborating this point, the interviewee noted that knowledge is worthless and adds no value to an organization if it is not shared among persons involved in the management of projects. In another interview with Respondent 11 from organization C, it emerged that the low acceptance rates of KM in UAE is attributed to lack of trust among employees. This means that those who possess knowledge hold on to it because they shy from sharing their knowledge with other people for fear that this might render them redundant once their colleagues know what they know.

Due to the complex nature and sensitivity in the oil and gas industry, interviewee 9 states that lack of best-practices, organizational processes, cultural differences, and norms have taken center stage in crippling or dragging any attempts to successfully implement KM systems. Unpredicted cultural obstacles and difficulties with which employees navigate within non-knowledge management systems is cited as an impediment to successful implementation and realization of the full potential of a system originally meant

to improve management processes and even strengthen the company's competitive advantage in the oil and gas industry for which organization B belongs.

The researcher reports a variation in results as far as organization C is concerned. Interviewees from the information technology company said that knowledge management continues to report minimal recognition and growth because employees within the region of the current case study lack commitment to the KM system and have often confused information with knowledge. Respondent 13 reveals that many organizations they have consulted for with regard to KM implementation, quite a number of business heads and managers hardly admit to needing assistance in the implementation and sustenance of an effective KM system. He adds that many people charged with the responsibility of bringing KMS into fruition fail to develop a common language which provides a breeding ground for mistrust among employees. This particular problem is common in multinational companies with foreign roots.

Last but not least, knowledge management registers low acceptance rates among companies setting in the UAE because a number of the interviewees admit to difficulty of sharing knowledge within and across organizations. Moreover, a good number of those interviewed share the view that many employees see knowledge as nothing more than an elusive and intangible asset which cannot be visualized to help meet the objectives of projects. As a result, all the 15 interviews agree that this has led employees and managers to resist changes likely to lead to the adoption of KM in project systems merely because they associate the above mentioned difficulty with reduced performance and low completion rates of projects. The top managers interviewed from organization C tie the current low rates of KM acceptance to employees' lack of information technology (IT) savvy since this is master key to sharing knowledge with people. This means that many employees in the UAE are thus unable to embed their experiences, values, expertise, and information in their day-to-day work responsibilities through a collaborative effort. In result, this has slowed down KM acceptance.

4.2.4 Knowledge management value addition to project management systems

Respondent 5 from organization A said that KM had enabled the employees of the bank to share knowledge within and across departments of the financial institution with the primary aim of improving on service delivery, reduction in delays as customers queued to get served, and increase customer satisfaction as an ultimate goal in an effort to remain the champion in the financial sector. When the researcher asked a follow-up question on how KM systems have impacted their project processes, the interviewees from organization A reported effective time management and free exchange of knowledge on project parts. An interviewee from organization A told the researcher that the company had made KM an integral part of its business strategy through a special initiative known as Learning and Growth plan where employees and managers alike are permitted to record lessons learnt from other projects in preparation for future projects.

Different aspects of projects are keenly knit within the organization's strategy with an aim to enhancing employees' knowledge on all aspects of the company's business which are part and parcel of the institution's overall strategy. Those interviewees frequently involved in project management functions assert that knowledge in project systems is equated to a set of strategies and applications which their organizations utilize to identify, create, distribute, represent, and enable more project team members to bring on board their professional experiences and insight in an attempt to make the management of projects an experience worth reliving.

In as much as Respondent 12 acknowledged that knowledge is more of an intangible asset, he emphasized the importance of managers' active involvement in KM implementation. In addition, he said that it is of great importance for the employees to be informed of expected outcomes of such a change in order to eliminate unfounded resistance based on invalid perceptions about the system. In doing so, the interviewee from the information technology company believed that knowledge can be a valuable mix of people's experiences, values, and professional insights in order to attained unrivaled effectiveness and time management in project systems. This way, knowledge is neatly woven in project processes, routines, and practices hence increased performance ratings.

4.2.5 Potential barriers to KM implementation

Interviewees from organization C said that one of the major bottlenecks to the implementation process of KM systems is the employees' negative attitude towards knowledge management. For instance, an interviewee from organization A said that most of his colleagues were initially opposed to the idea of implementing a KM system because they thought that the systems they initially had were working just fine. Consequently, they were least interested in improving the situation or the financial institution's business profile. At first, this inhibited attempts to improve on the business's processes. Even so, it was interesting to note that Respondent 5 from the same organization had a different view of what had really transpired during the implementation process. To him, KM implementation never faced any resistance during its implementation. This prompted the researcher to probe further to find out if his views had some truth in them. As things turned out, this interviewee got to join the company after the KM system had already been implemented.

