

**A KNOWLEDGE MANAGEMENT  
IMPLEMENTATION FRAMEWORK FOR THE  
LIBYAN BANKING SECTOR**

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Submitted in Partial Fulfilment for the Degree  
of Doctor of Philosophy, 2006

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# ACKNOWLEDGEMENTS

In the name of Allah,

I would like to thank my supervisor, Dr Jack Steven Goulding for his expert advice and assistance throughout all stages of this research. His insight and wisdom helped to provide clarity, focus, and much-needed inspiration, and for his generous all-round support, I am extremely grateful. Also I would like to thank Professor Mustafa Alshawi who was very helpful.

Special thanks also go to all users/evaluators involved in the development and testing stages of the Knowledge Management Implementation Framework developed in this research. Particularly, I would like to acknowledge the Libyan government, staff of the Libyan banking industry and the London bank.

Many warm thanks are reserved for my parents, my brothers, sisters and my uncle who have supported me and prayed for my success during my PhD.

Especially, my thanks must go to my lovely family: my wife Hend who has been very patient, supportive and helpful all the way through my research process and to our lovely children, Afnan and Elias for all their silence and patience.

Further thanks go to the administrative staff and all others who have contributed directly or indirectly to the success of my research by providing assistance whenever needed. I also take this opportunity to thank all my friends and colleagues for their invaluable friendship.

Finally, thanks and all the praise should go to Allah.

# DECLARATION

This is to certify that:

1. This thesis embodies the author's research
2. The originality (and contribution to knowledge) rests solely with the author

Signature of candidate.....

Date: 27 July 2006

# LIST OF ABBREVIATIONS

<b><u>Abbreviation</u></b>	<b><u>Definition</u></b>
AP	Alliances and Partnerships
ATM	Automatic Teller Machine
BCD	Bank of Commerce & Development
CBL	Central Bank of Libya
CBT	Computer-based Training
CEO	Chief Executive Officer
CKIAs	Critical Knowledge Implementation Areas
CKO	Chief Knowledge Officer
CM	Change Management
CoPs	Communities of Practice
ER	Employees' Requirements
EUIT	Existence and Usage of IT Systems
GDP	Gross Domestic Product
GPC	General People's Committee
GPCN	General People's Congress
GPTCO	General Post and Telecommunication
HR	Human Resources
HRM	Human Resource Management
IC	Intellectual Capital
ICT	Information Communication Technology
ISPs	Internet Service Providers
IS	Information System
IT	Information Technology
ITSF	Information Technology Staff
ITSK	Information Technology Skills
ITST	Information Technology Strategy
KA	Knowledge Acquisition
KAP	Knowledge Application

KBS	Knowledge-based Systems
KC	Knowledge Creation
KD	Knowledge Documentation
KM	Knowledge Management
KMI	Knowledge Management Implementation
KMIFBI	Knowledge Management Implementation Framework for the Banking Industry
KMP	Knowledge Management Process
KMR	Knowledge Management Resources
KMS	Knowledge Management System
KMST	Knowledge Management Strategy
KT	Knowledge Transfer
LAFB	Libyan Arab Foreign Bank
LAFICO	Libyan Arab Foreign Investment Company
LB	Libyan Banks
LFIB	Libyan Foreign Investment Board
LD	Libyan Dinar
LPBS	Libyan Public Banking Sector
LPCBs	Libyan Public Commercial Banks
LPO	Libyan Public Organisation
LPSBs	Libyan Public Specialist Banks
LPUBs	Libyan Public Banks
NCB	National Commercial Bank
OCL	Organisational Culture
OL	Organisational Learning
OPP	Organisational Policies and Procedures
OST	Organisation's Structure
OTL	Organisational Training and Learning
R&D	Research and Development
SDR	Swiss Franc
SMC	Senior Management Commitments
SOOs	State-Owned Organisations
TW	Teamwork
UK	United Kingdom

UN	United Nations
US	United States of America
VSAT	Very Small Aperture Terminal
WB	World Bank
WTO	World Trade Organisation



# ABSTRACT

The principles of knowledge management (KM) are widely acknowledged and have been developed over the last 50 years, especially in such disciplines as management science, sociology, and construction. Whilst knowledge management (KM) is still an evolving practice, specific emphasis is now taking place on securing leverage through knowledge-context, interpretation, transfer, and reflection. Knowledge-based economies are increasingly reliant upon their intellectual capital (IC) cognisant of: the Information Technology (IT) revolution; expanding information society; the increased importance of knowledge; and the congruence and emergence of innovation through the application of KM practices. However, little work in the remit of KM has been evidenced in the Libyan financial sector the omission of which is the focus of this research.

This research uses a case-study approach using an interpretive perspective to develop a knowledge management implementation (KMI) framework for the Libyan banking industry. The framework was developed and tested using three Libyan banks (LBs) and one bank from the United Kingdom (UK). Domain expertise was selected from the financial sector and academia to validate all results and findings.

Research findings identified that the body of literature surrounding KM (from a Western perspective), could be applied to the Libyan context with a high degree of congruence. Moreover, the Libyan banking industry has now reached a level of maturity to embrace this framework as part of its core business practices. Several critical KM implementation areas were identified for incorporation (linked to organisational maturity). However, no definitive measurable leverage could be ascertained from this study, the aspect of which would need to form part of a larger study using cross-case analysis and multiple replications.

# **CHAPTER 1**

---

## **INTRODUCTION**

---

This introductory chapter provides the general background to the research and discusses the overall importance of KM. It, furthermore, stresses the need for knowledge management System (KMS) implementation in order to improve the efficiency, capability and productivity of the Libyan Public Banks (LPUBs). The chapter also outlines the aim and objectives of this study, and presents the main research questions concerned with the implementation of KMS within the LPUBs.

### **1.1 Introduction and Context**

Knowledge is becoming increasingly more useful and important for organisations (Carneiro, 2000), and is now recognised as a resource that is valuable to an organisation's ability to innovate and compete. It exists within the individual employees and also in a composite sense within the organisation (Bollinger and Smith, 2001). The importance of knowledge lies in the creativity value that it adds to the organisation's assets and in its ability to improve the effectiveness of an organisation's IC which is defined as the sum of an organisation's ideas, inventions, technologies, general knowledge,

computer programmes, designs, data, skills, processes, creativity, and publications (Sullivan, 1999). Developments in the management of knowledge can help managers improve their day-to-day work, decision-making processes, create new responses, and enable a set of competitive reactions to be augmented. The implementation of a KMS is a systematic, integrated and planned approach designed to solve problems that can adversely affect the operating efficiency of organisations.

Management is likely to be successful only if it has a true strategic orientation approach to manage its stock of knowledge (Edvinsson and Malone, 1997). The use and application of knowledge now represents a key source for sustained competitive advantage (Drucker, 1993; Quinn, 1992<sup>b</sup>; Reich, 1991). Considering KM as a concept; KPMG Consulting (1998) noted that: "There is little doubt that we have entered the knowledge economy where what organisations know is becoming more important than the traditional sources of economic power".

The importance of knowledge has been increasing in the last two decades, especially in Western businesses where it has been a fledgling concept for some time, and where now it has become a mainstream business function. Currently, many organisations are attempting to provide an internal and external environment for adopting a KMS to ensure their existing knowledge is properly managed and capitalised upon. A KMS, as argued, should be developed as a response to changes in the internal and external environments. Carneiro (2000) explains that such a system is to be adapted to solve problems that negatively affect operating efficiency. Furthermore, Davenport and Volpel (2001) state that most large organisations in the United States of America (US), and many in Europe, including every major organisation in the professional services, automobile, pharmaceutical, oil industries, and even consulting organisations, have a KMS. Furthermore, they note that Chief Knowledge Officer (CKO) positions are increasingly being

established in many organisations; and that this concept has penetrated into many different functions and processes of business.

The promised benefits from implementing KMS are attracting and increasing number of organisations. However, there are a number of difficulties that need to be managed when designing a KMS or implementing its initiatives. These difficulties, along with some unsuccessful KM initiatives worry many organisations interested in the concept (Al-Ghassani *et al.*, 2004).

## **1.2 Organisational Needs for Knowledge Management**

KM is being regarded as a significant component of a business strategy that has the ability to provide an organisation with opportunities to manage new market challenges, for example, Teece (1998) argues that knowledge can form the basis for sustained competitive advantage. Hence, KM is an emerging area of interest to researchers and practitioners from diverse backgrounds and disciplines. Senior managers for instance have gradually started to focus on managing knowledge deliberately and systematically to survive in the new global knowledge environment.

Quinn (1992<sup>a</sup>) states that KM plays important roles in public as well as private organisations, with each role serving specific demands and purposes, and being implemented differently. In public organisations for example, KM areas are considered to enhance decision-making within public services; aid the public to participate effectively in public decision-making; build competitive societal information community capabilities; and develop a knowledge-competitive workforce.

The number of organisations claiming to work with KM is growing progressively (Grover and Davenport, 2001; Martensson, 2000; Moffett *et al.*, 2002). This is attributed to several reasons. Firstly, KM has proven benefits and has been adopted by 80% of the world's biggest organisations (KPMG

Consulting, 2000). Secondly, core competencies are ostensibly based on KM, and therefore rely on the skills and experience of the people who do the work; and the fact that these may not exist in a physical form in the future, increases the attractiveness of KMS (Manville and Foote, 1996). Thirdly, the recent changes in business direction emphasises the importance of greater understanding of knowledge-intensive work such as how people think, learn, and use knowledge (Brown and Duguid, 2000; Damasio, 1994, 1999; Klein, 1998; Nonaka and Takeuchi, 1995; Wiig, 1994). Fourthly, organisations with greater knowledge can combine traditional resources and assets in new and distinctive ways, thereby providing greater value to customers (Teece *et al.*, 1997).

Considering the importance of KMS to organisations, Davenport and Volpel (2001) state that:

*“We believe that the management of knowledge will continue to grow in its importance to business success. Although the knowledge management movement has aspects of faddishness (many conferences, many books, many articles in the business press), and it may lose some of its current level of visibility, it must become part of the basic fabric of successful businesses. There are too many knowledge workers dealing with too much knowledge for knowledge management to disappear.”*

KM has emerged to create and leverage IC into the business equation and into public management (Allee, 1998; Reich, 1991; Wiig, 1994, 1997). KM is argued to be a valuable strategic tool, because it can be a key resource for decision-making, mainly for the formulation of alternative strategies. It can also improve the conditions for strategic action by providing the means by which organisations can come to appreciate and manage problems and challenges. In this context, the success of management decisions often depends also upon competitive effort, which includes a deep knowledge of customers' attitudes and the analysis of the competition (Curren *et al.*, 1992).

The purpose, goal and expected outcomes of an organisation's work with its KMS are many. For instance, KMS can be seen as a way to improve performance (Bassi, 1997); productivity and competitiveness (Maglitta, 1995); and set the grounds for effective acquisition, sharing and usage of information within organisations. Notwithstanding these issues, KMS provides the means for improved decision-making (Cole-Gomolski, 1997); capturing best practice (Cole-Gomolski, 1998); reducing research costs and delays (Maglitta, 1995); and enabling a more innovative organisation (Hibbard, 1997; Mayo, 1998).

Effective management of knowledge, as argued by several scholars and industry analysts, enable an organisation to provide better customer service (see for example, Bohn, 1994; Nonaka, 1991; Quinn, 1992<sup>a</sup>; Toffler, 1990).

Based on the logic of the preceding paragraphs, and as Bollinger and Smith (2001) stated, managing knowledge is a strategic asset and should therefore be implemented effectively.

Any organisation is required to have the capacity to exploit its knowledge and learning capabilities better than its rivals if it decides to assume a given competitive strategy (Grant and Gnyawali, 1996; Roth, 1996). In this context, the business community has articulated, through an analysis described by KPMG Consulting (1999), the following core KM objectives:

- Supporting innovation; the generation of new ideas; and the exploitation of the organisation's thinking power
- Capturing insight and experience to make them available and usable whenever and wherever is required
- Making it easy to find and reuse sources of know-how and expertise, whether they are recorded in a physical form or held in someone's mind (tacit knowledge)

- Fostering collaboration; knowledge sharing; continual learning and improvement
- Improving the quality of decision-making and other intelligent tasks; and
- Understanding the value and contribution of intellectual assets and increasing their worth, effectiveness and exploitation.

In addition to the core KM objectives raised by KPMG (1999), Arora (2002) suggested the following:

- Organisations should leverage their existing knowledge-based activities in order to prevent re-inventing the wheel.
- Organisations should continually increase their competence and skill levels in order to improve productivity, innovation etc. This mandate is argued to help minimise making wrong decisions.

In order to achieve KM core objectives, organisations are expected to develop KMS applications to increase the competence and capabilities of their knowledge workers. This is also referred to as investing in human capital (Edvinsson and Malone, 1997). Within the organisational context, KMS should be able to combine innovation efforts, update IT, and knowledge development in order to achieve a set of capabilities to increase competitiveness. Nevertheless, when this combination is 'adequately managed' the organisation is argued to be capable of formulating competitive strategies, which integrate innovative products and new technological weapons to face its competitors (Carneiro, 2000).

### 1.2.1 Types of Knowledge

Beijerse uit (2000) identified different types of knowledge, each of which is concerned with different aspects of the supply chain:

#### **Organisational Knowledge:**

This is concerned with management, policy, culture, personnel, career planning, internal processes, cut backs, alliances and teamwork (TW). Employee know-how is one component of organisational knowledge and is considered as a crucial strategic resource (Wiig *et al.*, 1997)

#### **Marketing Knowledge:**

This is concerned with competition, suppliers, customers, markets, target groups, consumers, clients, users, interested parties, sales, after sales, trade and distribution and relation management.

#### **Technological Knowledge:**

This is concerned with product knowledge, research and development (R&D), core competencies, technological development, Information and Communication Technologies (ICTs), product development and assembly.

KM literature demonstrates multifarious of guidance concerning KM implementation; and explicit guidelines and approaches are well-developed in this regard. Following these guidelines, organisations are expected to identify the weaknesses, strengths and movements of their direct competitors; and how their customers perceive their products. Furthermore, companies ought to be capable of tapping into their relevant knowledge base in order to maximise and leverage their core competencies.

In conclusion, organisations that desire to grow and stay competitive must develop mechanisms for acquiring relevant knowledge, exchanging it accurately, consistently, concisely, and in a timely manner with all who need



it; and in this context numerous KM approaches can be adopted to serve these purposes.

It is important and necessary for organisations to adopt and implement KMS to survive competition and gain competitive advantage for themselves in a knowledge economy. Nevertheless, organisations need better control of the knowledge they already have. Currently, many organisations are unaware of the knowledge they possess that can be gainfully employed. A KMS has the capacity to enable an innovative organisation that is capable of sustaining the fierce economical competition by enabling its employees to perform more effectively on their jobs.

### **1.3 Background**

As the world progresses from an industrial/manufacturing economy to one that is more service-driven, the emergence of knowledge-intensive service organisations can be seen alongside the more traditional capital-intensive and labour-intensive organisations (Bonora and Revang, 1993). Examples of knowledge-intensive service organisations include those associated with consulting, finance, software engineering, law, and healthcare (Carrion *et al.*, 2004). The banking sector, falling within the financial sector, is considered a necessary support for the development and promotion of different economic activities, due to the important role it plays in investment activities, specifically in collecting reserves and transferring them to the appropriate investment channels.

The challenge facing contemporary businesses, particularly knowledge-intensive organisations such as banks, is to remain competitive in a highly volatile and competitive knowledge environment where markets quickly shift, technologies rapidly proliferate, competitors multiply, and products and services become obsolete almost overnight. Increasing customer needs and expectations for immediate high-value products/ services (at low-cost),

requires the harnessing of knowledge coupled with the flexibility to meet changing needs. Achieving this goal in the information age demands the implementation of different strategies from those that were effective in the Industrial Age. For traditional organisations, it is no longer adequate to only achieve production and manufacturing efficiency, and knowledge-intensive organisations, as well as traditional organisations, now increasingly compete because of knowledge and information. The current and future role of KMS in the financial services industry, like every other management paradigm, depends upon its ability to contribute to stakeholder value. There is not yet available substantive data on how managing something as 'intangible' as knowledge directly impacts the bottom line (profit) of an organisation.

Knowledge-intensive organisations are increasingly implementing KMS, which is not surprising, since the primary business base of these types of organisation (consulting and banking operations, for example), have a knowledge-rich context which needs managing. For example, leveraging knowledge and IC in a more cost and time-efficient manner; developing employee competencies by sharing leading practices in their service areas; and capturing and preserving knowledge that may be lost as a result of individuals leaving the organisation (Carrion *et al.*, 2004). The globalisation of the financial markets and progress in ICTs have triggered structural changes in the banking industry and thereby heightened competition.

The financial business environment is changing at an ever-increasing rate, for example, deregulation has opened the door to increased competition and created the additional challenge for financial services organisations of redefining their core purpose and communicating an appropriate value proposition to the market. The banking industry, in particular, has been significantly influenced by the evolution of technology, as the growing applications of computerised networks has reduced the cost of transaction and increased the speed of service substantially. Whilst the banking and

finance businesses will always be at the heart of commerce, the knowledge-intensive pressures facing the industry is changing, and there is more pressure than ever to cut costs, increase efficiency and improve customer service. In this environment, many organisations are realising significant gains by moving from paper-based processes and communication to digital images and workflow technology.

The Libyan banking sector is very important to the Libyan economy, its importance being derived from the fact that it is the only financial institution that can provide loans and credit to the other sectors in Libya. Furthermore, the lifting of United Nations (UN), and subsequently US sanctions, along with the desire of the Libyan government to reduce the reliance on oil exports as the main source of income in Libya, and hence diversify its sources of revenue, has made the banking sector even more important to the Libyan economy (see Chapter 2).

The research explores in detail, some of the KM projects and strategies that have been designed and implemented by some of the world's leading practitioners and thinkers in this area. The literature indicates that several organisations, particularly knowledge-intensive organisations, are learning how to capture, manage, store and leverage knowledge and are making significant investments in KMS (Carrion *et al.*, 2004). In this context, subsequent discussion is directed at the financial sector, as this is the focus of this research.

## 1.4 The Need for this Research (Research Problem)

The benefits and importance of knowledge, KM, and KMS, as well as the 'value' of KMS to organisations are currently being widely acknowledged. In this respect, Davenport and Volpel (2001) observe that:

“Despite the fact that knowledge is often gathered on the topic of best business practices and processes, most organisations have not taken a conscious process-oriented approach to knowledge management and knowledge work”.

In terms of organisations' adopting KMS, Davenport and Volpel (2001) state that:

*“It is already clear that knowledge management is quickly moving into other industries, including financial services, manufacturing, even government and military organisations. In the future, we expect that every industry will view itself as knowledge-intensive and will adopt knowledge management approaches in virtually every business unit and function”.*

Investigating the Libyan Public Banking Sector (LPBS) from the KM perspective; it is evident that there are several issues that need to be addressed for the effective adoption of KMS; the main concerns of which are identified as follows:

- The relevance and importance of knowledge is becoming increasingly critical in the LPBS, especially concerning the dynamic, complex international business environment where knowledge resources need to be prioritised for strategic action.
- The LPBS is predominantly paper-based, and procedural-driven. In this context, the ever increasing volume of data (and lack of integration) has created knowledge silos which require manual processing, which is further exacerbated by the lack of appropriate tools to manage these issues (Cole-Gomolski, 1997).

- There is a real and pressing need to capture tacit knowledge from employees working in the Libyan banking sector. High employee turnover rates, in conjunction with a general lack of KMS make it difficult to embed and leverage IC.
- The Libyan banking system does not currently have tangible KMS in place.
- The increased demand from the international banking community is increasingly placing new requirements and demands for new entrants. The Libyan banking sector is a new entrant to the international arena, and as such, faces considerable challenges e.g. data security, interoperability, data exchange (internet provisions etc), rules and regulations etc. Libya has openly embraced the international community to invest in the country's development; but will need to make heavy investments (people, IT, systems, processes etc) in order to maximise this potential.
- The geographical distribution of Libyan public banks is wide. This has created "islands of isolation", the manifestation of which has created several inefficiencies vis-à-vis knowledge sharing and transfer.

These core issues are therefore placing real and pressing demands on the Libyan banking sector, the consequence of which need addressing. These pressing needs are further endorsed by the recent changes in deregulation, and through improved technology transfer and absorption initiatives. In this context, this research therefore aims to capture and codify the core nuances of these problems (specifically through the identification of critical KMI areas) into a structured and coherent KM implementation framework.

## 1.5 Research Proposition

### 1.5.1 Aim

The principal aim of this research is to develop a KM implementation framework for the LPBS. This is specifically needed to identify the critical knowledge implementation areas (CKIAs) required to leverage, maximise, and create 'value' for internal and external stakeholders. This framework encapsulates the key determinants and drivers of KM – blended and augmented to suit the Libyan context.