Another interviewee from organization B told the interviewer that a substantial number of employees from the oil and gas company resisted the management's efforts to implement KM systems in the organization's project processes. A project manager from the company was interviewed by the researcher and was open enough to say that UAE nationals are not good at trusting people, especially foreign workers. He said that they oftentimes feel like people are out to exploit them and take advantage of their knowledge, expertise, and skill sets without recognition of their contributions in the final outcomes of jobs that they have participated in. Consequently, this means that a good number of employees in the UAE are reluctant to adopt a knowledge-based culture without which a successful knowledge management framework cannot work no matter how hard the project team tries to make it work.

Given the above results in mind, the author now embarks on discussing the results and elucidation on what such findings reflect in relation to what other researchers have been to do in other studies which are not cast far from the current study. In order to do a conclusive job on the discussion part of this dissertation, the author discusses the themes and patterns presented in the findings under the specific objectives of the current research

paper. This helps organize ideas and arguments supported with what other researchers have been able to do as far as the theme of this study is concerned. The discussion is organized under respective objectives.

4.3 Discussion

4.3.1 Objective 1: To explore the impacts of successful KM implementation

As Orlikowski (2002) asserts, the question of the impact of knowledge management presently occupies the minds of researchers and business management scholars. As a matter of fact, it is only recently that organizational researchers became drawn to this topic making knowledge the watchword of modern day organizations. From the findings obtained from the interviewees, it is apparent that knowledge management has provided organizations with business dynamics which is an essential ingredient for weeding out stagnation. In this sense, it appears that knowledge wields a lot of power to transforming an organization's processes and way of conducting business and carrying out projects. In a nutshell, knowledge management is an idea whose time has come and many of those interviewed by the researchers appreciate that KM is increasingly influencing how employees capture, internalize, and share knowledge among themselves with a mind set on common organization objectives and business strategies.

The researcher had an opportunity to visit one of organization B's unfinished projects and it was quite an example of what organizations that have implemented KM systems get to gain in their processes, practices, and enhancing competitive edge in the industry. This was what the Project Management Institute (2008) associated project management with in relation to a well-thought out system through which employees got to share their knowledge, techniques, skills, and tools in an effort to meet and exceed stakeholders' expectations in a project. Meeting the clients' expectations in project management invariably requires project managers and team members to balance competing elements such as: having a definite project scope; effective time management; cost effectiveness; and providing high quality so as to meet and surpass clients' diverse needs and requirements.

All the interviewees acknowledged the importance of knowledge management in employees' every day work lives. Particular appreciation is pegged on the fact that KM systems provide a platform that enables organizations to provide opportunities for employees to learn from each other's experiences, skills, values, culture, and achievements. This creates continuous improvement in an organization's undertaking especially with regard to the front of project performance. In as much as projects are aimed at achieving specific goals and objectives, they are oftentimes restrained by time and funding. This helps explain why the three organizations value knowledge sharing and transfer so as to come up with the best way of managing project processes, activities, and plan execution.

The transfer and sharing of knowledge is an ongoing process that is incessant throughout an employee's life (Orlikowski 2002). It takes after the social accomplishment of an individual in an attempt to make a mark in the society he hails from. Based on the same footing of the scenario of the society described above, knowledge management is constituted and reconstituted by both employees and managers in their everyday professional practice with the intent of continuously improving themselves and increasing their worth in the organization. This might not appear as important to many employees but it means the world for employers who seek experienced, skilled, and knowledgeable persons to head challenging projects and project teams.

4.3.2 Objective 2: To assess the influence of KM systems in Project Management

In the previous objective, it emerged that knowledge management gave the case organizations the opportunity and ability to create, share, and apply collective knowledge of its processes and people in making sure that its projects are successful and meet the requirements of the clients with special regard to timely delivery and exchange of knowledge to increase workplace productivity. According to Fontaine and Lesser (2002), knowledge management therefore reduces any activities which might work towards derailing the smooth completion of projects. Perhaps it is for this reason that the studied organizations chose to integrate knowledge management with project management. Much of the success registered by these companies in projects is attributed to the untapped resource of employees' knowledge. Without a doubt, this explicates why the three

companies top the list of UAE's top performing companies in both their respective industries as well as overall competitive markets.

Since knowledge management systems are strategically focused on continuous improvement, innovation, improved performance, and enhanced competitive advantage, there is need for organizations to continuously seek knowledge so as to cope with the dynamic demands of the market. The scope of projects has immensely changed over the years and it is critical that those involved in project management have all the necessary knowledge required to manage projects for which they are responsible. Although none of the interviewees explained how knowledge was embedded in their organizations, it was evident that knowledge was shared and transferred as documents in the form of project policy procedures, plans, reports, or correspondences. Other forms in which knowledge existed were: processes and practices, and the companies' databases.