### 1.5.2 Objectives

**Objective 1** - to understand, critically evaluate, and synthesise the causal relationships between KM, KMS; and KM strategy;

**Objective 2** - to investigate the core issues and pressures facing the LPBS from a KM, KMS; and KM strategy perspective;

**Objective 3** - to evaluate the strategic fit and relevance of 'Western' literature on: KM, KMS; and KM strategy, to the LPBS (gap analysis);

**Objective 4** - to determine the importance, potential impact, and level of maturity of the LPBS regarding findings identified in the gap analysis exercise;

**Objective 5** - to investigate the tools, techniques, and concepts associated with conceptual framework/model development, with specific emphasis on applicability and degree of fit (to meet the needs of the LPBS);

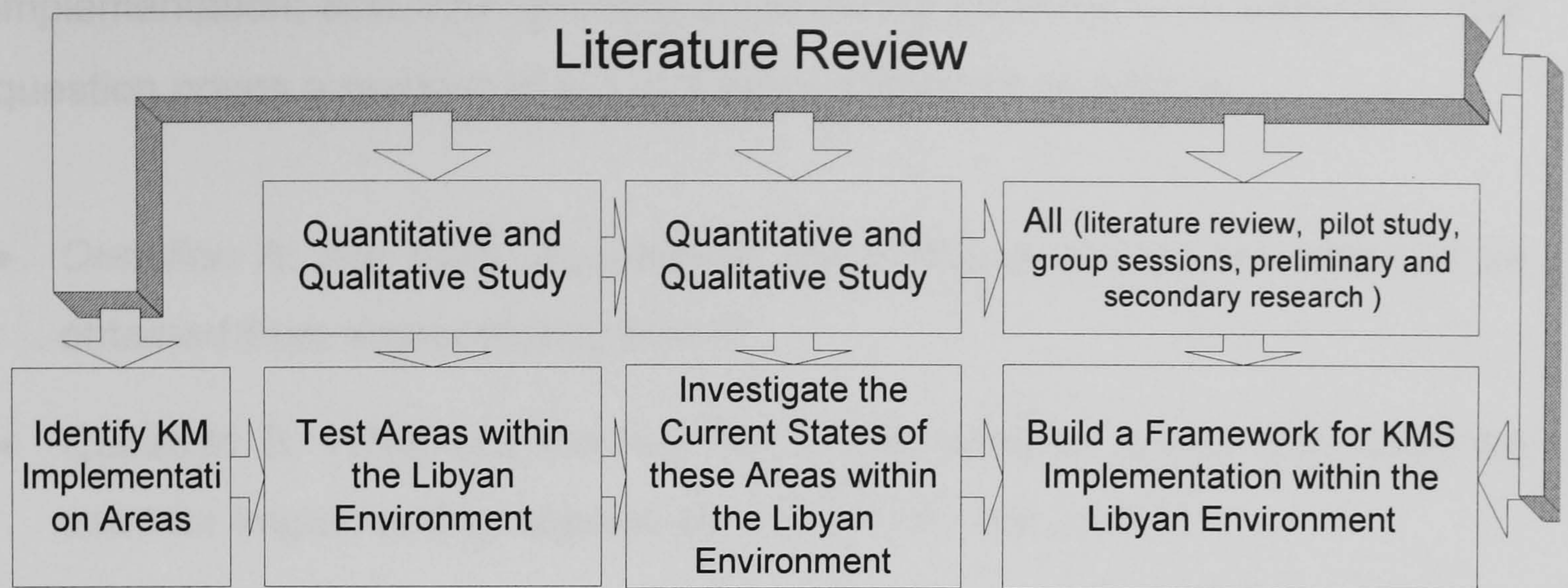
**Objective 6** - to develop a KM conceptual framework/model which can synergise, map, and identify the key KMI areas (to meet the needs of the LPBS);

**Objective 7** - to test and validate the developed management conceptual framework/model with domain experts; and draw recommendations for future research.

## **1.6 How this Study Addresses the Research Problem**

Through an extensive literature review, this research identifies the key success areas for KMS implementation to date, and examines the applicability (degree of fit) of these areas within the Libyan Public Banking environment. These findings are then used to further test and corroborate the key KMS implementation areas from a strengths and weaknesses perspective. This is then used to establish the rubrics and mechanisms for KMS implementation and adoption. Conversely, it also identifies areas that will need more attention (before implementation can proceed). The primary outcome of this research is the development of a conceptual framework/model. This framework can be used to help the LPBS iteratively align its' strengths, resources, processes, and IC to leverage advantage. Specific tangible outcomes from this framework are: improved efficiency gains; extended regulatory compliance; improved communication flows; maximised processes; and greater absorption of tacit knowledge.

The high level research methodology adopted for this research follows the structure identified in Figure 1.1. The detailed research methodological approach can be seen in Chapter 6.



**Figure 1-1: Research Methodology Process**

The research problem identified a series of issues that need to be addressed. These issues are wide-ranging and diverse. In this context, the methodology employed in addressing the research problem uses both quantitative and qualitative approaches, with the concatenation of primary and secondary data. Secondary data was collected from a detailed literature review, which subsequently informed the design of the instruments needed to obtain the primary data. Primary data included pilot studies, interviews and questionnaires (to gather information regarding the critical KMS implementation areas) and a structured questionnaire supported by case studies thereafter (to identify gaps and develop the framework).

## 1.7 Area of Investigation and Research Question

The Libyan Public Banking industry is a very knowledge-intensive, the knowledge-capital of which is heterogeneous, widespread, and unstable (because of the sensitivity of the banking operations). The creation of a corpus of knowledge that is unique, formalised, and usable, by all members is a real and pressing challenge facing this industry. In this context, the main research question is “what do the Libyan public banks need for KMS



implementation; and how can they successfully implement its activities”. This question poses a number of sub-questions identified as follows:

- *Question A:* Are KMS important to the LPBS; and what benefits can be obtained from implementing them?
- *Question B:* What are the key KM implementation areas that could be used for implementing appropriate KMS within the LPBS?
- *Question C:* What stages (level of maturity) exists within the LPBS environment vis-à-vis the gaps between the actual and desired states of KMS implementation?
- *Questions D:* What mechanisms or framework could be utilised or integrated to best facilitate KMS implementation within the LPBS?

## **1.8 Scope and Context**

This research is ‘exploratory’ by nature, as exploratory studies are often undertaken when little is known about the situation at hand, or where information is sparse or unavailable regarding how similar problems or research issues have been solved in the past (Sekaran, 2000). In this context, it attempts to codify and understand how certain factors could be used to determine whether the LPBS can successfully implement and exploit KMS.

Investigations in this research emphasise the identification of the broad range of obstacles that currently prevent the implementation of KMS within the LPBS, rather than trying to focus on a specific and unique question (research proposition). This approach is justified by the fact that KM is not mature in this sector, and needs to be further investigated. In this regard, the development of a generic KMS implementation framework for this industry could offer immense benefits, particularly cognisant of global competition, internationalisation, synergy, interoperability etc. Furthermore, research

findings are also likely to contribute to the wider body of knowledge that currently exists in the KM arena.

KM tends to be most useful as an integrated system which brings together several disciplines and interconnections. The specific emphasis and context of this research covers the following four main areas:

- Organisational Commitment;
- Change Management (CM) and Human Resources Management (HRM);
- IT Management; and
- KM Processes.

These areas are embraced under the KM umbrella, but with specific focus on KM implementation (within the Libyan Banking sector).

## **1.9 Thesis Structure and Outline**

This thesis contains eleven chapters, each of which iteratively develops the themes and issues of KM and its impact on the Libyan banking industry. A brief synopsis and indicative content of each chapter is summarised as follows:

**Chapter One** – “Introduction”: This provides the reader with an outline understanding of the philosophical research premise, context, and applicability to the Libyan banking industry. The research background and the aim and objectives are articulated, together with the importance of KMS and a synopsis of the problem definition (the needs of KMS to the LBs). This chapter concludes by defining four main questions and research areas that form a starting point for this empirical study.

**Chapter Two** – “Libya’s Fiscal and Contextual Background”: This chapter introduces the Libyan environment and contextual relationship to this research. The modus operandi of the Libyan banking sector is described in some detail, along with the emergent developments facing this industry associated with ‘internationalisation’ vis-à-vis governance, processes, and procedures.

**Chapter Three** – “KM Fundamentals”: This reviews the main body of literature surrounding KM. In this context, it provides a detailed overview and analysis of the key origins, concepts, definitions, and ideas associated with this area. These issues are then funnelled into the area of KM implementation – the aspect of which is reviewed from a benefits and limitations perspective.

**Chapter Four** – “KM Frameworks”: This reviews a cacophony of KM implementation frameworks, with specific emphasis placed on implementation methodologies and frameworks. Core and tangential issues are explored with the specific remit of identifying ‘best practice’ and degree of fit relating to the Libyan context (from an integration perspective). The findings from this chapter help inform the development of the research approach, particularly with respect to Chapter Six and Chapter Seven of this thesis.

**Chapter Five** – “Critical Knowledge Implementation Area”: This chapter reviews the critical success factors often associated with KM implementation. It highlights the core challenges that tend to pervade the industry, and seeks to crystallise these into cogent areas for discussion to mitigate mistakes and problems (so that they are not continually repeated).

**Chapter Six** – “Research Methodology”: This introduces and defends the research methodological approach that has been adopted in this research. It defines the philosophical basis upon which the research process is founded, and describes the approaches used in the investigations, data collection

approach, and data analysis techniques chosen. The limitations of these approaches are also discussed.

**Chapter Seven and Eight – “Data Analysis”:** These chapters present an analysis of the data gathered regarding the factors deemed “of critical influence” to KM implementation. These areas are assessed holistically and discussed from a ‘gap analysis’ perspective. The gap analysis exercise is also used to tease out the barriers and constraints which have the potential of preventing successful implementation.

**Chapter Nine – “Discussion”:** This chapter distils the current body of knowledge derived from the literature review in context to the results obtained from the empirical fieldwork gathering exercise. The core generic KM implementation areas are presented, and a framework for capturing these is proposed.

**Chapter Ten – “The framework”:** This chapter synthesises the concepts and issues raised in Chapter Seven and Chapter Eight in the form of a framework model. This framework identifies the key phases, sequence of events, and the main process issues associated with KM implementation within the Libyan banking sector. This framework is the main research outcome from this thesis.

**Chapter Eleven – “Conclusion”:** This chapter summarises and concludes the research undertaken. It identifies the core limitations of this research, and articulates how the results of this study relate back to the original research questions and the objectives set out in this thesis. It also discusses two main points, specifically: the contribution of this research in terms of KMS implementation; and the recommendations for future work in this area.

## **1.10 Summary**

This chapter presents an overview of the research undertaken in this thesis. It highlights the fundamental importance of knowledge, and postulates some pre-existing ideas about how to implement KM initiatives. The research approach and methodology is presented and contextualised to the LPBS. The concept of KMS implementation is then introduced in the Scope and Context section – specifically, regarding the development of a proposed framework. It is acknowledged that this research would embrace both the banking industry practitioners and the research body of knowledge by: 1) providing the banking industry with a ‘roadmap’ for KMS implementation; and 2) establish guidelines for researchers involved in the conduct of similar studies where the results of this research could serve as a base for future investigations in this field.

# **CHAPTER 2**

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## **LIBYA'S FISCAL AND CONTEXTUAL BACKGROUND**

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### **2.1 Introduction**

This chapter presents an overview of the Libyan economic and political environment. In addition, the chapter addresses the changes that have occurred within the Libyan economy, that are aimed to attract more foreign investment and move away from the heavy dependence on the oil sector for revenue. It also introduces the Libyan banking system, discusses its structure, and provides details of the Libyan public banks, in terms of their management, IT, profitability, and how they have been affected by recent developments. Finally, it introduces the LBs as the validation site for this research thesis.

## **2.2 Profile of Libya**

### **2.2.1 Geography**

The “Socialist People's Libyan Arab Jamahiriya”, commonly known as Libya, is located in the northern part of Africa. It is bordered in the North by the Mediterranean Sea, in the East by Egypt, in the South-East by the Republic of Sudan, in the South by Chad and Niger, in the West by Algeria, and in the North-West by Tunisia. Being one of the largest countries in Africa, Libya is governed under a constitution adopted in 1977 by the General People's Congress (GPCN), and the General People's Committee (GPC, 2005).

Approximately 90% of Libya is comprised of barren, rock-strewn plains and sand sea, with two small areas of hills rising to about 900m in the North- West and North-East. In the south, the land rises to the Tibesti massif along the Chad border. Climatic conditions in Libya are characterised by extreme heat and aridity. The desert and sub-desert regions have little precipitation, and on the coast the annual rainfall rarely exceeds 380 mm. The principal natural resource of Libya is petroleum. However, natural gas, gypsum, limestone, marine salt, potash, and natron are also exploited (Libya News and Views, 2005).

### **2.2.2 Population**

Libya is a large country with only a small population, being recorded at the 1984 census as 3,637,488. In 2005, the estimated population was circa 6.1M; giving the country an overall population density of 3.20 persons per sq km. Approximately 17% of the population represent the foreign workers and their families. The urban areas are home to 86% of the population, while 14% still live in the countryside, and there is an even distribution, with more than two-thirds living in the more densely settled coastal areas (NIDALY, 2003). The ports of Tripoli (greater city) population according to the 2005 estimate was

911,643, while the Benghazi estimate was 685,360. These cities are the two largest urban areas. Islam is the state religion, and Arabic is the official language, although both English and Italian are used in trade (NIDALY, 2003).

### 2.2.3 Education and Employment

Primary education in Libya is free and compulsory. In the 2002-2003 academic year, the number of students attending primary and secondary schools, vocational, teacher-training establishments, and universities, reached 823,029 students. Table 2-1 highlights the distribution of the population over 15 years old and their employment status during the year of 2002-2003.

Distribution of the workforce	Male	Female	Total
Employees	1,013,526	343,537	1,357,063
Have been employed	6,953	693	7,646
Never been employed	198,776	77,124	275,900
Total economically employees	1,219,255	421,354	1,640,609
Students	422,062	400,967	823,029
Home work	-	901,284	901,284
Retired	163,050	13,297	176,347
Others	32,744	36,208	68,952
Total of economically non-employees	617,856	1,351,756	1,969,612
Total of human force	183,711	1,773,110	3,610,221
Portion of human force in the economic activities	66.37	23.76	45.4
Portion of unemployment	16.87	18.47	17.28

**Table 2-1: The Distribution of the Libyan's Population (15 years and above)**  
(NIDALY, 2003)

Table 2-1 indicates the composition of the Libyan workforce and the total economic workforce. Since, the public sector is the subject of this study it is important to indicate how the workforce is distributed. This is attributed to



people and subsequently the workforce is considered one of the most important factors for KM and KMS.

#### **2.2.4 Culture**

The Government Library and National Archives are located in Tripoli, and the country's largest library, containing more than 300,000 volumes, is affiliated with the University of Garyounis (1955) in Benghazi. Among the leading museums, which contain mainly antiquities excavated from various ruins, are the Leptis Magna Museum at Al Khums, and the archaeological, natural history, epigraphy, prehistory, and ethnography museums at Tripoli.

#### **2.2.5 Economy and Currency**

Libya was traditionally an agricultural country. However, farming was restricted primarily to the coastal regions. The discovery of petroleum in the late 1950s effected a profound change in the economy. The gross domestic product (GDP) increased to reach 15,782.6M Libyan Dinar (LD) in 2003, and between 1980 and 2003 the economy grew at an annual average of 4.2%. The annual budget in 2003 included current revenues of 8,040.2M LD, and current and capital expenditures of 7,246.2M LD (NIDALY, 2003).

The total distribution of current employment and unemployment (previously worked in the sector) by economic activities is illustrated in Table 2-2.

Economic Activities	Male		Female		total	
	Number	%	Number	%	Number	%
Agriculture, Forestry, Hunting	62,229	6.1	2,844	.08	65,073	4.8
Banking and Funding Institutions	24,628	2.4	5,669	1.6	30,297	2.2
Conversion Industries	86,131	8.4	9,689	2.8	95,820	7.0
Electricity, Gas and Water	42,313	4.1	2,252	0.7	44,565	3.3
Building and Construction	25,628	2.5	1,001	0.3	26,644	2.0
Wholesale and partial commerce	148,376	14.6	3,786	1.1	152,162	11.1
Transportation and warehousing	99,769	9.8	4,002	1.2	103,771	7.6
Mining and quarry	20,490	2.0	879	0.3	21,369	1.6
Public Services and Social/Culture Services	510,826	50.1	314,108	91.2	824,934	60.4
Not indicated	74	0.0	0.0	0.0	74	0.0
<b>Total</b>	<b>1,020,479</b>	<b>100</b>	<b>344,230</b>	<b>100</b>	<b>1,364,709</b>	<b>100</b>

**Table 2-2: The Distribution of Current Employment/ Unemployment in Libya by Economic Activities**  
(NIDALY, 2003)

**Agriculture:** Most of the arable land and pastureland of Libya is located in the western part of the country. Cultivation in the eastern and southern regions is sporadic and dependent on rainfall. In 2003, 4.8% of the working population was engaged in agriculture, but the output amounted to only about 5.01% of Libya's yearly domestic product, including the small quantities of tuna and sardines (fishing) caught in the coastal waters of Libya, and the sponges collected inshore. The principal crops include tomatoes, wheat, potatoes, barley, citrus fruits, dates, and olives. In 2003, livestock included 6.72 million sheep and goats; 140,000 cattle; 162,000 camels; and 93 million poultry. The Great Man-Made River project, a massive 25-year irrigation scheme expected to cost \$25B, begun in 1984 and produced 1,926,615M m<sup>3</sup> water in 2003. When completed, it will transport water from wells in southern Libya to the coast and irrigate about 75,000 hectares (185,000 acres) of land (NIDALY, 2003).

**Petroleum** is the principal product of Libya and its main source of revenue. Production of crude petroleum in 2003 was 1.534M barrels. Additionally, the natural gas output amounted to 365.1B m<sup>3</sup> (NIDALY, 2003).

**Minerals** are produced in significant quantities in Libya including marine salt and potash (NIDALY, 2003).

**Manufacturing:** Major manufactures of Libya include petroleum refinery products, petrochemicals, and construction materials. However, most consumer goods are imported. Traditional handicrafts are of minor economic importance (NIDALY, 2003).

**Energy:** Libya produces 100% of its electricity in thermal facilities, which are concentrated in the Tripolitania region. In 2002 Libyan installations generated about 18 billion kilowatt-hours of electricity (NIDALY, 2003).

**Foreign Trade:** Petroleum accounts for 95% of Libyan export trade; as oil prices have increased, exports have risen from 9.82 billion LD in 2000 to 14.05B LD in 2003. Chemicals, manufactured goods, and food are the chief imports. In 2003 exports totalled 14.80B LD and imports 5.6B (NIDALY, 2003).

Libya's main trading partners for exports are Italy, Spain, Germany, Turkey, Portugal, Tunisia, India, France, UK, Greece, Indonesia, Netherlands, China and Egypt. The chief partners for imports are Italy, Germany, Japan, UK, France, Tunisia, Egypt, China, South Korea, Belgium, Switzerland, Turkey, and the US (NIDALY, 2003).

**Transportation and Communications:** Roads along the coast connect Tripoli with Tunis and Tunisia; and through Benghazi and Tobruk with Alexandria, Egypt. Another road connects Sabha in the deep interior with the

coastal roadway. In total, Libya has 24,484 km of roads (NIDALY, 2003). Libyan Arab Airlines, Elfricia airline, and El-Porag airline provide both local and international flights, and several international airlines serve Tripoli and Benghazi. The postal and telecommunications systems of Libya are government owned and operated. Libya's four daily newspapers, including Al-Fajr al-Jadid which is published in Tripoli, had a circulation of 71,000 in 1996 (NIDALY, 2003).

In terms of telecommunications, Libya's first provision of internet services started in September 1998 in Tripoli through an experimental system. The only company offering this service is the Libyan General Post and Telecommunication Company (GPTCO, 2002) via:

- Existing telephone services in Libya;
- Internet service providers (ISPs) distributed in Libya; and
- Direct lines to the Government Corporations, private organisations, and internet shops.

The speed of the internet connection in Libya currently ranges from 1MBps to 16MBps. There is a future plan to widen internet accessibility by creating new internet points allowing connection from anywhere in Libya. The development plan for the improvement of IT is divided into three stages according to the availability of the digital connection devices required to connect the websites to the network (GPTCO, 2002):

The first stage:

- Expand the main connector to the internet by adding '155MBps'; and
- Create new internet points in new locations.

The second stage:

- Create new points in the main cities through Very Small Aperture Terminals (VSATs) stations; and
- Create and information translate network (ATM) in Tripoli city.

The third stage:

- Complete local network (sea tubes and digital waves) to cover all of Libya;
- Import all internet access devices into all Libyan cities; and
- Widen the Automated Teller Machine (ATM) network to cover all Libyan cities with connection to the main systems in Tripoli.

In terms of telecommunication and its crucial role for IT, Libya has called for tenders for three major communication projects. The GPC for Post and Telecommunications has announced that the company has presented three important bids for the development of communications infrastructure in Libya, in the fields of telephone network, relay and organising of the frequency spectrum. In a statement to Jana news agency, the Secretary of GPC for post and telecommunication explained that the first tender was related to importing and implementing one and half million telephone lines, the second tender was related to importing and implementing the main relay systems to link all of Libya with a fibreglass network of a length of over 6,000 km, and the third tender was related to importing and installing a system for managing and monitoring the national frequency spectrum. In his statement, the Secretary also confirmed that these projects would place Libya among the most advanced countries in the field of post and telecommunications (GPC, 2005).

To establish the foundation of the information and knowledge society, Libya planned earlier in 1999, to establish a digital infrastructure and electronic government, and to increase the size of IT and telecommunication infrastructure budget from 4.2B LD to 9B LD in 2005 (IAIGC, 2005).

Accascina (2002) reported an expected increase of 100% in ICT expenditure in the Arab nation during the coming four years, to reach 60 million dollars which will help in efficiency of economy and created opportunities for employment. ICT is also the main factor for economic growth in the Arab nation (Libyan Investment, 2005).

### **Libyan Currency**

As a result of World War II, Libya became a member of the British Sterling bloc when independence was established in 1951. Shortly after independence, a national currency was created: one Libyan pound (as it was then known) was worth 100 piastre (10 millièmes each), and having a par value of US\$2.80. The currency unit remained tied to Sterling until the Sterling devaluation of November 1967; when the Libyan pound failed to devalue and the direct link with Sterling was terminated. Libya continued as a member of the Sterling bloc, until it was expelled by the British in the aftermath of the Libyan nationalisation of British Petroleum's assets in Libya in December 1971.

In September 1971, the unit of currency was changed from the Libyan Pound to the Libyan Dinar (exchange rate \$1=1.34 Dinar) (CBL, 2005).

In the general revaluation of gold, which took place in December 1971, Libya retained its existing parity with gold. As a consequence, the dollar value of the dinar rose from US \$2.80 to US \$3.04, where it was kept until 1974 when it moved to LD 1 worth to US \$3.3778. The Dinar was maintained at this rate until March 1986, when the government switched from a fixed dollar rate to a floating rate linked to the Swiss Franc. This move resulted in a 10% decline in the value of the dinar (Libyan Investment, 2005).

## **Libyan Current Economic Environment**

Since the suspension of UN sanctions, Libya has been actively marketing its economic strengths, especially in the hydrocarbons sector. Hoping to attract foreign capital and know-how, Libya has sought to exploit advanced recovery techniques and upgrade its downstream facilities. In addition, the Libyan government plans to open up new exploration areas in anticipation of growing investor interest. Moreover, the UN trade embargo has been suspended and foreign banks can apply to open high-tech branches in Libya as long as there is reciprocity in their home market. These changes are expected to prompt other banks to seek ways to improve their efficiency (Arab Data Net, 2005).

To minimise the impact of the US embargo since the suspension of the UN embargo, local banks make extensive use of Libyan-connected foreign banks such as Arab Bank for Investment and foreign Trade ARBIFT, the Arab Banking Corporation, and the British Arab Commercial Bank. Other foreign banks offer credit lines independently of the Libyan Arab Foreign Bank (LAFB), and these are already being utilised. According to the Libyan Public Commercial Banks (LPCBs), their most important non-Libyan foreign correspondents include Credit Suisse, Deutsche Bank, Commerzbank and the leading Italian banks. German banks were among the first to offer credit lines because German law gives banks the right to set-off claims against a client's deposits. Meanwhile, the commercial banks each have several million dollars frozen in the US through the US embargo (Arab Data Net, 2005).

Emerging from years of isolation, Libya is open for business to invest in the country's development in order to rejoin the international community. That was the message trumpeted loudly and clearly by Libyan officials during 'Doing Business in Libya' conference (organised by IBC Global Conference April in Tripoli 2004). However, the consequences of UN sanctions and the fact of 'central planning' are expected to slow down the process of official

policy changes to translate into concrete investments in the country (MEES, 2004).

The main beneficiaries of the suspension of UN sanctions are the US biggest competitors in Libya, the European organisations (Libya Investment, 2005). Libya's proximity to the large European market (which accounts for 60% of the country's exports) is attributed to the attractive opportunities for investors in all sectors such as oil and gas, tourism, agriculture etc. (NIDALY, 2003).

The framework for foreign investors wanting to do business in Libya is governed by Law No 5 of 1997: "Encouragement of Foreign Capital Investment". It was declared by the Director General of the Libyan Foreign Investment Board (LFIB) that while the country's oil and gas sector attracts the most interest from outside, delegates and potential investors should not ignore the opportunities available in other sectors such as banking, tourism, agriculture and infrastructure (Libya Investment, 2005).

In 1999, the government passed the Foreign Currency Investment Law of 1997 and the Free Trade Act 1999. The former includes tax incentives and allows for the transfer of project ownership, the re-export of employed capital, and the hiring of foreign workers, while also creating a specialised agency to promote and supervise the law. As for the Free Trade Act 1999, it enables the establishment of offshore free-trade zones in order to enhance exports, revenue, training; and technology in land, water, energy, telecommunications, and manufacturing facilities.

The aim of the law is to attract investment in projects within the framework of general policy of the State and inline with the objectives of economical and social development. In addition, the law aims to promote modern technology technical training for Libyan employees as well as the diversification of Libya's income. However, Article 7 of the Law, concerning the incentives for



investment projects, is tempered by certain requirements such as the use of Libyan employees, the use of local raw material, the need to produce goods for export or export substitution, and the need to develop remote or under-developed areas of the country (MEES, 2004).

The World Bank (WB) is eager to invest in Libya. At a meeting in Tripoli in 2004, attended by the Secretary of GPC of Manpower, Training and Operation, the WB delegation expressed WB's readiness to participate in the development of economic investment particularly in maritime, air and land infra-structure; as well as the provision of technical consultancy to upgrade the efficiency of the local private banks (Libyan Investment, 2005).

Libya has applied for full membership of the World Trade Organisation (WTO), and is a member of the Euro-Mediterranean foundation. Additionally, it enjoys full membership of the Greater Arab Free Exchange Area, and is a member of the club of 5+5, that consists of five Arab countries and five European countries. Nevertheless, and after 15 years of isolation, Libya has witnessed the return of the International Monetary Fund (GPC, 2005).

### **2.3 The Evolution of the Libyan Banking and Financial Institutions**

Pursuant to legislation of 1955 (amended in 1958); the National Bank of Libya was established in 1956 to perform some of the functions of a central bank under the aegis of the Ministry of Finance (CBL, 2000). The commercial banks were mostly branches of major international banking institutions, providing short-term international and domestic commercial credit.

In 1963 the Central Bank of Libya (CBL) replaced the National Bank of Libya, which was accorded with the sole right of currency issue, and assumed responsibility for maintaining monetary stability and the external value of the

Libyan currency, as well as for regulating currency and credit. The Bank could also make advances to the central government up to 10% of estimated current revenues. The commercial banks, however, were required to maintain liquidity ratios and reserves in the CBL against deposits. Until 1970, CBL also carried out commercial operations, but in that year the National Commercial Bank (NCB) was founded to take over the commercial division of the CBL (CBL, 2005).

After the Greater El-Fateh Revolution, the first government that took power in 1969 viewed the banking sector as the primary objective of its general programme of Libyanisation. In November 1969, it was required that all banks in the country be under Libyan control. To achieve this, the government bought 51% of the shares of any commercial bank that has not been converted to Libyan control. Shortly afterwards, in July 1970, the government took 100% control of four of the major banks with foreign minority ownership. In December 1970, the government purchased outright all banks that still had some foreign minority participation. As a result of a merging process, the number of commercial banks was reduced to five. Libyan citizens were permitted to purchase minority interests in the banks (CBL, 2002).

The revolutionary banking history can be summarised as follows:

- 13 November 1969: Revolutionary Command Council announced a law establishing joint stock companies which were to acquire a minimum of 51% control of the Libyan operations of foreign commercial banks.
- 22 July 1970: The government fully nationalised four major banks with foreign (Italian) minority ownership.
- 22 December 1970: The government nationalised the remaining foreign minority participations in LBs, with the shareholdings being passed to the Central Bank of Libya.

There were several commercial banks, other than the NCB, such as Eljumhurriya (operated nearly 30 branches throughout the country), Sahara Bank (formerly Banco di Sicilia), and the Umma Bank (the successor of Banco di Roma). The Wahda Bank was established 1970 from a merger of five other banks. Moreover, the Development (Industrial) Bank and Real Estate Bank of Libya operated as development banks, providing industrial credits, and a home finance agency providing housing loans mostly for home purchases. The largest percentage of loans made by the banking system has been for housing and commerce.

In 2004, the government declared interest to be usury and prohibited it, but commissions for services rendered remained legal, and banks could charge these. Such commissions generally have been kept low on items such as construction loans. In practice, however, LBs still charged interest on loans and paid interest on deposits. In 2005 the prime lending rate stood between “6%” to “6.5%”, while deposit and lending rates for housing are set between “1%” to “6%”, respectively (PGC, 2005). The Libyan Arab Foreign Investment Company (LAFICO) was created in 1972 as a joint effort of the five commercial banks.

The insurance industry and other government agencies were established to promote housing, industry, commerce, and tourism (CBL, 2000). In December 1970, insurance companies were required to have 60% government participation, and in 1971 they were totally taken over (nationalised) and were merged into two companies.

Credit has generally been plentiful, although the Central Bank's credit policy was to support the government's development effort. Until the 1990s, the Central Bank limited credit to the private sector and directed it instead to state entities. This has also been done to halt the rapid growth in the money supply and the inflationary rate.

Libya is planning to introduce credit cards and other financial tools to enable rapid banking transactions. Furthermore, a new exchange market has been established, and it is expected that many groups involved in financial operations will enter the Libyan market. An Arab banking foundations located in Bahrain has described the Libyan market as an important area for infrastructure projects, and is therefore interested in providing funds for such projects as investments (GPC, 2005). Notwithstanding these issues, international financial organisations are interested in Libyan shares and investments in the Arab exchange market as well as in the European market.

The Secretary of the GPC has encouraged the development of the banking sector in order to assist the programme of expanding ownership in Libya. At a conference on the expansion of the ownership transfer base in the Libyan economy held in Benghazi, he stated that this programme differs from the programme of privatisation, as the expansion of the ownership transfer base programme aims to secure the participation of all nationals in the development of Libya's economic performance, in order to increase each individual's income and standard of living (GPC, 2005).

Ownership (privatisation) concentrations are proscribed within the banking sector. Corporate entities are not permitted to own more than 5% of a bank. The limit for individuals is 1%, and families are restricted to 2%. However, this differs from the Banking Law, which specifies a 2% limit for individuals. After the National Oil Company is the next predominant economic activity the Libyan Public Organisations (LPOs). These have some private ownership, but they are controlled by the state planning apparatus. It is estimated that only the tourism sector is being truly privatised (GPC, 2005).

In 2004, the Governor of the CBL announced that the Bank has made many arrangements for foreign and Libyan investors. He articulated that the Libyan Dinar rate of exchange is unified towards foreign currencies, and that the

public debts to the country, which amounted to more than 7,000,000 LD has been settled. Furthermore, an office for shares circulation would be opened for buying and selling of shares as a first stage (GPC, 2005).

Libya is planning to open up its banking sector to Arab investors; and is expected to privatise two major government banks. In this respect, the Secretary of the People's General Committee at the Arab Strategy Forum 2001 'The Arab World in 2020' articulated that: "*We will first start with Arab banks while at the same time privatise two major banks....and we will initially give a chance to local and public investors and later consider opening the market to international companies*". However, it was stressed that this would not happen in the short term. In March, Tripoli decided to liberalise its real estate market and boost investments in tourism (Libya Investment, 2005).

Foreign companies starting business in Libya would choose their bank according to their agent's recommendation, i.e. they would use their agent's bank. With liberalisation in 2002, the LPOs became free to open accounts with local banks. Technically this means that any bank can lend to LPOs, but in practice little has changed in banking relationships because guarantees from the client's house bank are required to cover loans granted by other banks (GPC, 2005).

As a result of the economical changes and influences discussed so far, it can be concluded that the LPUBs have much to do in order to adapt to the new international requirements and subsequently meet the international standards: The new International Capital Adequacy Requirements (Basel II) introduce qualitative and quantitative minimum standards for banks, and internal rating systems where these are required for measuring regulatory capital (UAB, 2003). Hence, specialised training seminars (organised by the Trade and Development Bank with the co-operation of the Union of Arab Banking Corporation) took place in Benghazi in 2004. These seminars were intended

for all official banks to be acquainted with the new requirements and to improve services to customers (Libyan Investment, 2005); as well as to publicise the importance of marketing in order to enable banks to publicise the improvement in their services to foreign countries.

Training programmes are argued to be essential, and both theory and practice are of equal importance. It is worth mentioning that training centres in Tripoli and Benghazi operate a number of training programmers for officials in various banking fields to improve the efficiency of bank officials (Libyan Investment, 2005). Additionally, it was noted that an increase of 100% in expenditure on ICT within the banking sector was expected.

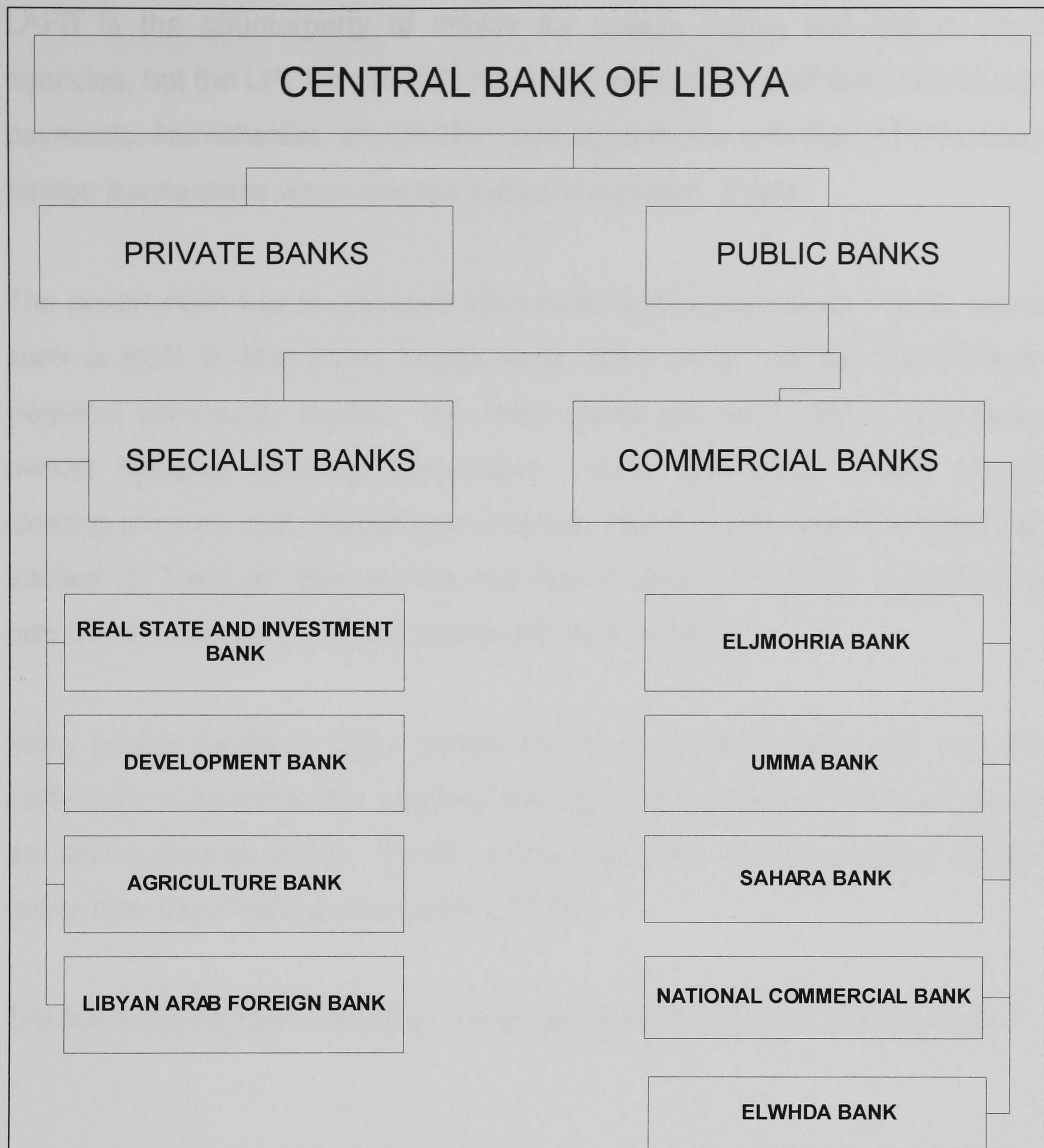
### **2.3.1 The Libyan Banking Law**

The law governing banking activities is “Law Number (1) of 1993” which is concerned with Banking, Currency, and Credit. The Law defines the activities of the CBL, commercial banks and other banks. The most important powers affecting regulation of the financial sector rest within the hands of the political authorities: the Secretary of the Specific GPC for Finance “the Secretary”, equivalent to the Finance Minister. The CBL has ultimate jurisdiction, decisions are often made by its Board of Directors rather than by the Governor (CBL, 2005).

### **2.3.2 Libyan Banking System Structure**

Libya’s banking system was wholly state-controlled during the 1980s and 1990s until the privately-owned Bank of Commerce and Development (BCD) started operations in Benghazi (the country’s second largest city) in 1996.

The LPBS comprises two sectors (see Figure 2-1): The LPUBS and the private banks (LPRBs) (both are monitored by the CBL).



**Figure 2-1: The Structure of the Libyan Banking Sector**

The LPUBs consists of two major state-controlled banks these being: the Libyan Public Specialist Banks (LPSBs): the Agriculture Bank, Development Bank, LAFB, Real Estate Investment Bank; and the LPCBs: Eljumhuriya Bank, Umma Bank, NCB, Sahara Bank, and Wahda Bank (CBL, 2000).

The CBL is the national monetary authority and banking supervisor. It owns controlling stakes in the five state-owned Commercial Banks (LPCBs). The

LAFB is the counterparty of choice for foreign banks and export credit agencies, but the LPCBs currently have a growing volume of their own foreign payments. Nonetheless, the LPCBs have agreements with the LAFB to cover foreign transactions when needed (Libya investment, 2005).

The government has encouraged the private banking sector to include banks such as BCD, El-Man Bank, Tourist Bank, Africa Bank, and the Ahliyah Banks (regional community banks). The latter banks are controlled by the state-owned National Banking Corporation, which undertakes Ahliyah banks' clearing services and international activities. Ahliyah banks' assets at end-2000 totalled LD 734M (€1.6bn) at Financial Year Ending (FYE)-2000, equivalent to only 6% of commercial banks' assets (NIDALY, 2003).

Many private banks in Libya (Ahliyah banks in particular) are small and not particularly successful (the majority are still in their infancy), although some are active (Krouat, 2002). Consequently, this study concentrates on LPUBs rather than the private sector banks (LPRBs).

The following sections describe in detail the general structure of the LPUBs.



## **2.4 Overview of Libyan Public Banking Sectors**

### **2.4.1 Central Bank of Libya**

The CBL, established in 1955, supervises the banking system and regulates credit. The CBL is completely under state ownership, representing the monetary authority in Libya, and enjoying the status of an autonomous corporate body. The law establishing the CBL stipulates that the objectives of the Central Bank shall be to maintain monetary stability in Libya, and to promote the sustained growth of the economy in accordance with the general economic policy of the state. Management of the general affairs of the bank within the policies of the country is entrusted to a Board of Directors consisting of the Governor as Chairman, Deputy Governor as Vice-Chairman, and six other members, who usually represent other financial and economic interests. The Governor is the Chief Executive Officer (CEO) responsible for the implementation of the policy of the bank, the management of its affairs, as well as representing the bank in all its relations with other parties (CBL, 2000).

The CBL started its operations on 1 April 1956, replacing the Libyan Currency Committee which was established in 1951 whose functions were confined to maintaining sterling assets against the issue of local currency, thus, having no role in controlling money supply or credit, nor in supervising banks. The CBL's headquarter is in Tripoli with three branches located in Benghazi, Sebha, and Sirte to make its services more accessible to commercial banks' branches and public departments. Since the CBL's establishment, its functions have grown. The main functions can be articulated as follows:

- Issuing and Regulating the Currency:

The unit of currency in Libya is the Libyan Dinar, which for the sake of exchange rate stability was pegged to SDR'S basket since 18 March 1986, to reflect the relative importance of each currency in Libya's international economic relations. The CBL is the sole issuer of Libyan currency (banknotes

and coins). Naturally, currency in circulation is backed by gold and foreign exchange in convertible currencies, as well as the foreign treasury bonds and Libyan treasury bonds of 15 Years maturity.