In an effort to improve its operations and management of projects, the oil and gas company, for instance, has clearly spelt out knowledge management activities which include a database containing lessons learnt from past projects, sessions for sharing knowledge during project planning and executions, integrated collaborative project environment, and technology focused groups. From all the interviewees conducted, it emerged that KM significantly contributes to analysis of gaps before, during, and after the project is completed. This provides ample time to make adjustments to achieve a project's objectives. Previous project management interventions can be used to meet project schedules, performance, and costs. Evidently, knowledge is increasingly becoming the secret ingredient in ensuring that the management of projects is successful (Torun 2009). The interviewees admittedly submitted that great success outcomes occurred in cases where the knowledge was monitored and controlled throughout the life of the project. For instance, one interviewee from the Oil and Gas Company said that they completed projects before schedule when knowledge was shared among project members and people came out more fulfilled and experienced in their lines of specialization. In closing remarks, it is safe to say that effective knowledge management is critical for the success of a project. It is this effectiveness in knowledge management and success in projects that increases the three organizations' competitive advantage over their rivals in their respective industries. This

clears the air as to why these case organizations have managed to increase their operations and adopted effective means of addressing the variable demands of the markets they serve.

4.3.3 Objective 3: To determine the slow acceptance rate of KM systems in the UAE particularly with respect to multinational corporations in the country

From the status of the three case organizations, it is clear that the role of knowledge management can no longer be overlooked in the management of projects because of its contribution towards the retention of specific project knowledge and procedures. All the interviewees, even those who seemed a little less conversant with the discipline of knowledge management, said that knowledge helps employees to work together towards achieving common organization goals. Nevertheless, the discipline of knowledge management remains one of the budding management tools whose adoption and acceptance among organizations conducting business in the UAE continues to lag behind. This is despite the interviewees' theoretical understanding of the potential impact of KM implementation. One of the reasons behind the slow acceptance rates of KM is related to the fact that some employees are too reluctant to share the knowledge that they have as mentioned earlier in the literature review. Needless to say, it is common knowledge that knowledge that is not shared is worth nothing and adds no value to an organization. This is simply because knowledge that is hoarded prevents employees from learning from each other's experiences and professional insights.

Lack of trust significantly inhibits knowledge sharing and transfer. Greater detail is provided on this in the next section of this dissertation. This is too common an occurrence in multinational corporations in which foreign employees have repeatedly shied away from exchanging or sharing their knowledge for fear of losing out in some aspect. Many foreign workers hold onto their knowledge because they dread losing their personal competitiveness (Wang & Noe 2010). As a result, this creates a wall which hinders knowledge transfer by other employees thereby derailing the performance of project team members. It is this lack of culture that kills the intended best practices, cripples organizational knowledge management systems, and further eliminates the possibility of a shared organization culture that supports knowledge management. From the employees

interviewed, it became evident to the researcher that many employees, especially of foreign origin, lack personal level relationships with their colleagues who can allow them to socialize and share knowledge. In most cases, employees engage in knowledge sharing to get favors from their colleagues. This corrupts the system as knowledge sharing and transfer is done willingly and freely without coercion of future favors. Wang and Noe (2010) contend that such lack of commitment to an organization's system is responsible for failure of project execution and implementation.

In addition, some interviewees highlighted that employees show little or no commitment to successful KM implementation because of varied reasons. In the same stroke, Ajmal, Helo, and Kekale (2010) point out that the management is always keen to kick off KM projects until when the problem of commitment sets in forcing the organization to quickly withdraw further attempts to implement KMS. This is a scenario birthed from employees' lack of knowledge on organizational processes and cultural differences. It is important to note that the study of cultural influence on knowledge management is beyond the scope of this study and as such is mentioned in mere passing. Under several occasions, managers of organizations seldom prepare employees for change which subsequently causes employees to resist changes like the implementation of knowledge management as an integral tool in project management. Another reason for the slow acceptance rate of knowledge management is associated with the difficulty of sharing knowledge. It is surprising to note that what appears as a simple act of articulating, capturing, and distributing knowledge, and personal skills and experiences is one difficult undertaking in reality (Easterby-Smith & Prieto 2008). All these reasons are tied to employees' inadequate understanding of the actual value of knowledge management in projects. An interviewee from organization A, for instance, wrongly thought that information and knowledge management meant the same things and as such believed that the use of internet and the company's database was enough proof that he was involved in knowledge management.