- **Management of Reserves and Control of Foreign Exchange:**

The CBL keeps and manages Libya's gold and foreign exchange reserves. Thus, the Bank is responsible for selecting suitable investments and amounts to be invested in each currency, taking into consideration developments in foreign exchange, money and capital markets to ensure safety and profitability. The Bank allows commercial banks to keep foreign assets in accordance with regulations that it issues from time to time in conformity with the general economic interests of the country. The CBL has gradually dismantled foreign exchange controls in light of the stable economy that Libya has enjoyed, and in order to encourage foreign investors.

- **Acting as a Banker to the State:**

The CBL is the fiscal agent for the state and, as such, it keeps the accounts of revenues and expenditures for general secretariats. It also disburses transfers and collects funds domestically and abroad, as well as administering letters of credit on behalf of its clients. These banking services are also offered to public institutions. Additionally, the CBL is charged with the management of public debt, consisting of treasury bills and treasury bonds, which it sells to, and buys from the licensed banks. It also pays out interest due on public debt.

On behalf of the government, the Bank manages the state's subscriptions to regional and international institutions, and undertakes the management and execution of payments on agreements concluded between Libya and other countries.

- **Acting as a Banker to Commercial Banks:**

The CBL keeps the legal cash reserves required from commercial banks as a percentage of their clients' deposits. In addition, it accepts interest-bearing time deposits from these banks. The CBL also acts as a lender of last resort for the commercial banks and can provide them with extraordinary loans in any critical exceptional circumstances it deems threatening to monetary or banking stability of Libya.

- **Supervision and Regulation of Banking Activities:**

The CBL examines and analyses the financial positions of commercial banks and ensures that they keep within the main stipulated ratios such as the cash reserve, and legal liquidity. The bank also issues directives to the commercial banks regarding the volume and direction of credit extended by the banking sector, especially credit for the more productive sectors of the economy. The CBL officials inspect commercial banks and their branches and examine their books and records to ensure the soundness of their financial positions and the accuracy of statistics that they furnish to the Bank and finally, the suitability of their services. Furthermore, the CBL provides the commercial banks with check clearing services as well as the services of a centralised credit risk office.

- **Central Bank of Libya's Role in Economic Development:**

The role of the CBL in economic development is manifested in its creation of monetary and financial institutions capable of mobilising and channelling savings for development projects. The Bank also contributes to strengthening the State financial position through managing the public debt as its holdings of gold and foreign exchange. Its indirect role in the economic development of Libya is embodied in its influence over the activities of commercial banks, especially by controlling the volume, direction and cost of credit. The other aspect of the Bank's indirect role lies in the adoption of monetary policies

capable of reinforcing internal and external confidence in the strength and stability of the Libyan currency and economy and consequently, encouraging savings by citizens and promoting incentives for the utilisation of these savings in productive and safe investments, as well as attracting foreign investments and alleviating any causes for the national capital to be invested abroad (CBL, 2005).

## **2.4.2 Specialist Banks of Libya**

### **2.4.2.1 Real Estate Investment Bank**

This Bank was established under the name of 'Manufacturing and Construction Bank' in 1965. It comprises two branches with capital of 10M LD, divided to 5M LD for construction loans. In 1969 the capital increased to reach 45M LD (REISB, 2003). Due to the importance of mortgages and state loans in supporting the economy and social development in Libya, Law Number (2) was issued in 1981, implementing the resolutions of the Libyan Congress in 1980: increasing the total capital to 100 million LD divided into 10,000 shares each with a value of 10 LD (REISB, 2005).

The Bank aims to support the progress of the construction industry in Libya through:

- Offering construction loans and issues debentures and certificate investment,
- Implementing and managing construction projects for itself and others,
- Owning, constructing, and buying trust deeds of properties, and
- Establishing and owning construction companies or participating in them.

The amount of capital paid up to 31/12/2000 was 360,310,000 LD. The Bank's headquarters is in Tripoli with 27 branches throughout the country. The

Bank's main departments are: finance, information and documentation, administration, loaning and owning, construction affairs, law affairs and review department (REISB, 1999). The bank combines two industries, which are very important to Libya's economic development – the banking industry and the construction industry.

#### **2.4.2.2 Agriculture Bank**

This Bank is a specialised institution established in 1957 to provide interest-free production loans to farmers. It also offers medium-term loans for up to five years for machinery and materials, and long-term loans for up to 15 years for land reclamation projects, irrigation, and agricultural construction.

The Agriculture Bank purchases products from farmers at a guaranteed profit and sells supplies to them at subsidised prices. It has a good record of success, with about 90% of all loans having been repaid. The Agricultural Bank predates the revolutionary government by twelve years; it is a specialised bank that by 2005 had 36 branches and 550 staff (CBL, 2000).

#### **2.4.2.3 Development Bank**

This Bank was established pursuant to Law number (8), legislated in 1981, to replace the Manufacturing Division in the Manufacturing and Construction Bank (now the Saving and Real Estate Investment Bank). It began operations in the same year, with a number of branches distributed throughout Libya, which by the end of 2000 had reached 23. Articles 2 and 3 from Law Number (8) indicate the main duties of the bank as to (CBL 2000):

- Provide loans and funds needed for production work in all manufacturing, agriculture, and tourism projects, and any other economic projects in Libya.

- Provide consultation and/or technical help, especially to projects with direct or indirect funding from the bank, and to others without funding from the bank.
- Predict the investment opportunities in the wider economy of Libya, thus promoting diversity in Libya's income streams, by considering suitable projects and presenting these to potential investors.
- Encouraging foreign participation in the funding of projects inline with Libyan economic policy.

#### **2.4.2.4 Libyan Arab Foreign Bank**

In 1972 the LAFB was established to deal with overseas investments. This Bank implements the international functions of the Central Bank, operating through subsidiaries or affiliates in about 30 foreign countries. It also makes investments outside Libya. In early 1972, the government established the LAFB as a wholly-owned subsidiary of the Central Bank, but not subject to the Central Bank's legislation, regulations, or exchange control. It engaged in financial and banking operations outside the country and acted as the foreign agent for the government and Libyan commercial banks. Its main purposes were to encourage regional development in Libya; to become active in international financial markets, and to serve as a vehicle for Libyan assistance to other countries (LAFB, 1999).

By 1978 the LAFB established a worldwide chain of 18 subsidiaries and affiliates. In 1985, its total worldwide assets recorded at US\$2.9B. The Bank's clients are several national companies including the National Oil Company, the Libyan Arab Airline, and also foreign embassies in Libya. The links with the embassies play part in securing the government's wider regional policy, which currently has an emphasis on strengthening ties with Sub-Saharan Africa, and this policy is the motive for the LAFB's capital expansion to \$1B

that is earmarked for the financing of investments in new, or existing Sub-Saharan financial institutions (Libya Investment, 2005).

The LAFB has been the Libyan correspondent of choice for foreign banks doing business with Libya. It has been confirming the LPCBs' underwriting credits for many years, although the system is now changing. LPCBs are increasing their share of foreign business/payments while the LAFB does not have access to the local market. The limited experience of the LPCBs in foreign business ensures that the LAFB will retain a substantial market share over the medium term, but the authorities need to decide fairly soon whether to allow the LAFB to compete in the local market or to transform into some sort of development bank. Whatever the decision, the government would ensure that it retains a Libyan-controlled bank capable of making payments on its behalf (CBL, 2000).

### **2.4.3 Libyan Commercial Banks**

The Libyan Commercial Banks are commercial banking sector institutions that have recently been permitted to undertake foreign business independently of the state-owned specialist offshore bank, the LAFB. The Libyan banking system comprises 282 commercial bank branches and agencies (240 branches and 42 agencies) (CBL, 2000). Of these, 82 (64 branches and 18 agencies) are located in Tripoli and account for the bulk of commercial activity. Table 2-3 illustrates the total number of each bank's branches throughout the country.

Region	NCB	Eljumhuriya	Umma	Elwhda	Sahara	Total
Tripoli	15	22	18	16	11	82
Benghâzî	5	7	3	14	8	37
Sebha	7	7	5	1	4	24
Zawia	5	6	7	7	6	31
Serit	7	11	9	12	4	43
Green mountain	14	6	1	10	5	36
Western mountain	5	7	7	9	1	29
<b>Total</b>	<b>58</b>	<b>66</b>	<b>50</b>	<b>69</b>	<b>39</b>	<b>282</b>

**Table 2-3: Branches and Agencies of Libyan Public Commercial Banks**  
(CBL, 2000)

### 2.4.3.1 The National Commercial Bank

The National Commercial Bank was established in 1970 to take over the commercial operations of the CBL and to incorporate the Libyan operations of two foreign commercial banks: the Istiklal Bank (former Banco Di Napoli) and the Oroba Bank (former Arab Bank). The Bank's headquarters are based in Beida (about 200 km from Benghâzî) and there is a relatively small network of 58 branches and 2,016 staff (CBL, 2005).

### 2.4.3.2 Eljumhuriya Bank

This Bank was established in 1969 to take over the Libyan operations of Barclays Bank. It is based in Gharyan and has 66 branches around Libya. After the 1<sup>st</sup> of September Revolution and the decision to increase the State shareholding in foreign banks to 51% in 1969, all foreign banks operating in Libya at that time took steps to conform to this revolutionary declaration (CBL, 2000).

Eljumhuriya Bank is, currently, considered one of the largest banks operating in Libya, and an advanced bank at Arab as well as international level.



### **2.4.3.3 Umma Bank**

The Umma Bank was established in 1970 to take over the Libyan operations of Banca di Roma based in Tripoli. It distinguishes itself from its rivals by claiming that its share of the LPCBs' import business may be as high as 60% because most local marketing companies (importers) - and all agricultural production and marketing companies - have accounts with Umma. It also claims to be the most active LPCB in documentary credits, which could be of interest to counter-parties interested in doing business with Libya. The Bank has an average sized network of 50 branches around the country and approximately 1,800 staff (CBL, 2000).

In 1970, all the foreign banks' shares were nationalised so that they became completely (100%) owned by Libya. The Bank endeavoured to develop its human and material capacities in all fields, internally as well as externally. It worked to prepare the scientifically aware cadres, capable of coping with the new developments by continual training of its employees both at home and abroad. The Bank has also been provided with modern equipment and machines. Its branches were computerised and connected in order to provide the best services to its clients. It is keen on performing all banking activities, thus contributing to the promotion of the national economy in various fields (Umma bank, 2005).

### **2.4.3.4 Sahara Bank**

The Tripoli-based Sahara Bank has one of the smallest networks of the five LPCBs with only 39 branches with nearly half of which located in the main cities of Tripoli and Benghazi. Before nationalisation, its owners were the Bank of America (29%), and Banco di Sicilia (20%), with Libyans holding the majority 51%. The Sahara Bank claims to have an advantage over other LPCBs because each teller window can handle a range of cash transactions for each client. However, it is not clear whether this difference has attracted significant amounts of new business to the bank (CBL, 2000).

#### **2.4.3.5 Wahda Bank**

Most Head Office functions of the Wahda Bank are in Benghazi. Its average-sized network of 69 branches serves the country generally. The Wahda Bank was formed in 1970 to take over the Libyan operations of four foreign banks, these being the Bank of North Africa SAL, Kafila Al-Ahly Bank, Nahda Arabia Bank, and Société Africaine De Banque SAL. Due to some local ownership at the time of nationalisation, private shareholders currently own 21.7% of the equity that is not owned by the Central Bank. Consequently, Wahda Bank has been paying annual dividends as high as 30%. Wahda Bank senior bankers comment that it has many strong clients (CBL, 2000).

### **2.5 Libyan Banking System Infrastructure**

The Libyan authorities started to liberalise the national banking system in the mid-1990s by permitting private ownership of banks. It is only since 2001, with the liberalisation of foreign trade, that banks have experienced substantial changes in the banking system (Libya investment, 2005). Private sector clients no longer have to work through the large state-owned monopolies, and the commercial banks themselves are free to develop banking relationships abroad. They were connected to Society for World-wide Interbank Financial Telecommunication SWIFT in 2001 and no longer need to use the LAFB to make foreign payments. However, competition between the five state-owned LPCBs has yet to emerge, it is also expected that some privately-owned banks may also enter the competition. Tight central controls have been in place for too long for an immediate take-off of innovative practices. However, the private sector bank is installing a modern integrated banking system and hence, is creating opportunities to attract large volumes of business from enterprises that want to use an efficient payments system (Bank of Commerce and Development, 2005).

The Libyan government has made efforts to improve its capability to apply effective monetary and financial policies. There are prospects of mergers between the LPCBs, and possible privatisations and/or sales to foreign banks (Libya investment, 2005). This is evidenced in the Secretary of the GPC and the GPC of Finance (Minister of Finance) statement regarding the privatisation of some banks (including acquisitions by foreign banks), and the mergers of others (GPCF, 2005). However, experience of liberalisation in transition economies in the 1990's suggests that the LPCBs would not be attractive acquisition targets for foreign investors, at least within this decade (Libya investment, 2005).

Over the medium term, foreign banks are expected to be more interested in joint ventures. In this context, joint ventures between the LPCBs and foreign banks are much more likely, with growing vigorous competition from private sector banks such as the Bank of Commerce and Development (Libya investment, 2005).

Meeting the requirements of the International Basel Committee is one of the biggest challenges facing the banks, especially in a developing country such as Libya. The banks should have the capacity to develop sophisticated systems to measure and follow up risks, benefiting from the stipulation of the new Basel Agreement (Basel II). This agreement is to force banks to substantially increase the minimum required capital in the following years by comparison with the Basel I accord.

The significance of the banking sector's role in the development of any country is recognised worldwide (Shamia, 1990). The roles/ activities of which are articulated as follows:

- The waving of conditional fees. All international finance and monetary markets are moving to free their banking operations from any policies and practices, including legislation, that impose restrictive limits on them. In

addition to local and international markets being much more open and accessible, decreases in taxes also characterise current financial markets.

- Increasing their competitiveness, since banks around the world face competition in their day-to-day operations. The market entrants, such as investment companies, investment trusts and other funding agencies, have increased the competition for banks, thus forcing the emergence of new banking techniques.
- Developments in information and communication systems, which have a huge impact on banking operations, such as decreasing the cost of completing banking deals across borders, improving data processes and accounting systems.
- LBs have developed some of their banking systems, but bankers and regulators are not yet ready to establish and manage the sophisticated or developed risk management models that constitute the main improvement to Basel II (UAB, 2004).

In 1993, the Libyan government passed a law allowing the establishment of private sector banks in Libya. The 1996 opening of a representative office by the Bahrain-based Arab Banking Corporation in Misurata was the first step towards creating an attractive climate for foreign banks in Libya (Libya investment, 2005). Hence, foreign banks are expected to be allowed to operate in the country again for the first time since banking sector was nationalised back in 1969. As articulated by the Secretary of the People's General Committee: "*We are thinking about opening the door for foreign banks to operate in Libya in the near future ... Once the principle is agreed, we'll see about the legislation*" [Bloomberg] (Libya News and Views, 2005).

Foreign banks are already coming to Libya, several have representative offices, including the Bank of Valletta, ARBIFT (Dubai), the Arab Banking Corporation (Bahrain), and the British Arab Commercial Bank (London) (GPC, 2005).

### **2.5.1 Management and Training**

Thirty years of socialism, centralised state planning, monolithic State-Owned organisations (SOOs), dominant tribal links, and lack of performance-related incentives, have limited innovation within the LPBs and competition between them. The control by the CBL is an assurance to the LPBs' creditors and depositors that the authorities stand behind the specialist and the commercial banks. Such control, however, is argued to substantially reduce management's operational flexibility in the LPUBs (CBL, 2000). 'Purification Committees' set up under the 1996 Law of Purging, are regarded as further disincentives. These committees are empowered to retrospectively investigate decisions taken by the LPBs and the SOOs beyond these banks' normal internal control, external audit, and supervision functions (CBL, 2000).

All banks are headed by a Chairman/General Manager with the official title of Secretary of the Popular Committee, and the relative capabilities and management style of the respective CEOs tend to distinguish the character of each bank. However, in current practice, there seems to be little to differentiate the LPCBs other than the size of their branch networks (CBL, 2000).

It is indicated that new business opportunities to banks are created through personal contacts with branch officers rather than through competitive services (CBL, 2000).

Senior management at the banks have certain flexibility to reward key staff within this otherwise rigid management system, by giving them priority for training abroad. Senior managers can also be appointed to the Board of Directors of companies in Libya and abroad, which is a method of supplementing with directors' fees.

In an endeavour to provide distinctive banking services throughout the Libya, the Higher Administration introduced new developments in banking by opening branches and agencies in all regions and supporting them with national staff trained locally and abroad. Furthermore, the branches and agencies are provided with modern and advanced equipment/devices and computer systems to enable distinctive services. These developments are expected to support the national economy and enhance the transformation process.

In terms of training, the number of opportunities that were offered at CBL can be seen in Table 2-4.

<b>Programme</b>	<b>Number of Training opportunities</b>	<b>Participants</b>
Special training	36	988
Workshops	4	229
Meetings	3	261
English Language	21	312
Computer	24	278
<b>Total</b>	<b>88</b>	<b>2,068</b>

**Table 2-4: Training Opportunities at Central Bank of Libya during 2003**  
(CBL, 2005)

In terms of special training courses, the centre has implemented 36 programmes, in which 988 bankers have participated in. These initiatives deal with certain banking activities such as: the requirements of Basel II, the evaluation of lending risks, exchange and stock markets and investment, financial analysis for lending affairs, analysis and evaluation of the banks' performance, and other banking activities.

## **2.5.2 Information Technology**

The LAFB is argued to have an advanced IT system in place. LPCBs and LSPBs, however, appear to have basic management information systems. This is attributed to the banks not having access to modern/ adequate computer hardware due to the (recently-suspended) international embargo against Libya, the unreliable national telecommunications infrastructure and remote branches (some of which are more than 1,000 Km from Tripoli and Benghazi) (CBL, 2000).

Telecommunications shortcomings are expected to be overcome within a year or two by installing high capacity trunk connections between towns. Meanwhile, banks have the option to connect remote branches via VSAT satellite links (GPTCO, 2002).

It is indicated that the CBL is planning to set up an electronic payment clearing system (national payment system) for all banks within a year. This plan depends upon an upgraded national telecommunications infrastructure (CBL, 2005). Until then, payments between distant parts of the country can take between one and four weeks to clear and therefore is the CBL seeking international advice on how to modernise the banks' systems. This leaves an opening for private sector banks that can invest in modern banking technology.

Rudimentary communications and IT systems result in delays in drawing up bank-wide balance sheets. It takes the LPCBs at least fifteen days to prepare balance sheets, and considerably longer for income statements. Branches send their daily balance sheets via fax to the head office, but formal accounts cannot be drawn up until the original branch documents are received via mail or courier (Libya is a cash economy). International credit card companies were banned by the US embargo from operating in Libya, so payments to even the best local hotels are settled via cash. In principle, the LPCBs are

interested in issuing local credit or debit cards. However, it is more likely to be left to the privately owned banks (i.e. BCD) to issue the first cards. All the LPCBs were linked to SWIFT in 2001 (Libya investment, 2005). Nevertheless, some automation has taken place within the banking system. The CBL has assisted the commercial banks to become members of the SWIFT system and currently, commercial banks are making active use of the Swift Fin system for international financial messaging (Libya investment, 2005). One commercial bank has introduced stand-alone automatic transaction machines ATMs at the branch level. Approximately 35,000 ATM cards are currently in active use, thereby improving customer service for cash withdrawals by eliminating the use of cheques and long waiting times associated with cashing cheques at teller work stations. All the banks are seeking to adopt all the developments in the banking industry in the changeable environment and select new banking services such as ATMs that can serve the customer 24 hours daily, as well as considering the adoption of new banking services that can be offered via mobile phone (GPTCO, 2002).

### **2.5.3 Commercial Profitability**

As the LSPBs are non-profit organisations, in this section only LPCBs are indicated, and these are moderately profitable, according to their FY 2000 results (see Table 2-5). The margin table shows that the LPCBs have similar operating margins of between 1.64% to 1.88% of average assets, except for the Umma Bank which has a low result at 0.75%. It is not clear why Umma's performance appears so weak, unless its abbreviated public financial statements include its Loan Loss Provision and Tax Deductions with Expenses.