4.3.4 Objective 4: To assess potential barriers to successful implementation of knowledge management

The most salient barrier to the implementation process of knowledge management is lack of trust. According to Ajmal, Helo, and Kekale (2010), lack of trust is like a viral infection without a vaccine which prevents employees from sharing knowledge. In cases where staffs share knowledge within their organizations, they can do so selfishly for personal gains like gaining authority and control within the organizations that they work for. For example, an employee might share knowledge with his colleague expecting a favor in return in the near future. For example: in the absence of trust, employees develop a knowledge-hoarding mentality which as had been mentioned earlier paralyzes any efforts to share and transfer knowledge during project planning and implementation. The sentiments of one of the interviewees are largely shared by Riege (2005) who argues that employees' lack of trust in their colleagues are oftentimes tied to the fear that other people who are not the actual owners of such knowledge are likely to misuse knowledge or even take unjust credit for knowledge that they acquired from other people without proper acknowledgement. This argument might help explain why foreign workers reluctantly share knowledge with UAE nationals.

From the interviews, the researcher only had the opportunity to assess lack of trust between employees. However, there exists another form of trust which many might have paid less attention to. Employees might also lack trust in the credibility and accuracy of knowledge due to its source (Riege 2005). Very few people bother to verify the source of knowledge because of the time constraints involved. Deadlines to deliver and perform keep employees preoccupied that they hardly have the time to check the source of knowledge at their disposal. The absence of proper channels to assess the quality of external explicit or tacit knowledge remains a major cause of this type of mistrust among employees. This is a major impediment in formal networks than informal networks where people voluntarily share their knowledge and insights, and collaborate willingly and actively with each other.

4.4 Chapter summary

This chapter of the dissertation has captured and discussed the collected data on the emerging role of knowledge management among UAE organizations. To make the task easier, the researcher has addressed key areas captured in the interviews in accordance with the objectives of the dissertation. More specifically, the chapter addresses some benefits of adopting and implementing KM in project management systems so as to clearly bring out the emerging role and contribution of knowledge management to project systems undertaken by the case organizations. It is evident that the inclusion of knowledge management systems in projects creates efficiency, effectiveness, and enhances organizations' competitive advantage over competitors in the industry from which they operate.

Conclusion and Recommendations

5.1 Introduction

This study has examined the impacts of knowledge management initiatives on three project-based organizations identified in the dissertation as case organizations A, B, and C. Other areas examined by the researcher are the slow acceptance rates of knowledge management and potential barriers likely to derail the development and adoption of knowledge management as a tool of enhancing the management of projects. Drawing on the results and review of various researchers' work published between the year 2000 and 2013, the researcher highlights on themes and patterns that emerged from the interviews. This part of the dissertation sets out to draw conclusions based on the findings obtained from the interviews and make recommendations for future research as well list possible implications this dissertation has on the discipline of knowledge management with a narrowed focus on UAE project-based organizations as well as those not involved in processes of project management.

5.2 Conclusion

This study adopted a comprehensive approach to address the research objectives stated in chapter one. To conceptualize the topic of the current study, the researcher undertook a detailed review of literature which sought to explicate on the discipline of knowledge management and its role and contributions to the practice and processes of project management. The use of interviews to collect primary data was most advantageous for the case study with the validity and reliability of the findings being assured using document analysis and data triangulation as explained in chapter three.

- a. Based on the first objective of the study, the influence of KM in project management can be categorized into: continuous improvement, time management leading to timely delivery of projects, and increased collaborative efforts among

project team members so as to anticipate and exceed stakeholders or clients' expectations on project outcomes and delivery.

- b. On the second objective, the findings reported on slow acceptance rates of KM systems were largely influenced by the following factors: lack of trust, employees' lack of knowledge on best practices, and difficulty in sharing knowledge. All the 15 interviewees associated resistance and relaxed acceptance of KM to difficulty in sharing knowledge which they link to low performance levels among project team members. Subsequently, this impacts on the completion rates of projects negatively.
- c. It also became evident that employees that are information technology savvy stand a better chance of understanding what knowledge management involves hence smooth sharing of knowledge.
- d. Knowledge management adds value to project processes and helps improve on service delivery, reduce delays, and ultimately increases customer satisfaction which helps to boost an organization's competitive advantage. This is however only achievable if different aspects of projects are inextricably interwoven in an organization's business strategy.
- e. Although a number of barriers were identified and explained in the literature review, there is only one conspicuous barrier that the interviewees commonly identified. Trust was largely blamed as a major blow to KM implementation. Many a time, employees' lack of trust is triggered by their fear to lose their personal competitiveness at the workplace if they share knowledge during project planning and implementation.