INCOME STATEMENT Financial Year (FY) 2000	Percentage of Average Assets					
	Gumhouria	Sahara	NCB	Umma	Wahda	W. Avg
Interest Income	2.64	2.97	3.26	2.50	3.23	2.88
Interest Expense	-0.67	-0.96	-1.06	-1.24	-0.85	-0.96
NET INTEREST	1.97	2.01	2.20	1.26	2.37	1.93
Other Income	0.69	0.90	0.48	0.50	0.42	0.66
OPERATING REVENUE	2.66	2.91	2.68	1.77	2.80	2.59
Operating Expenses	-1.01	-1.20	-0.80	-1.02	-1.08	-1.03
OPERATING INCOME	1.64	1.71	1.88	0.75	1.72	1.56
Provisions- Loans	-0.64	-	-0.51	-	-0.94	-0.43
PRE-TAX INCOME	1.01	1.71	1.36	0.75	0.78	1.13
Tax	-0.62	-	-0.51	-	-0.43	-0.37
NET INCOME	0.39	1.71	0.86	0.75	0.35	0.76
<i>To Cash Dividends</i>	-0.11					-0.04

**Table 2-5: Income Statement and Banks' Profitability (LD)**  
(prepared from CBL statistics, 2000)

The current underlying earnings of the LPCBs are considered to be adequate. Income, however, as argued, cannot cover the main problem, which is the massive under-provisioning of old loans. Only a major recapitalisation exercise by the State is expected to cover that gap.

## 2.6 Summary

The Libyan economy development activities require an effective and modern banking sector to provide the necessary commercial funds, and the full range of banking services. The overviews of Libya's main banks are eventually brief as they cover financial information that is highly confidential. These overviews are customarily highly summarised and often un-audited; however, from the following can be concluded:

- LBs, as a majority, have become very open and active within international markets as a mandate of the era of globalisation. Currently, LBs have a presence abroad, and foreign banks have a presence in Libya;
- LBs are now participating in discussions regarding issues concerning the international banking organisations; and

- The Libyan banking sector and monetary authorities need to adopt the international banking industry standard, and must formulate clear policy in this respect.

In conclusion, the banks in general and LBs in particular are advised to consider investment in KMS as the key to generating competitive advantage and maintaining their threatened domination of the market for financial services. In most economic sectors, organisations are encountering strong economic pressure for cost and time reduction. Nonetheless, competition is very intense, particularly in the financial sector (banking industry), and in order to maintain their competitiveness, banks need to develop a stronger competitive edge through the implementation of KMS.

# **CHAPTER 3**

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## **KNOWLEDGE MANAGEMENT FUNDAMENTALS**

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### **3.1 Introduction**

KM is becoming a recognised management concept in the business context. For anyone who is new to the subject, the task of coming to grips with this growing field of thought and practice seems quite intimidating. Hence, the objective of this chapter is to help the reader assimilate the KM concepts. This is achieved through extensive literature review regarding KM fundamentals to distil the concepts of knowledge and KM. Methods to balance the use of tacit and explicit knowledge at work are presented along with proven practical means to improve the understanding and the use of knowledge. The benefits of KM implementation are also highlighted.

## 3.2 Knowledge Management Fundamentals

Literature presents numerous definitions of the term 'knowledge'. However, there is no agreed universal definition, as the definition depends largely upon the context within which the term is used (Sveiby, 1997). Bailey and Clarke (2000) define knowledge as "usable ideas" - ones which are current, relevant and actionable; whilst Davenport and Prusak (1998) suggest that knowledge is:

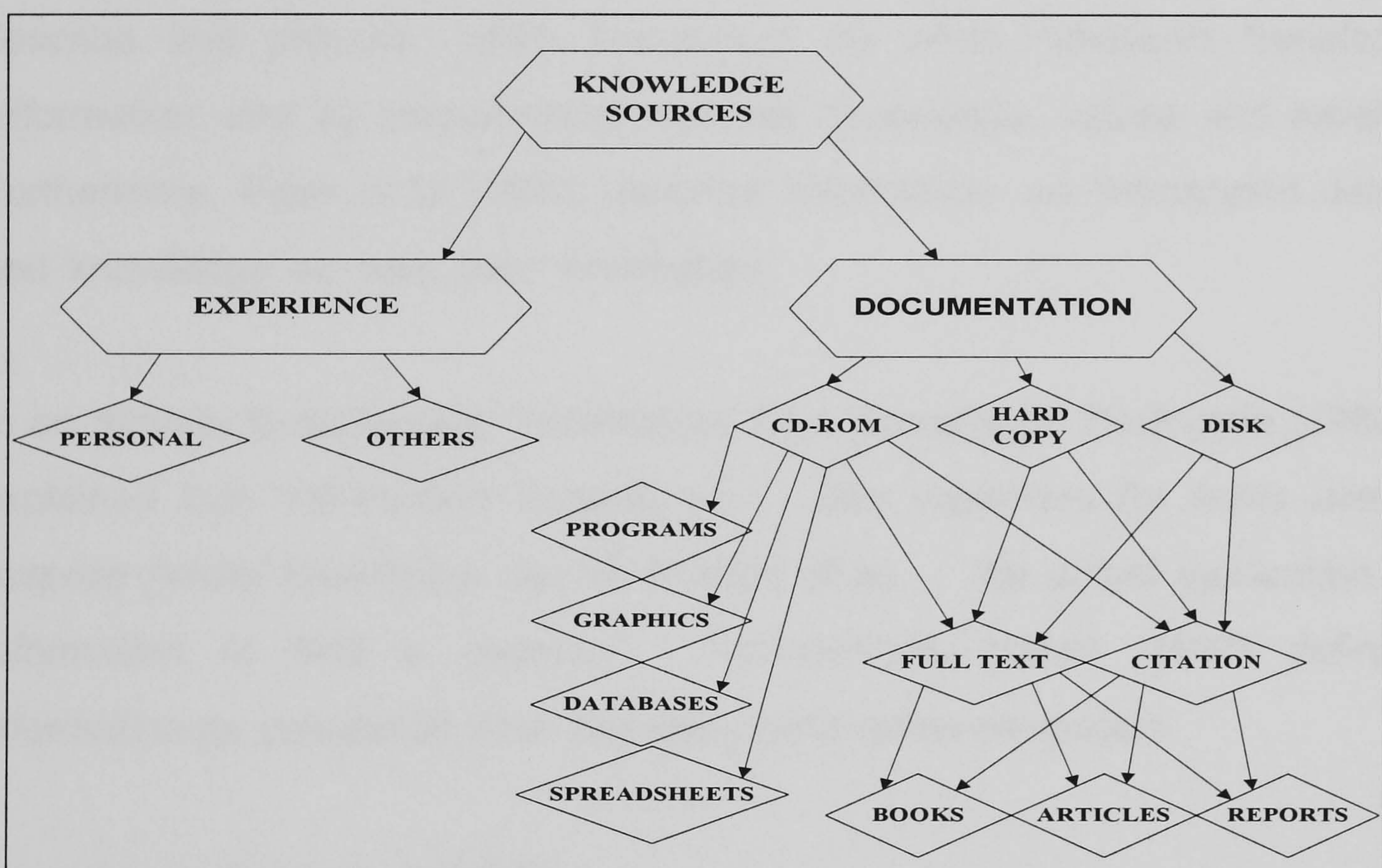
*"a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experience and information. In organisations, it often becomes embedded not only in documents or repositories, but also in organisational routines, processes, practices and norms".*

According to Patel *et al* (1999), the term 'knowledge' can be defined as "a body of information coupled with understanding and reasoning". In this context, knowledge can therefore, also be extended to include the cognitive ability to generate insight based on information and data; and is considered to be typically gained through experience or study. For an organisation, knowledge is what people know about customers, products, processes, mistakes, and successes (Grayson and O'Dell, 1998). Sanchez *et al.* (1996) defined 'knowledge' as the ability to sustain the co-ordinated deployment of assets and capabilities in a way that promises to help the organisation achieve its goals. These assets also called "Knowledge Treasures" (Sanchez *et al.*, 1996), need a knowledge map which describes how to find, what to find, and where to find, useful knowledge within the organisation. Stewart (1998) believes that knowledge, or 'IC', is found in three forms, namely:

- Human capital;
- Structural capital; and
- Customer capital.

Human capital is the knowledge that each individual generates. Structure capital is the knowledge that has been captured / institutionalised as the structure, process and culture of an organisation. Customer capital "is the perception of value obtained by a customer from doing business with supplier of goods and/or services"

Patel *et al.* (1999) articulated that knowledge can appear in the form of formal documentation and/ or experiences, the details of which can be seen in Figure 3-1:



**Figure 3-1: Sources of Knowledge**  
(Patel *et al.*, 1999)

Knowledge, as argued, needs to be seen in the context of the decisions or action to which it leads. Hence, it is deemed important that organisations manage the procedures through which the knowledge is captured, processed and disseminated (Patel *et al.*, 1999).

Knowledge as stipulated is broader, deeper and richer than data or information; it is considered as a mix of contextual information, experience, values, and expert insight that provides a basis for evaluating and incorporating new experiences and information (Patel et al, 1999). Therefore, it is necessary to distinguish between 'data', 'information' and 'knowledge'.

According to Bhatt (2001), 'data' are raw facts that become information on being organised, and 'knowledge' is 'meaningful information'. While the difference between 'data' and 'information' seems to be a clear-cut that between 'information' and 'knowledge' is often less clear and fuzzy. Wiig (1993) explains 'information' as being manipulated in order to convince, describe and provoke; while 'knowledge' as what individuals transform 'information' into by incorporating personal experience, values and beliefs. Furthermore, Patel *et al* (1999) describe 'information' as 'interpreted data', and 'knowledge' as more than 'information'.

In an attempt to distinguish 'information' from 'knowledge' DeGreene (1982), explained that "*information consists of ... data organised for some useful purpose [while] knowledge can be thought of as ... the actual application of information to fulfil a purpose*". Furthermore, Harari (1997) defines information as 'processed data' that can reside within computers.

According to Seng *et al*, (2002):

*"Knowledge comes into existence through the process of labelling bits of information with more abstract labels, words, or other symbols. Information may be coded, for example, into pictures. A picture of a light bulb glowing above a person's head shows that the person has just achieved some great insight. Such a picture has to be interpreted in terms of rules that permit the interpreter to recognise the bulb as the verbal equivalence of understanding"*.

Whilst several authors (Court, 1997; Davenport and Prusak, 1998; Husemann and Goodman, 1999; Roehl, 1997; Sveiby, 1997; Wiig, 1993) emphasise the

importance of differentiating between data, information and knowledge, there is still ambiguity. In conclusion, each category can be summarised as follows:

**Data:**

'Data' is considered as raw facts or uninterpreted material. It consists of factual measurements such as unsorted simple observations, lists of tasks etc, on which a decision is to be based. A fact is a thing known to be true or to exist.

**Information:**

'Information' is data interpreted in a given context. It is data to which meaning has been added to by being processed, put into context, classified, corrected, and condensed. Different information may be gleaned from a single data source if the context is different.

**Knowledge:**

'Knowledge' is a body of information, coupled with the understanding and reasoning about why it is correct. As stated previously, 'knowledge' is the cognitive ability to generate insight based on 'information' and 'data'.

In conclusion, the argument continues that from a hermeneutic perspective, 'knowledge' is not a commodity that can be collected under controlled conditions and bought or sold on a market. Rather, it is subjective enlightenment: a personal property. However, although it may be difficult, it is possible to share 'knowledge', provided there is a mutual respect and a sincere attempt of understanding (Bender and Fish, 2000). The perspective that 'knowledge' is embedded in, and constructed from, social relationships is put forward by Nonaka (1994), who argues that 'knowledge' simply cannot be processed as 'information', because it is continuously re-created and re-constituted through dynamic, interactive social networking activity. However, the organisation is considered to be a 'knowledge' integrating institution. It

neither acquires nor creates organisational 'knowledge'; this is the role and prerequisite of the individual, in and with whom, knowledge resides.

The organisation merely integrates the individually-owned knowledge by providing structural arrangements of co-ordination and co-operation of specialised knowledge workers. That is, the organisation focuses on the organisational processes flowing through these structural arrangements, through which individuals engage in knowledge creation (KC), storage, and deployment (Roberts, 1998; Grant, 1991). Consequently, organisations need to recognise knowledge as a valuable resource and develop a mechanism for gathering the collective intelligence and skills of employees in order to create a greater organisational knowledge base. Knowledge and its management appear to be regarded as increasingly important features for organisational survival (Storey and Barnett, 2000). The next section explains the disciplines of KM.

### **3.2.1 Definition of Knowledge Management**

KM has seen increasing popularity in recent years, and has gained a great deal of attention from both the academia and practitioners (Bhatt, 2001; Metaxiotis *et al.*, 2002; Wiig, 1993). As a term, however, it often means different things to different people. Consequently, KM remains a broadly ill-defined concept with many (often) disparate management theories, applications and technologies claiming a place under the KM banner (Metaxiotis *et al.*, 2002).

Literature often presents a single perspective of what is a multi-faceted topic (Sveiby, 1997). A review of current literature reveals numerous definitions of KM due to the wide range of interests, perspectives, and issues represented by various authors. Therefore, defining the concept of KM is difficult, as differing viewpoints or schools of KM can yield different dimensions and meanings.



Bukowitz and Williams (1999) define KM as "the process by which the organisation generates wealth from its intellectual or knowledge-based assets". Bhatt (2001), however, interprets KM as "a process of KC, validation, presentation, distribution and application". In addition, Chatzke (2000) noted that KM could be associated with: "*communications, capturing of best-yet practices and sharing for reuse what has worked before*". (Chatzkel, 2000). A more formal definition of KM is given by 'The American Productivity and Quality Centre' claiming it to be "*the strategies and processes of identifying, capturing, and leveraging knowledge*" (Manasco, 1996). Furthermore, Chauvel and Despres (2002<sup>b</sup>) identified four different definitions for KM:

- Definition 1: "KM is the explicit control and management of knowledge within an organisation aimed at achieving the company objectives."
- Definition 2: "KM is the systematic and organised attempt to use knowledge (on customer, products, processes, competitors, etc...) within an organisation to improve performance."
- Definition 3: "KM is transforming information and intellectual assets into enduring value."
- Definition 4: "KM is the correct use of IT to capture data and information in order to manage the knowledge that is important in a company."

KM definitions include various terms such as 'IC management', 'corporate brain power', and 'intellectual or intangible asset management' (Carrion *et al.*, 2004). Klein and Prusak (1994) view organisational knowledge as an organisation's IC and define its management as: "... intellectual material that has been formalised, captured, and leveraged to produce higher valued assets". In addition, KM is defined as a formalised, integrated approach to managing an enterprise's articulated and tacit knowledge assets (Klein and Prusak, 1994). These knowledge assets may include knowledge bases, documents, policies, and procedures as well as unarticulated expertise and

experience across the individuals, groups, organisational, and inter-organisational domains (Carrion *et al.*, 2004). KM includes the development, implementation and management of the appropriate organisational infrastructure to enable the acquisition, generation, management and deployment of knowledge within the organisation (Carrion *et al.*, 2004).

Wiig *et al* (1997) note the term 'management' to imply that 'something' has to be managed, and by default that 'something' is expected to be an object. An object is usually presumed to be tangible - something concrete that can be observed with the senses. However, knowledge is not tangible, but it is measurable. An individual's knowledge is part of who he or she is. Organisational knowledge is also intangible, defining the organisation, and reflecting the organisational culture (OCL).

Knowledge Management is usually concerned with capturing an organisation's 'know-how' and 'know-what' through creation, collection, storage, distribution, and application (Miller, 1999). It is the identification and harnessing of the collective knowledge of the organisation gained through experience and competencies. In this sense, Wiig (1997) has identified two objectives of KM, these being:

- To make the organisation act as intelligently as possible in order to secure its viability and overall success; and
- To otherwise realise the best value of its knowledge assets.

There seems to be a consensus of treating KM as a process of leveraging knowledge as the means for achieving innovation in processes and products/services, effective decision-making, and organisational adaptation in the market despite the fact that definitions vary in their description of KM (Yahya and Goh, 2002).

It deems appropriate to link the definitions of KM to the important elements that affect KM. This is to give a more complete understanding to make it easy to perceive KM as a system that enhances organisational learning (OL) through facilitation of knowledge exchange and sharing. To reach more understanding of KM, the next section describes the origin of this concept.

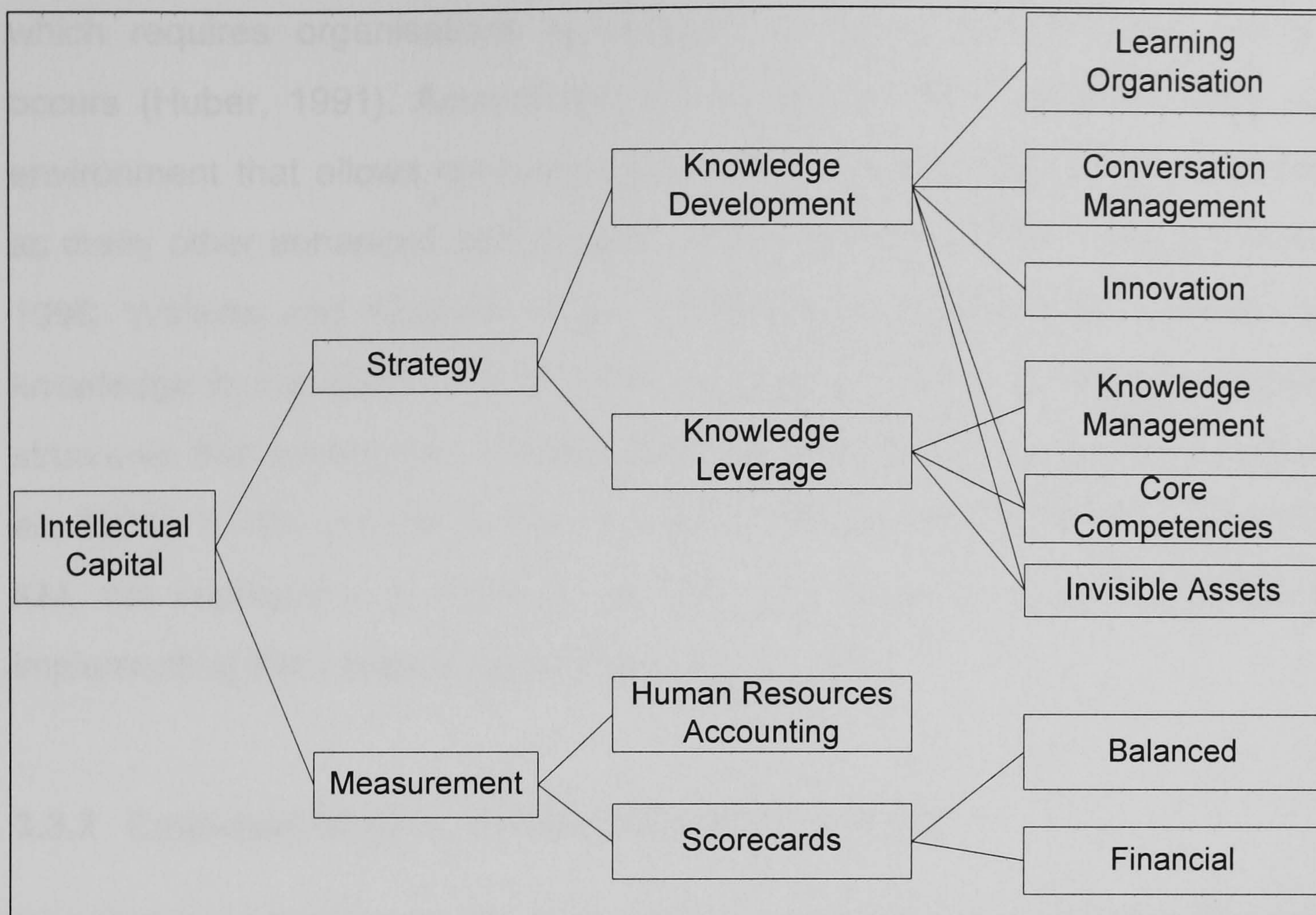
### **3.3 Knowledge Management Origins**

#### **3.3.1 Theoretical Origins**

##### **3.3.1.1 Intellectual Capital**

The term 'intellectual capital' seems to have a longer history than KM. In fact KM can be seen as an integral part of IC (Roos *et al.*, 1997). In this context, Gopal and Gagnon (1995) in their definition, note that "the collective knowledge of an organisation, its IC, is embedded in the personal skills, electronic databases, and other information repositories". Moreover, Guthrie (2000) has differentiated 'intellectual capital' from KM, by the former being controllable by the organisation whereas the latter being about the management of the IC. However, too often the separation between the two terms is unclear and seldom adequately addressed (Guthrie, 2000).

Roos *et al* (1997) suggest that 'IC' can develop into two types of thought relating to strategy and measurement, respectively. Within the strategic perspective, the focus is on studying the creation and use of knowledge and the relationship between knowledge and success or value creation. The train of thought connected with measurement, however, focuses on the need to develop new information systems (IS), measuring non-financial data alongside traditional financial data. The conceptual roots of IC are depicted in Figure 3-2.