It appears that people hold misconceptions about KM. To achieve the full potential of KM in project systems, it therefore requires a shared responsibility to enlighten employees on the benefits of adopting knowledge management as a change initiative.

5.3 Recommendations

This research was mainly inspired by the need to investigate the role and contribution of knowledge management to project management. In addition, it examined

the success factors which influence successful KMS development and implementation in UAE-based organizations. The research shows that in the event that all the aspects of knowledge management are inclusively tied to project management processes and practices then organizations are bound to experience continuous improvements in subsequent projects it undertakes. Repeated tasks, it appears, improves a project teams' knowledge on project planning and execution. This can easily be documented and stored in company databases where such valuable knowledge can be accessed by everyone who needs it for reference. Given the importance of knowledge management in project management, the researcher makes the following recommendations:

1. Organizations need to encourage employees to establish good working relationships which breed trust and ease knowledge sharing. Organizations can achieve this by insisting on a common organizational culture which enables employees to share knowledge with a common goal directed towards meeting a company's objectives and business strategy. Employees are more likely to feel at ease to know that the success of the organization they work for depends on a collective effort rather than individual efforts which are oftentimes short-lived;
2. Human resource practices should be restructured to encompass practices of fairness in organizational decision-making and open communication channels with a high potential of promoting an organizational culture supportive of knowledge transfer in order to continuously improve performance in project systems; and
3. Organizations should manage the fear of losing employability and instill the right culture fit for knowledge transfer, there is need to shape and facilitate both foreign and local employees' perception of knowledge possession proven to enhance knowledge transfer due to internal satisfaction.

5.4 Recommendations for further research

1. For knowledge management to work effectively, it would be of great interest to see what results would be obtained if the current research topic would be altered

to include the impact of organizational policy on knowledge management implementation.

2. Given that this was a case study based in the UAE capturing only three organizations, it would be interesting to see what the inclusion of more organizations and a larger sample size would reveal on the role and contribution of knowledge management on project management systems. Also, special attention can be paid to whether the results of such a study are replicated.

5.5 Contributions of this research

This study is a major eye opener in the field of management and more specifically to the discipline of knowledge management (KM). The research was primarily undertaken to explore the contributions and roles of knowledge management in project management systems in the context of Abu Dhabi organizations in order to understand the acceptance rate and application of the concept of knowledge sharing and transfer in the United Arab Emirates (UAE). Additionally, this research provides a wealth of literature on factors inhibiting the successful application of KM in the management of projects as well as highlight influences of knowledge management such as continuous improvement in project systems.

5.6 Academic Perspective

This study marks the first of its kind to investigate and explore the influence of knowledge management practices in project management in UAE organizations. In as much as the acceptance rate of KM in project systems remains low, this study could pave way for building a theory and/or add to the knowledge base on the influences and ways of controlling and weeding out possible barriers to successful adoption and implementation of knowledge management systems in the management of projects in the UAE. Additionally, this study has provided empirical evidence on the role played by knowledge management in project systems as well as how organizations use KM to boost their competitive edge in the UAE market.

5.7 Practitioners' Perspective

This dissertation has highlighted and given a summary of what other practitioners have done vis-à-vis the discipline of knowledge management. It also assesses factors that are commonly cited as major hindrances to the success of sharing and transferring knowledge in organizations. Also, the issue of continuous improvement is a critical aspect of this research study in assuring that organizations achieve quality in their strategic planning of projects. Knowledge management should be seen in the manner in which organizations make it part and parcel of an organization's vision, mission, and objectives.

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Appendix

Interview Questions

Instructions: Do **NOT** indicate the interviewee's name for confidentiality

1. What would you say are the differences between information technology and knowledge management in your organization/business?
2. Is knowledge management all about intranet and databases?
3. Is there a systematic means to manage knowledge in project systems?
4. In implementing knowledge management systems, what would you say are the key components of a knowledge management framework?
5. Why did you find it necessary to implement KM?
6. How has your organization benefitted from the implementation of knowledge management systems?
7. How have your employees benefitted from the current KM system?
8. What would you say has contributed to the slow acceptance of knowledge management in the United Arab Emirates, especially with regard to multinational corporations doing business in the country?
9. How does the current KM tie in with your organization's business strategy? How much value has knowledge management delivered to your organization's project management systems?
10. What are the biggest barriers to a successful knowledge management implementation in your organization? How did you manage organizational resistance/barriers to knowledge management implementations?