**Figure 3-2: Conceptual Roots of Intellectual Capital**  
(Roos *et al.*, 1997)

### 3.3.1.2 Organisational Learning

Organisational learning has been described as the experience-based improvement in organisational task performance as well as the organisation's autonomous capacity to create, share and use strategic information about itself and its environment for decision-making. KM is a thread that associates OL (Polanyi, 1967; Spender, 1996; Spender and Grant, 1996), and emerged as a result of such learning (Klimecki and Lasselben, 1998).

In essence, an organisation can be said to 'learn' when it improves its actions through better knowledge and understanding (Argyris and Schon, 1978; Lyles, 1997; Shivastava, 1988). However, OL is distinctly different from individual learning as it encompasses corporate initiatives and direction to focus on core business activities. OL is, therefore, related to 'change' in organisational

knowledge (Klimecki and Lassleben, 1998). The concept and doctrine of which requires organisations to manage the way organisational change occurs (Huber, 1991). Accordingly, it provides an opportunity to create an environment that allows continuous learning to develop and mature, as well as many other enhanced opportunities (Hong and Kuo, 1999; McAdam *et al.*, 1998; Watkins and Marsiick, 1992). Whilst the acquisition and transfer of knowledge is important, it is equally important to focus on creating support structures that encourage, facilitate and disseminate this knowledge (Love *et al.*, 1999). In this context IT can be viewed as instrumental in the support of KM, the implication of which is that OL will follow as a consequence of implementing KM systems (Alavi and Leidner, 1999).

### **3.3.2 Empirical Origins to Knowledge Management**

Knowledge Management has been adopted in different schools of thought (Poynder, 1998). The technically-oriented KM approach, which aims to manage the accessibility of explicit organisational knowledge, suggests that KM is primarily an IT issue, with networks of computers and GroupWare being the keys. The viewpoint thereof being, if extensive computer networks and communications tools that allow group collaboration are introduced, people will be more inclined to share information and knowledge (DiMattia and Oder, 1997).

Another perspective is the human-oriented KM approach, which aims to support the transfer and share of implicit knowledge, suggesting that KM is more of a human resource issue with emphases on OCL and TW. A strong, positive OCL is argued to be critical in promoting learning, development and sharing of skills, resources, and knowledge. However, both approaches deliver huge advantages to organisations through KM. DiMattia and Oder (1997) argue that the growth of KM has emerged from two fundamental shifts: technological development and the management of human resources (HR).

However, there are other issues in the literature related to the concept of KM such as community of practices and knowledge maps.

### **3.3.2.1 Information Technology**

This refers to the technology that can increase the effectiveness and capabilities of knowledge workers (Mayo, 1998). Some of these tools, e.g. search engines, e-mail filters and rule-based push technology, are already commonly implemented in knowledge organisations. Others, like intelligent agent technology, are only just beginning to be implemented (Dawson, 2000).

Recently, there have been two significant changes in the landscape of KM technologies. Firstly, there have been advancements in open standards, making technologies far more interoperable and less platform-dependent, like the Internet for example. Secondly, is the bundling of the market offerings by the vendors of commercial KM technologies (Hibbard, 1997; Mayo, 1998).

A critical aspect of IT is its ability to facilitate the internalisation of information as personal knowledge by people, and to enable the global sharing of information across platforms and continents (DiMattia and Oder, 1997). Additionally, it can serve as a tool within an organisation to use knowledge more effectively. Capturing an organisation's collective expertise in databases can help organisations to 'know what they actually know', and then organise and exploit this knowledge in a systematic way (Blake, 2000; Gumbley, 1998).

### **3.3.2.2 Human Resources Management**

The HRM is argued to become important in the resource-based perspective of strategic management (Nelson and Winter, 1982). However, it is safe to claim that 'people' should be the main driver of KM (Civi, 2000; Gooijer, 2000; Robertson and Hammersley, 2000; Soliman and Spooner, 2000). This is also evidenced by the concept of 'managing knowledge' resulting from the loss of important intelligence due to employees leaving organisations taking the

knowledge that they had accumulated over the years with them (Piggott, 1997). Furthermore, Armstrong (2000) viewed the role of HR in KM as *"to facilitate the dissemination of learning through workshops, projects and conferences and later, to take responsibility for co-ordinating the preparation of business plans which incorporated the outcome of the learning activities"*.

Over time, organisations have come to recognise that they have lost years of valuable information and expertise with the loss of personnel through whatever means, and have become determined to protect themselves against recurrences (DiMattia and Oder, 1997). This philosophy led management to develop a KM strategy in an effort to store and retain employee knowledge for the future benefit of the company (Forbes, 1997).

Currently, organisations are trying to use technology and systems to capture the knowledge residing in the minds of their employees, so it can be easily shared within the organisation. When stored, it becomes a reusable resource that can provide a wealth of competitive advantages, including enhanced organisational capacities, facilitating output, and lowering costs (Grant, 1991).

### **3.3.2.3 Communities of Practice**

This idea, developed in the 'OL' movement, posits that knowledge flows best through networks of people who may not be in the same part of the organisation, but who have the same work interests (Brown and Duguid, 1991).

Communities of Practice (CoPs) (Love, 2003) are those groups whose members regularly share knowledge and learn from each other. They share common work activities or interests, recognise the collective value of sharing knowledge, and have developed norms of trust, reciprocity, and co-operation (Pan and Scarbrough, 1998). In this regard Lang (2001) states that: *"knowledge is both produced and held collectively rather than individually, in*

*knit groups, or communities of practice*". Therefore, knowledge is constructed through circulation of knowledge and resides within the individual (in informal, unwritten routine practices) in communities that are brought together by common interests (Pan and Scarbrough, 1998).

CoPs or individual human networks may be good examples for informal supporting organisations (Suh *et al.*, 2004). The most common KM programme involves the forming and nurturing of the CoPs that address: leveraging the organisation's knowledge; creating new knowledge or promoting innovation; and increasing collaboration and hence, enhancing the skill level of employees (Bose, 2004).

Some organisations have attempted to formalise these CoPs. Chrysler, for example, has created more than 100 communities in the new car design area, one for each major component of a car. The concept has been sufficiently successful that it is being extended into the much larger Daimler Benz organisation in Europe after the company's merger with Chrysler (Davenport and Volpel, 2001).

#### **3.3.2.4 Knowledge Maps**

Knowledge maps can have different forms and scope, with structure and complexity varying from one organisation to another. Considering KM, Coleman (1999) offers a definition that it is an umbrella term for a wide variety of interdependent and interlocking functions. These functions consist of knowledge mapping and indexing; KC; knowledge valuation and metrics; knowledge transport; storage and distribution; and knowledge sharing. In terms of the tools associated with knowledge maps, these could include some sort of corporate yellow pages, with the names, education, expertise and contact number of each employee. As one can imagine, such yellow pages can be of tremendous help in a company that is expanding rapidly and whose employees have not had enough opportunity to develop personal



relationships with others (Wickert and Herschel, 2001). Designing a knowledge map should always be seen in the context of organisational politics. Since the categorisation of 'key knowledge' is likely to be a matter of interpretation, knowledge maps are argued to be pictures of the current status (Liebowitz, 2005), importance and success of employees. Therefore, all involved will try to influence the design of such a map to be situated well in it (Davenport and Prusak, 1998).

### **3.4 Knowledge Dimensions**

Knowledge can be broadly grouped into individual knowledge and organisational knowledge. The former is knowledge that resides in an individual mind, whilst the latter is formed through interactions between technologies, techniques and people. The pattern and form of which, depend on an organisation's history and culture. This view is consistent with that of Nonaka and Takeuchi (1995) who stress that individual knowledge moves to group level and finally assimilates at the organisational level through an upward spiral of KC.

Organisational knowledge accumulates over time, and enables organisations to attain deeper levels of understanding and perception that lead to business astuteness and acumen, all characteristics of wisdom (Bollinger and Smith, 2001).

Drejer and Henriksen (1998) present a further distinction between knowledge categories, which goes back to the Greek philosopher Aristotle. This classification is comprised of two categories "theoretical - episteme - general knowledge" and "Practical - techne – knowledge", the first one embraces a type of knowledge that can be represented in the form of information as rules, procedures or standards; the second one deals with how something is done, and this can be achieved through observation, studies and descriptions that contain information, although it is only considered knowledge when applied in

practice. It resides in databases, in the sharing of experiences and best practice, and in other sources both internal and external to the organisation.

A number of researchers, such as Nonaka (1994), and Nonaka and Takeuchi (1995), have used Polanyi's (1967) concept of explicit knowledge and tacit knowledge in defining knowledge dimensions. Explicit knowledge is easy to articulate, capture, and distribute in different formats, whereas tacit knowledge is difficult to capture, codify, adopt, and distribute. This is because individuals cannot easily articulate this type of knowledge, since it is deeply rooted in individual work routines (Kogut and Zander, 1992; Nelson and Winter, 1982). Experience, personal-interactions, and the craftsmanship of experts, for example, can not be articulated through procedures and recipes (Bhatt, 2000).

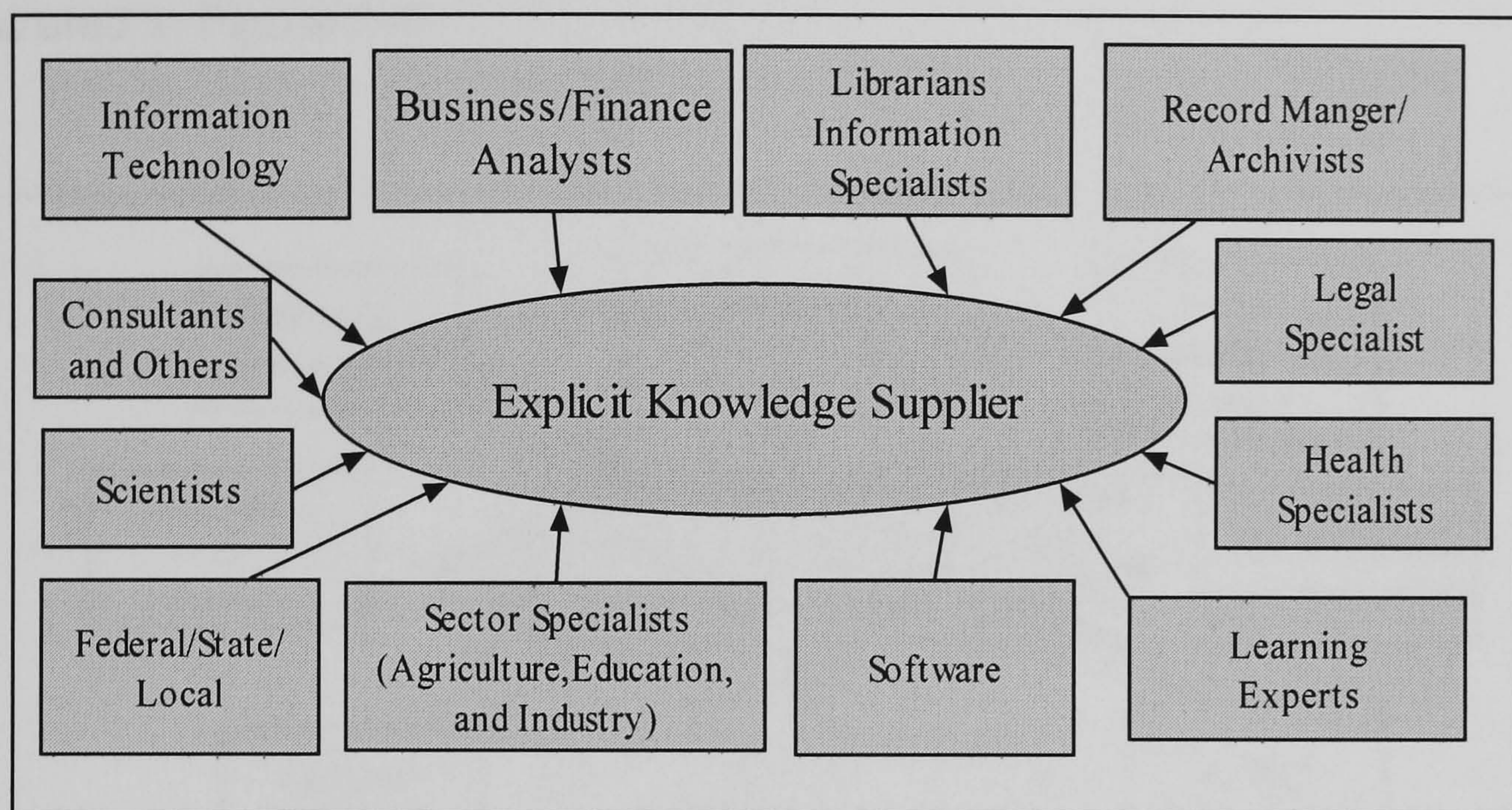
Explicit knowledge and tacit knowledge could be also classified as organisational knowledge (Nonaka, 1991). Therefore, as this research study is concerned with organisational knowledge, it is worth explain about explicit and tacit knowledge, and this is done in the following sub-sections.

### **3.4.1 Explicit Knowledge**

Explicit knowledge is articulated as the most common type of knowledge. It is readily available and can be codified and structured in a way that makes it easily transmissible. In other words, it is formal and systematic and thus, easy to communicate and share. Furthermore, it is transmittable in a formal language and can be stored in databases, libraries, etc. (Nonaka and Takeuchi, 1995).

Explicit knowledge is that knowledge which is recorded and allows people to find it and use it. It can be found in a range of diverse sources, such as HR data, minutes of meetings, and the Internet (Patel *et al.*, 1999). Nonaka and Takeuchi (1995) make the same point in more precise terms: Explicit

knowledge is typically documented and public; has structured, fixed-content, is externalised and conscious (Duffy, 2000). It is what can be captured and shared through IT for example. In this regard, Kanti and Koenig (2000) reveal some sources of explicit knowledge as shown in Figure 3-3. It can be gained from different sources such as libraries, scientists, experts etc.



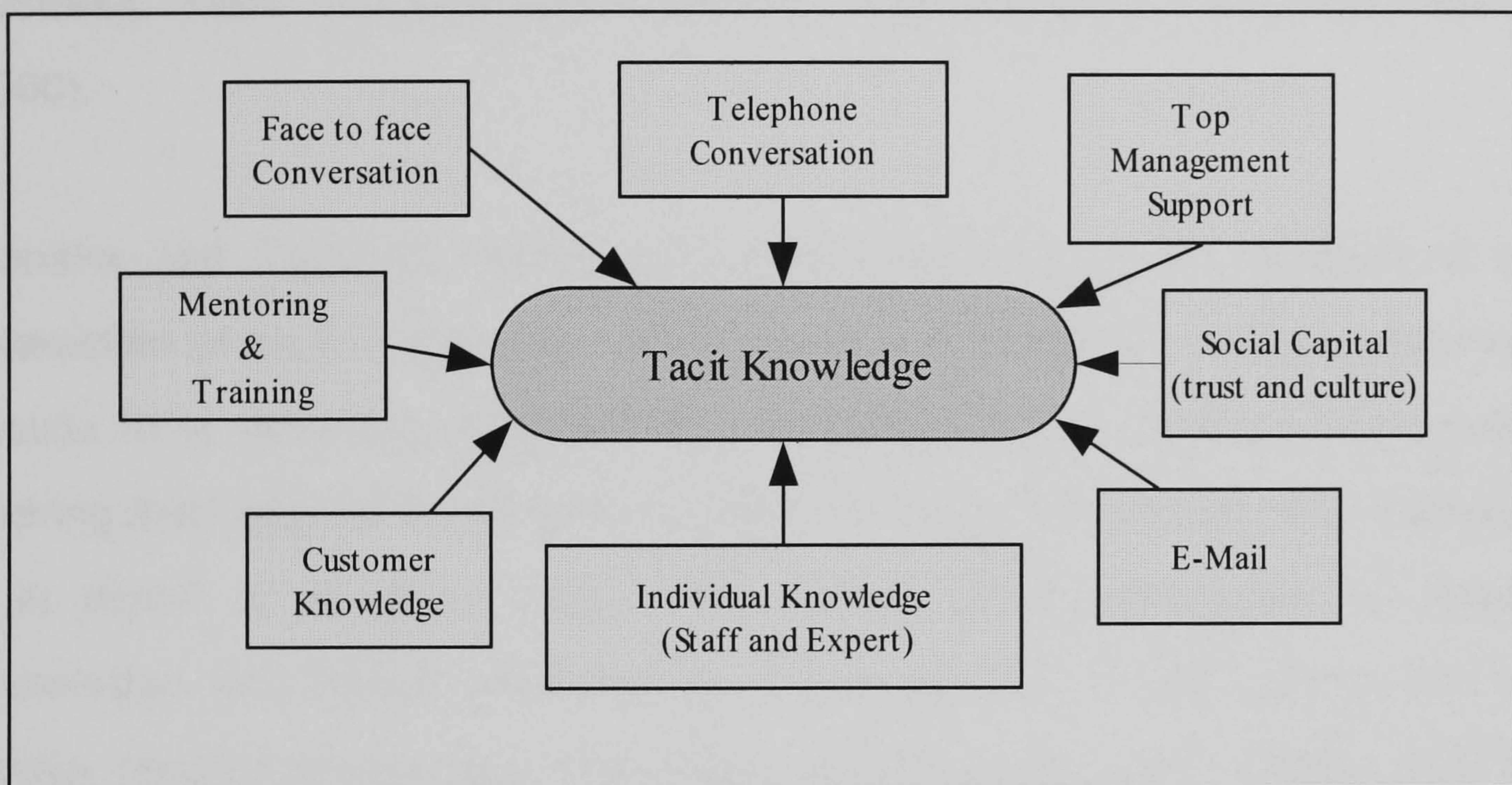
**Figure 3-3: Explicit Knowledge-Supplier**  
(Kanti and Koenig, 2000)

This type of knowledge is easy to code and is located at the visible top of the organisation's knowledge resources iceberg. Examples of explicit knowledge are databases and instruction books (Haldin-Herrgard, 2000).

### 3.4.2 Tacit Knowledge

Tacit knowledge is the exact opposite to explicit knowledge. It is located underneath the surface of the iceberg and it is hard to codify and document (Haldin-Herrgard, 2000). Furthermore, it is hard to articulate with formal language, being personal knowledge embedded in individual experience and involving intangible factors such as personal beliefs, perspectives, and values, and it is also very difficult to manage or externalise (Nonaka and Takeuchi, 1995). Tacit knowledge resides in the human mind, behaviour, and perception. It evolves from people's interactions and requires skill and

practice. Nonaka and Takeuchi (1995) suggest that tacit knowledge is hidden and thus, cannot be easily represented via electronics. Furthermore, it refers to hunches, intuitions and insights (Gore and Gore, 1999; Guth, 1996). It is personal, undocumented, context-sensitive, dynamically created and derived, internalised and experience-based (Duffy, 2000). In term of tacit knowledge supplier Kanti and Koenig (2000) indicate some sources for tacit knowledge illustrated in Figure 3-4.



**Figure 3-4: Tacit Knowledge**  
(Kanti and Koenig, 2000)

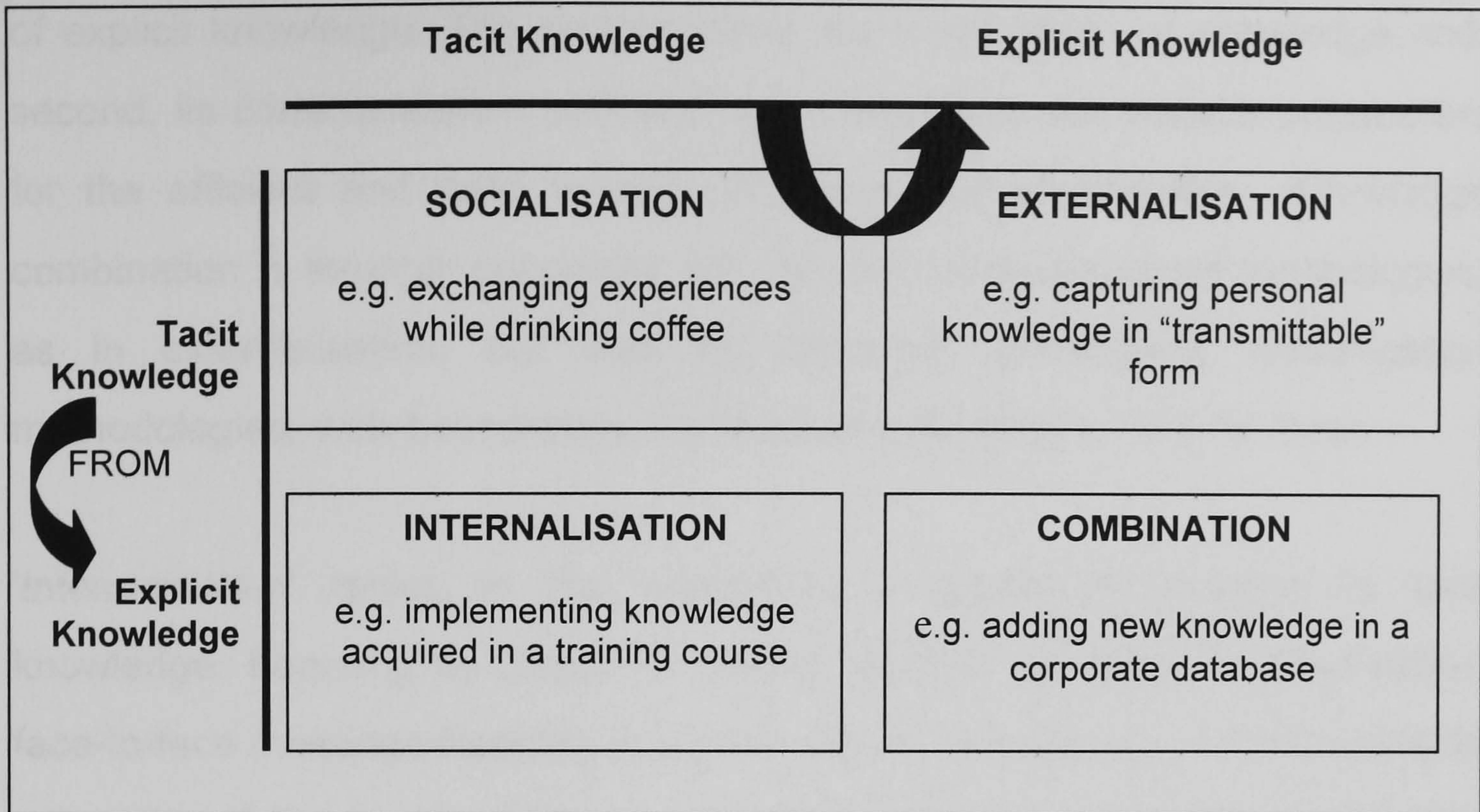
Tacit knowledge is highly personal and hard to formalise. Subjective insights, intuitions and hunches fall into this category of knowledge. Tacit knowledge is the knowledge that people have in their minds it's much less 'concrete' than explicit knowledge. It is more of an 'unspoken understanding' about some thing, knowledge that is more difficult to write down. Tacit knowledge can be difficult to access, as it is often not known to others.

### **3.4.3 The Distinction between Tacit and Explicit Knowledge**

Knowledge is a complex multi-faceted concept, as has already been demonstrated. Following Nonaka (1994) and Polanyi (1996), it is possible to distinguish between explicit, codifiable knowledge, which can be transmitted through formal, systematic language, and tacit knowledge, which is rooted in action and difficult to formalise and communicate. The distinction between tacit and explicit knowledge plays an important role in the KM literature (Nonaka, 1991; Nonaka and Takeuchi, 1995; Polanyi, 1967; von Krogh, 2000).

Nonaka and Takeuchi (1995) perceive knowledge as the product of the interaction of explicit and tacit knowledge. The process of creating knowledge results in a spiralling of knowledge acquisition (KA). It starts with people sharing their internal tacit knowledge by socialising with others or by capturing it in digital or analogue form. Other people then internalise the shared knowledge, and that process creates new knowledge. These people, with the newly- created knowledge, then share this knowledge with others, and the process begins again. Hibbard (1997) articulated this process as innovation.

Four types of interactions can occur: from tacit to tacit (socialisation); from explicit to explicit (combination); from tacit to explicit (externalisation); and from explicit to tacit (internalisation) (Nonaka and Takeuchi, 1995; Civi, 2000). The basic characteristics of the four modes of knowledge conversion are depicted in Figure 3-5.



**Figure 3-5: Modes of knowledge Conversation**  
(Nonaka and Takeuchi, 1995)

'Socialisation' describes the modification of tacit knowledge to other types of tacit knowledge. This process includes the sharing of experiences, ideas, images, mental models and technical skills. It takes place through joint activities, observation, imitation and practice rather than written or verbal instructions. The investigation of the social gatherings and the appropriate working conditions play an important role in this form of knowledge transition.

'Externalisation' refers to the conversion of tacit knowledge to explicit knowledge; hidden tacit knowledge, as ideas, concepts, visuals, metaphors, analogies, narratives etc., is articulated and takes an understandable format. Computer-based techniques (visual modelling, inductive/deductive inference mechanisms, machine learning methodologies, case-based reasoning, decision support systems etc.) able to support individuals to describe, express and explain their inherent conceptualisation are prominent in the externalisation phase.

'Combination' declares the explicit-to-explicit conversion. It involves the mixture of different bodies of explicit knowledge producing more complex sets

of explicit knowledge. The systemisation and codification of knowledge and, second, its communication, diffusion and integration, are integral parameters for the efficient and valid function of knowledge combination. Knowledge combination is strongly supported not only by computer-based technologies, as in externalisation, but also by networks. Databases, classification methodologies, web-based tools, intranets and the internet are on focus.

'Internalisation' refers to the extension of explicit knowledge to tacit knowledge. Learning by doing, on-the-job training, learning by observation, face-to-face meetings listening to others' stories, simulations and experiments are some of the usual practices establishing the internalisation procedures. Internalisation produces experience knowledge through the explicate source; the individual acquiring the explicit knowledge embodied in action and practice can re-experience what others go through.

An effective KMS, as argued, should deal with instruments that support both the transfer and share of tacit and explicit knowledge. Technical KM approaches, which set tools as their centre point, are specialised in dealing with explicit knowledge, which can then be stored and transferred.

The distinction between tacit and explicit knowledge is articulated to be the same as that between theoretical and practical knowledge, and to a certain extent, as that between positivism and hermeneutics. However, as theoretical knowledge is based on practical knowledge and vice versa, the concepts complement rather than oppose each other (Kautz and Thaysen, 2001).

### **3.5 Knowledge Management Benefits**

There are several benefits of KM that can be anticipated (Keen, 1991; Lank, 1997), for organisations, people and society. Fink and Roithmayr (2002) argue that the success of an organisation depends primarily on "know-how management", supported by "know-how engineering". The Knowledge

Foundation (2003) lists 44 generic benefits of KM on its website. In an organisational setting, benefit can occur at two levels: the individual and the organisation (Cong and Pandya, 2003).

The various KM benefits as identified by different authors are summarised in Table 3-1.

Organisational Level	Individual Level
<ul style="list-style-type: none"> <li>• Improved communication between knowledge-workers</li> <li>• Improved alignment between business strategy and technology infrastructure for knowledge sharing and development</li> <li>• Improved customer service</li> <li>• Cycle time reduction</li> <li>• Minimum fixed assts and overhead</li> <li>• Product development time reduction</li> <li>• Employees empowerment</li> <li>• Prevention of knowledge loss</li> <li>• Competitive advantage</li> <li>• Asset development</li> <li>• Leverages of investment in human capital</li> <li>• Cost reduction</li> <li>• Increased employees satisfaction</li> <li>• Improved efficiency, effectively, competency, profitability and continuity of organisation</li> <li>• Improved market share</li> <li>• Enhanced synergy between knowledge-workers</li> <li>• Knowledge-workers retention</li> </ul>	<ul style="list-style-type: none"> <li>• Improved learning and collaboration</li> <li>• Information capturing and KC</li> <li>• Enhanced flexibility and adoption</li> <li>• Innovation and high quality products delivery</li> <li>• Better use of organisational knowledge to improve operations and deliver products and services</li> <li>• Improved decision making</li> <li>• Prevention of knowledge loss</li> <li>• Re-work reduction</li> <li>• Enhanced skills and experience</li> <li>• Improved personal performance,</li> <li>• Better career development</li> <li>• Time reduction</li> </ul>

**Table 3-1: Knowledge Management Benefits**



Organisational Level	Individual Level
<ul style="list-style-type: none"> <li>• Early warning of potential market change</li> <li>• Identification of new business opportunities (Malhotra, 1998a)</li> <li>• Data integration and improved collaboration</li> <li>• improved (organisation) performance</li> <li>• increase the financial value of the organisation</li> <li>• improved customer relationship management</li> <li>• increased shareholder value</li> <li>• increased efficiency</li> <li>• meeting customer needs</li> <li>• new products and service development</li> </ul>	

**Table 3-1: Knowledge Management Benefits (cont.)**

Clark and Soliman (1999) argue that many of the benefits of KM are intangible and difficult to quantify. Moreover, Eginton (1998) and Sbarcea (1998) concluded that the benefits from KM programmes are clearly compelling and that it is important to conduct a full-scale business analysis before choosing a KM programme to suit an organisation. In this regard also, the HR department plays a key role in assessing employees' knowledge; and in determining if major benefits to the organisation are obtainable from conducting this analysis (Soliman and Spooner, 2000). Finally, it can be concluded that measuring business benefits of KM is difficult, and this is even more so for public sector agencies whose outcomes are social benefits, rather than simple profit (Gooijer, 2000).

KM has become embedded in the policy, strategy, and implementation processes of worldwide corporations, governments, and institutions. Doubling in size from 2001, the global KM market has been projected to reach US \$8.8 billion during 2004. Likewise, the market for KM business application capabilities such as customer relationship management (CRM) (Malhotra, 2004) is expected to grow to US\$ 148B by 2005 (Malhotra, 2005). KM is also

expected to help save US \$31B in annual re-invention costs in *Fortune 500* companies (Malhotra, 2005).

The broader application context of KM, which includes learning, education, and training industries, offers similarly sanguine forecasts. Annual public education is estimated at US \$373B dollars in US alone, with higher education accounting for US \$247B dollars. In addition, the annual corporate and government training expenditures in the US alone are projected at over US \$70B dollars (Malhotra, 2005).

### **3.6 Knowledge Management Implementation Challenges**

Despite the growing awareness of the benefits of KM, the accessibility of knowledge is still limited. It is noted by Smith (2001) that the major challenges currently facing organisations are how to select the 'right' information from numerous sources and subsequently transform it into useful knowledge.

Mayo (1998) reports on a survey in which individuals responsible for implementing KM strategy were interviewed. The results indicated that the main obstacles to KMS implementation were lack of ownership of the problem 64%, lack of time 60%, organisational structure 54%, senior management commitment (SMC) 46%, rewards and recognition 46%, and an emphasis on individuals rather than on TW 45%. Among *Fortune 1000* companies the main problems with KM projects are a lack of focus and much reinventing of the wheel (Coleman, 1999).

Organisations are facing challenges in implementing KMS as most of the knowledge resides in the heads of people (tacit knowledge as previously discussed) or in documents or repositories (sources of explicit knowledge) not readily accessible to others (Riege, 2005; Sveiby, 1997). As KM is an emerging and evolving field, it remains a new and elusive concept to many organisations, thus raising a number of limitations in recent KM studies. Riege

(2005) identifies some of these difficulties/ limitations as being attributable to specific social, organisational and contextual factors, while others could be due to the mis-conceptualisation of the actual KM problem which results in the deployment of an inappropriate KM solution; some of these potential barriers are as follow:

- Potential individual barriers: general lack of time to share knowledge, people's job security; insufficient communication; differences in experience levels and lack of trust in people.
- Potential organisational barriers: low awareness of the value and benefit of KM; integration of KM strategy and sharing initiatives with the company's goals and strategic approach is missing or unclear; lack of leadership; lack of motivation, OCL; lack of highly skilled and experienced staff; deficiency of company resources; lack of communication and knowledge flows; and organisation structure.
- Potential technology barriers: lack of appropriate infrastructure; lack of networks; lack of integration of IT systems and processes; lack of technical staff; lack of maintenance of integrated IT systems; lack of compatibility between diverse IT systems and processes; lack of IT skills; and lack of using IT systems.
- It has to be noted that barriers are highlighted separately, although many barriers are intertwined. This means that different combinations of knowledge-sharing barriers would be found in organisations.

In terms of KMS implementation a small section of literature which is alert to the difficulties (for example, Ruggles, 1998; Scarborough and Swan, 1999; Swan *et al.*, 1999) report the following main problems:

- An insufficiently specific business objective. Companies tend to launch KM initiatives that have more general aspirations such as 'share best practice';

- Incomplete programme architecture that fails to build on the linked dynamics of organisational change and learning;
- An insufficient focus on one or two strategic business priorities;
- Top management sponsorship without active ongoing involvement.
- Short-term profitability posed against the complexity of long-term KM initiatives, so KM is treated as one-off, quick-win project whereas it should be a commitment to the long-term.
- KMS can be very time-consuming, labour intensive, and costly.

With few exceptions, most organisations have had difficulty in developing a viable strategic knowledge system. There are manifold reasons for this, a major one is the omnibus nature of the sources required (Carneiro, 2000). Knowledge may flow into the organisation in a continuous but unsystematic manner, probably because the amount of information processing resources varies by level of management activity (Carneiro, 2000). Thus, even where the KM is valued, organisations tend to focus too much on the *"tangible, specific, programmatic aspects, and underestimate the importance of the underlying philosophy or meta-theory of performance"*. This leads to what Pfeffer and Sutton (1999) call the knowing-doing gap, since firms *"misconstrue what they should be knowing and seeking to know in the first place"*. In addition, there have been significant limitations to the achievement of knowledge processing and knowledge-based systems (KBS) to date (Shum, 1997). Moreover, knowledge is constantly changing both at the individual and organisational level (Brown and Duguid, 2000), which can mean that each may reject the other.

### 3.7 Knowledge Management Proposition and Relationship to Research Approach

As discussed in the previous sections, it seems difficult to accurately define 'knowledge'. However, it can be concluded that knowledge is an organised combination of ideas, rules, procedures, and information. It is only through meaning that information finds life and becomes knowledge (Marakas, 1999). Moreover, Dahlbom and Mathiassen (1993) argue that from a positivistic perspective, knowledge is to a certain extent like information. It can be collected and processed and, whether it includes facts or generalisations based on facts, it is an objective commodity that can be measured, bought and classified. It can be stored in people, in books or on hard disks.

Knowledge is based on data and information, but whilst data is considered as raw facts, information is regarded as 'organised data', and knowledge is perceived as 'meaningful information'. Thus, knowledge can be viewed both as something to be stored and manipulated, and as a process of simultaneously knowing and applying expertise (Zack, 1999). In other words, information is data within context, endowed with meaning and significance. Knowledge is information that is transformed through reasoning and reflection into beliefs, concepts, and mental models (Bender and Fish, 2000).

An essential part of KM is knowledge. Many researchers have investigated the concept in order to map the domains of knowledge and the characteristics of its concept. Yet, still the question regarding to the nature of knowledge is extremely challenging. Although philosophers have been discussing the issue for several hundred years (Emery, 1997), the search for a formal definition continues (Emery, 1997).

Knowledge should be studied in context. Knowledge is information combined with experience, context, interpretation, reflection, and perspective (Davenport *et al.*, 1998; Frappaolo, 1997; Kirchner, 1997) that adds a new level of insight.

In addition, Allee (1997<sup>a</sup>) suggests that knowledge becomes meaningful when it is seen in the larger context of our culture, which evolves out of our beliefs and philosophy.

The final characteristic is that knowledge is ineffectual if it is not used. Knowledge is a high-value form of information that is ready to be applied to decisions and actions (Davenport et al., 1998). In this matter Sveiby (1997) has defined it as the capacity to act on information and thereby make it valuable.

Malhotra (1998<sup>b</sup>) noted that KM "*embodies organisational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings*". This definition is supported by an empirical survey by Chong et al. (2000) who have identified it as "a process of leveraging and articulating skills and expertise of employees, supported by IT". In this sense, Meso and Smith (2002) proposed a socio-technical view of a KMS by treating it as "a complex combination of technology infrastructure, organisational infrastructure, corporate culture, knowledge and people". Technology infrastructure is the IT tools (i.e. hardware, software, and protocols) that enable any form of electronic encoding and exchanging of knowledge. Organisational structure refers to the way employees are organised into teams (informal and formal), and interact within teams; the set of roles and goals of each team, and how they are related to organisational strategy. Corporate culture is the shared values, norms, ethics and practices in the organisation (Yahya and Goh, 2002).

KMS is argued to help organisations radically to improve their business performance, especially if implemented strategically and by holistic approaches (Martensson, 2000). In this research, KMS is assumed to be an opportunity that promises significantly enhanced functionality through an

integrated combination of a substantial portion of organisational commitments, CM, IT, KM processes, from a KM perspective. It is not understood as contextualised data and documents linked to directors of people, roles and skills. Rather, a KMS provides intelligence to analyse documents, links, employees' interests and behaviours. It offers support for personalised access to the knowledge base as well as advanced functions for knowledge processes (creation transferring, sharing and collaboration).

### **3.8 Summary**

This chapter considered the definitions of 'knowledge' and 'KM', and provided a discussion of current KM approaches. Additionally, it articulated the dimensions and characteristics of the different types of knowledge that can be managed. Some of the theories that lie behind the function of knowledge and the needs of KM in today's environments have also been explored. As an emerging concept, there are still teething troubles to be encountered with the concept of KM, and the chapter surveys those challenges (barriers), which have been identified and are to be expected.

The following chapter gives an overview of KM practice is presented, and a number of different frameworks that are used in implementing KMS are introduced. An analysis of these KM frameworks is then undertaken to develop a greater understanding of the critical areas that could be incorporated in KMS implementation.

# **CHAPTER 4**

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## **KNOWLEDGE MANAGEMENT FRAMEWORKS**

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### **4.1 Introduction**

The implementation of KM is argued to face several problems, not least the surfeit of fragmented literature on KM (Binney, 2001). However, the KMS implementation described in the literature, whilst often using differing terminology, can be observed to cluster around common ideas or business problems e.g. creation of new knowledge, process consistency or improvement, understanding patterns in a vast amount of data, tapping expertise in organisations or developing employee capabilities and competencies.

The characteristics of knowledge make not only the (actual) management of knowledge difficult, but also achieving consensus around the meaning of the intent is inherently problematical. This is well articulated by Blacker (1995): *"Knowledge is multifaceted and complex, being situated and abstract, implicit*



*and explicit, distributed and individual, physical and mental, developing and static, verbal and encoded'* (Blackler, 1995).

Several surveys have been conducted to determine how many organisations are working or planning to work with KM activities (Cole-Gomolski, 1998; Hibbard and Carrillo, 1998; Nerney, 1997). The surveys are attempts to either implement KM strategies or implement measurement systems on how to measure different intangible assets, or a combination of both. There are a broad range of KM implementations being championed and described in the literature (Alavi and Leidner, 1999; Barclay and Murray, 1999; CIO Magazine, 1999; Cushman *et al.*, 1999; Davenport and Prusak, 1998; Edvinsson, 1997; Elliott, 1999<sup>a</sup>, 1999<sup>b</sup>; Leonard, 1999; Newell *et al.*, 1999; Nonaka and Takeuchi, 1995; O'Dell and Grayson, 1998; Parlby, 2000; Sveiby, 1997).

This chapter reviews the existing KM implementation frameworks and describes how the KM applications are addressed in the literature, in order to determine and propose a set of guidelines for constructing them. Through the utilisation of the identified guidelines (for the development of a KM implementation framework), it is expected that a stronger theoretical foundation can be constructed - thus, facilitating the accomplishment of KM.

To introduce KM properly in a manner consistent with a particular framework, models and methodologies ought to be identified/ developed.

## **4.2 Overview of KM Practice**

A number of surveys have assessed the way organisations define, identify and locate knowledge (especially critical knowledge areas) in relation to strategic objectives (KPMG Consulting, 1998, 2000). Strategies for the Knowledge Economy (Mohrman and Finegold, 2000) and the Survey of Current Practices (Gupta *et al.*, 2001) investigated intervening steps which involves ways of capturing, storing, codifying and accessing knowledge.

Furthermore, Rajan *et al* (1999) surveyed practices related to KC and innovation, which is often considered the end point of a linearly-defined chain of cognitive processes.

Davenport and Prusak (1998) have found that most KM projects attempt either to create knowledge repositories or to improve knowledge access, while there are others that focus on improving the culture and environment for knowledge exchange, and improving innovation and performance. In other words, it is an attempt to enhance the overall environment for managing knowledge in their projects. They may also try to increase awareness of knowledge and its role in business and organisations, or to motivate employees to create, share, or use knowledge to a greater degree (Gibbert *et al.*, 2000).

Many studies in this field are just concerned with the building of a KMS rather than enhancing competitiveness itself. However, it may be argued that the aims of KM are to build a system to improve organisational competitiveness through capitalising the potential value of knowledge (Kim, 1999; Wiig, 1997).

Research as well as business related literature captured two main strategies/ approaches for KM that have been deployed by early adopters of the concept. (Hansen *et al*, 1999; and Koehn and Abecker, 1997), these being:

- The process-centred approach, which mainly understands KM as a social communication process. In this approach, knowledge is closely tied to the person who developed it and is shared mainly through person-to-person contacts. The role of IT in this approach is to help people communicate knowledge, not to store it. This approach is also referred to as the 'personalisation' approach; and

- The product-centred approach, which focuses on knowledge documents, their creation, storage and reuse in computer-based corporate memories. This approach is also referred to as the 'content-centred' or 'codification' approach.

Among the early adopters of KM, the most common objective involves implementing some sort of knowledge repository (Mentzas *et al.*, 2001). The objective is to capture knowledge for later and broader access by others within the same organisation. A few KM projects focus on knowledge transfer (KT) alone, either through technological means (videoconferencing, for example, as at BP's oil exploration sites), or through direct contact between people. Other KM projects attempt to better manage knowledge assets, either by measuring their level or value within an organisation (a notoriously difficult problem) or more usefully, attempting to increase their value through more effective harvesting and use (Baker and Badamshina, 2002).

The Institute for KM (which includes Boston University, Stanford University, the Wharton School, the Brooking Institute, University of Texas, and Theseus in France), has compiled a resource library on KM practice and outcomes (Baker and Badamshina, 2002). Common KM practices include:

- Creating and improving explicit knowledge artefacts and repositories (developing better databases, representations, and visualisations; improving the real-time access to data, information, and knowledge; developing the right knowledge for the right person at the right time);
- Capturing and structuring tacit knowledge as explicit knowledge (creating knowledge communities, knowledge networks, alliances, and partnerships; supporting knowledge communities and networks with electronic tools to capture knowledge and convert tacit knowledge to explicit knowledge);

- Improving KC and knowledge flows (developing and improving OL mechanisms; facilitating innovation strategies and processes; facilitating and enhancing knowledge creating conversations/dialogues);
- Enhancing KM culture and infrastructure (improving participation, motivation, recognition, and rewards to promote knowledge sharing and idea generation; developing KM enabling tools and technologies);
- Managing knowledge as an asset (identifying, mapping, analysing and assessing the relevant knowledge landscape; identifying, documenting, measuring and assessing intellectual assets; identifying, prioritising, and evaluating knowledge development and KM efforts; documenting and more effectively leveraging intellectual property);
- Improving competitive intelligence and data mining strategies and technologies.

A study by the American Productivity and Quality Centre shows that 89% of the participants in the study perceive the core goal for KM is to capture and transfer knowledge and best practices (Allerton, 1998).

Based on an extensive multi-firm study by the American Productivity and Quality Centre, hurdles to KM include the lack of a commonly-held model for KC and dissemination and the absence of systems or processes designed to support and evaluate the effectiveness of KM (Ostro, 1997). Organisations with a KM system based purely on a technological solution, have failed (Chauvel and Despres, 2002<sup>a</sup>). Whilst technology may be necessary for KM, it appears never to be sufficient (Bassi, 1997; Warren, 1999).

### 4.3 Current Knowledge Management Frameworks

There is a growing body of literature documenting the types of KM frameworks, models, methodologies and projects being undertaken by organisations (Davenport *et al.*, 1998; Leonard-Barton, 1995; Sveiby, 1997; Wenger and Snyder, 2000). The KM frameworks in the literature tend to emphasise different aspects of KM. In the same context, Holsapple and Joshi (1997; 1998) of the Kentucky Initiative for KM, have presented several KM frameworks. For example, they have developed a descriptive framework that, similar to that of Theseus Institute (1999), provides a number of building blocks and prescriptive approaches (Holsapple and Joshi, 1998).

KM models can be classified in three main categories (McAdam and McCreedy, 1999), namely: IC models (Baker and Barker, 1997), Knowledge Category models (Nonaka and Takeuchi, 1995), and Socially Constructed models (Demarest, 1997). Nevertheless, this classification is not standard, and some frameworks or models can combine one or more of these categories. The following paragraphs describe some of the frameworks, methodologies and models that have been presented over the past 15 years.

#### 4.3.1 Prescriptive Frameworks

Corporate knowledge portals have several features that are used to implement KM initiatives in organisations (Collis and Montgomery, 1995), which include:

- A consistent view of the organisation and structure for classifying knowledge;
- Indexing and search capabilities;
- Single point of access for all the corporate knowledge assets;

- Links to reports, analysis, queries, relative information and domain knowledge experts;
- Single sign-on and personalisation; and
- On-line thesaurus.

According to Demarest (1997), to manage knowledge successfully, one needs to understand the three relevant infrastructures within which the knowledge process takes place:

- The cultural infrastructure;
- The organisational infrastructure and; and
- The technical infrastructure.

Wiig *et al.* (1997) discuss specific methods and techniques for articulating parts of KM. The term 'parts' of KM is used because of the methodology emphasises knowledge flows and bottlenecks rather than the entire KM process. This discussion is within the context of the 'review, conceptualise, reflect and act' framework; the details of which are as follows:

- Review - monitor organisational performance internally and against external benchmarks. Lessons learned can be a useful tool;
- Conceptualise - organise the different levels of knowledge in the organisation. Identify knowledge assets and link them to business processes that use them. Analyse strong and weak points in the knowledge inventory (a set of knowledge "bottlenecks" should be identified in this phase);
- Reflect - establish a plan to address and mitigate the knowledge bottlenecks. Prioritise the parts of the improvement plan; and

- Act - implement the improvement plan. Different parts of the organisation may be responsible for enacting different parts of the plan.

A generic conceptual model is also offered by Wiig (1998<sup>a</sup>), which provides a good starting point for the development of a practical KM programme. This embraces a six-step procedure for an initial KM introduction programme for an organisation with limited experience in this field:

- Build management understanding and commitment to pursue KM;
- Map perspectives of the knowledge landscape;
- Plan the organisation KM priorities, focus and strategy;
- Identify sought KM benefits;
- Adjust KM priorities; and
- Create KM-related incentive programmes.

Dataware Technologies (1998); provided a fairly detailed methodology for KM, this being to:

- Identify the business problem;
- Prepare for change - obtain executive support and make the shift to a sharing culture;
- Create the team (of people responsible for leading KM);
- Perform a knowledge audit - identify what knowledge is missing and organise the knowledge;
- Define key features required for the technological infrastructure;

- Phase in KM activities in the following:
- Improve the return on investment on existing knowledge assets.
- Enhance the process of locating applicable knowledge.
- Increase the accuracy and speed of classifying knowledge.
- Provide substantially enhanced functionality, security and performance for the growing knowledge-management activity in the organisation.
- Start capturing valuable "tacit knowledge" that was previously lost to attrition.
- Enable faster access to critical knowledge.
- Quickly find people in the organisation who have specific knowledge; and
- Link people to knowledge - knowledge directory and content management.

Liebowitz and Beckman (1998) suggested an eight-step approach for KM, this being to:

- Identify knowledge;
- Capture knowledge;
- Select knowledge;
- Store knowledge;
- Share knowledge;
- Apply knowledge;
- Create knowledge; and
- Sell knowledge.

Based on existing literature, Monsanto Corporation built its approach to KM (Junnarkar, 1999) and introduced five processes which include:



- Connecting people with other knowledgeable people;
- Connecting people with information;
- Enabling the conversion of information to knowledge;
- Encapsulating knowledge, to make it easier to transfer; and
- Disseminating knowledge around the organisation.

Wiig (1999) listed "major KM building blocks" which include the following 16 elements:

- Obtain management buy-in;
- Survey and map the knowledge landscape;
- Plan the knowledge strategy;
- Create and define knowledge-related alternatives and potential initiatives;
- Portray benefit expectations for knowledge-management initiatives;
- Set knowledge-management priorities;
- Determine key knowledge requirements;
- Acquire key knowledge;
- Create integrated knowledge transfer programmes;
- Transform, distribute and apply knowledge assets;
- Establish and update KM infrastructure;
- Manage knowledge assets;
- Construct incentive programs;
- Coordinate knowledge-management activities and functions enterprise-wide;
- Facilitate knowledge-focused management; and
- Monitor KM.

Xerox Corporation (1999) developed the X5 methodology, which emphasises the linkage of KM to business goals. The five steps are as follows:

- Discovery - identify business goals, challenges and opportunities;
- Definition - determine key requirements and scope of the project;
- Start-up - detailed project plan is developed;
- Delivery - implement the plan; and
- Evaluation - ensure results meet expectations and facilitate KT.

Martensson (2000) identified four stages within the field of KM, these are:

- Collecting information;
- Storing information;
- Making information available; and
- Use the information.

To successfully introduce KM, Martensson (2000) indicated the importance of the following:

- The "so what?" question;
- Support from top management;
- Communication;
- Creativity;
- Culture and people;
- Sharing knowledge;
- Incentives;

- Time; and
- Evaluation.

In (2000) Liebowitz discusses a nine-step approach to KM implementation:

- Transform information into knowledge;
- Identify and verify knowledge;
- Capture and secure knowledge;
- Organise knowledge;
- Retrieve and apply knowledge;
- Combine knowledge;
- Create knowledge;
- Learn knowledge; and
- Distribute/sell knowledge.

Guidelines for KM implementation strategy were cited by Soliman and Spooner (2000), and suggested the need for:

- Alignment of KM with business directions;
- Identification of the benefits of KM efforts;
- Choosing the appropriate KM programme;
- Implement a know-how strategy;
- Creating supportive environments for KM programmes
- Use of enabling technologies for the KM programme;
- Creating the KM team; and
- Creating KM leadership.

Levett and Guenoy (2000) state the following 'Eight Metrics for KM analysis', which they consider to be appropriate to the automotive product development environment, although they are also sufficiently generic to cover a range of industries and companies:

- Motivation (how well the employees are motivated to work productively);
- Knowledge capture (the ability to capture important knowledge);
- Stored knowledge (the usefulness of captured knowledge in solving new problems);
- Personnel training (the effectiveness of employee learning mechanisms);
- Knowledge transfer (the effectiveness of sharing important knowledge);
- Creative thinking (the ability of employees to create new solutions);
- Knowledge identification (the effectiveness of identifying knowledge); and
- Knowledge access (the effectiveness of accessing important knowledge).

Rus *et al.* (2001), observed that three issues are particularly important in the implementation of KM, since the process involves many challenges and obstacles. The issues are:

- Technology issues. Software technology supports KM, but it is not always possible to integrate all the different sub-systems and tools to achieve the planned level of sharing. Security is a requirement that the available technology does not often provide satisfactorily.
- Organisation issues. It is a mistake for organisations to focus only on technology and not on methodology. It is easy to fall into the technology trap and devote all resources to technology development, without planning for KM implementation.

- Individual issues. Employees often do not have time to input or search for knowledge, do not want to give away their knowledge, and do not want to reuse someone else's knowledge.

Teleos (2001) has developed a framework of eight "knowledge-management dimensions" which identify organisations that recognise knowledge as the key for competitive success (Chase, 2000). The eight dimensions are:

- Success in establishing an enterprise knowledge culture;
- Top management support for managing knowledge;
- Ability to develop and deliver knowledge-based goods/services;
- Success in maximising the value of the enterprise's IC;
- Effectiveness in creating an environment of knowledge sharing;
- Success in establishing a culture of continuous learning;
- Effectiveness of managing customer knowledge to increase loyalty/value; and
- Ability to manage knowledge to generate shareholder value.

The following process is offered by Bollinger and Smith (2001) as a guide for actions to be considered when implementing a KM:

- Assess the OCL to ascertain the values, mind sets, behaviours, and outputs. Determine whether some areas may need reengineering. Areas to consider are organisational structure, reward system, networks available, and performance appraisals (Miller, 1999);
- Identify stakeholders. Determine who needs to know. When do they need it? How do they get the knowledge they need now? What can be done from a human resource perspective to facilitate the acquisition and transfer

of the knowledge needed? Establish buy-in from those involved ensuring cooperation and contribution;

- Determine what knowledge or types of knowledge are critical to the organisation. For example, is the interest primarily in knowledge assets (IC) such as patents, trademarks, etc., or is it in capturing idea-generating processes? Is the concern with product-related knowledge or strategy? ;
- Determine where the knowledge currently resides, i.e. databases, people, documents, and external sources. Is it available internally now, or will an investment in people or equipment be necessary? Does it come from CoPs? If so, how can other such groups be encouraged?;
- Determine how the knowledge is created. What processes are currently in place for generating new knowledge? Are they formalised, or haphazard and incidental?; and
- Select a business area or process to initiate KM. Keeping the project small will help to keep it focused, and will enable management to better assess the success/failure of the programme.

Several dimensions are indicated by Hung *et al.*, (2005) in their framework for KM adoption, these being:

- Dimension of OCL;
- Dimension of senior management leadership and commitment;
- Dimension of employee involvement;
- Dimension of employee training;
- Dimension of trustworthy TW;
- Dimension of employee empowerment;
- Dimension of IS infrastructure;
- Dimension of performance measurement;

- Dimension of benchmarking; and
- Dimension of knowledge structure.

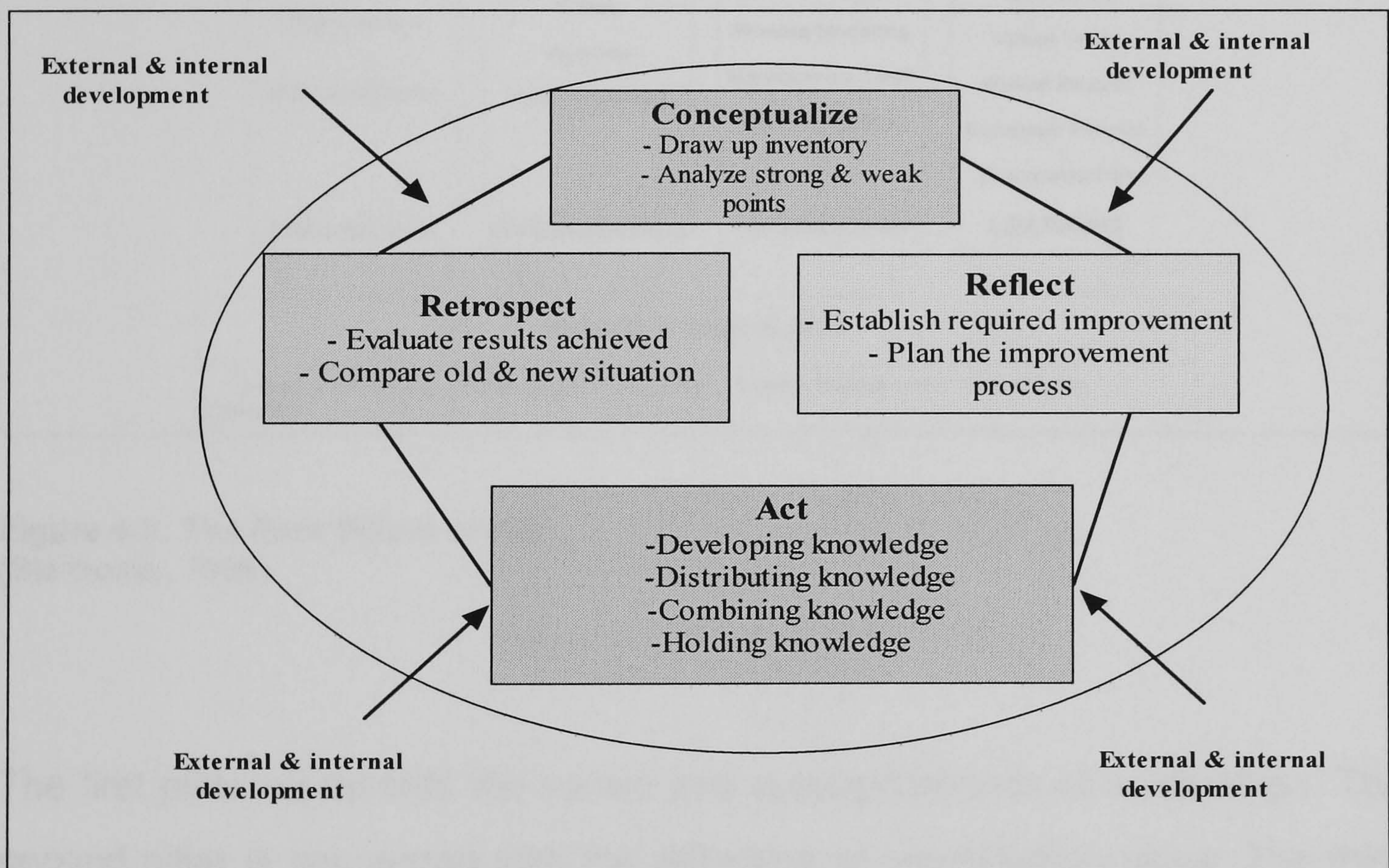
Reviewing the existing methodologies presented previously, key limitations could be identified such as the lack of detail; lack of an overseeing framework; or failure to address the entire KM process. Most of these limitations refer to the failure of the methodologies to address all relevant aspects of KM, and instead focuses on one or several parts. A KM methodology should address the different types of knowledge to be complete in its treatment of the knowledge cycle.

### 4.3.2 Broad Frameworks

#### Framework of Knowledge Management Stages

In 1997 Van der Spek and Spijkervet presented a framework for KM containing four stages (see Figure 4-1):

- Conceptualise;
- Reflect;
- Act; and
- Retrospect.

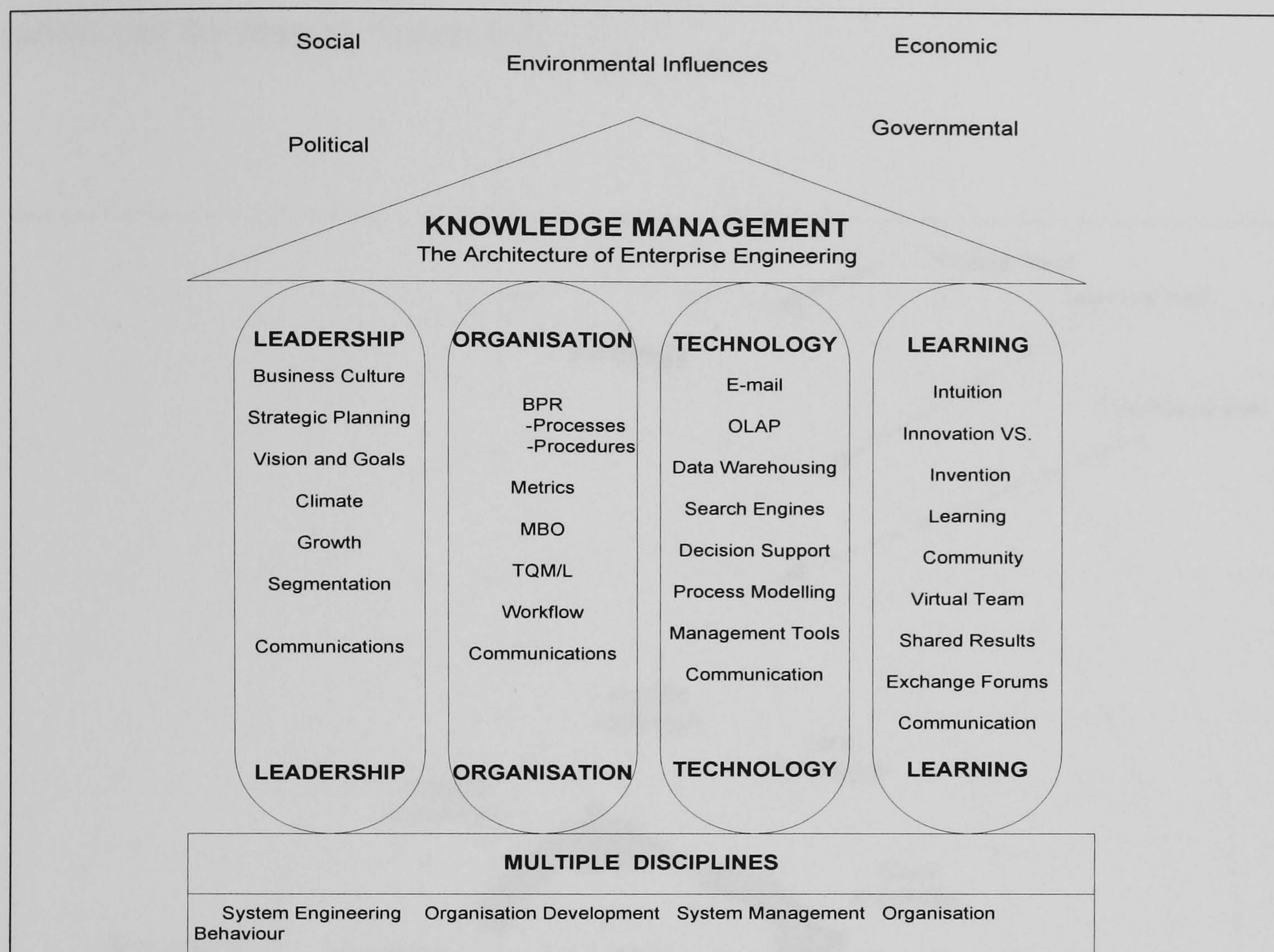


**Figure 4-1 : A Framework of Knowledge Management**  
(Van der Spek and Spijkervet, 1997)



## Framework of KM Pillars

Stankosky (1999) presented a conceptual framework entitled the “four pillars of KM”, the details of which are shown in Figure 4-2:

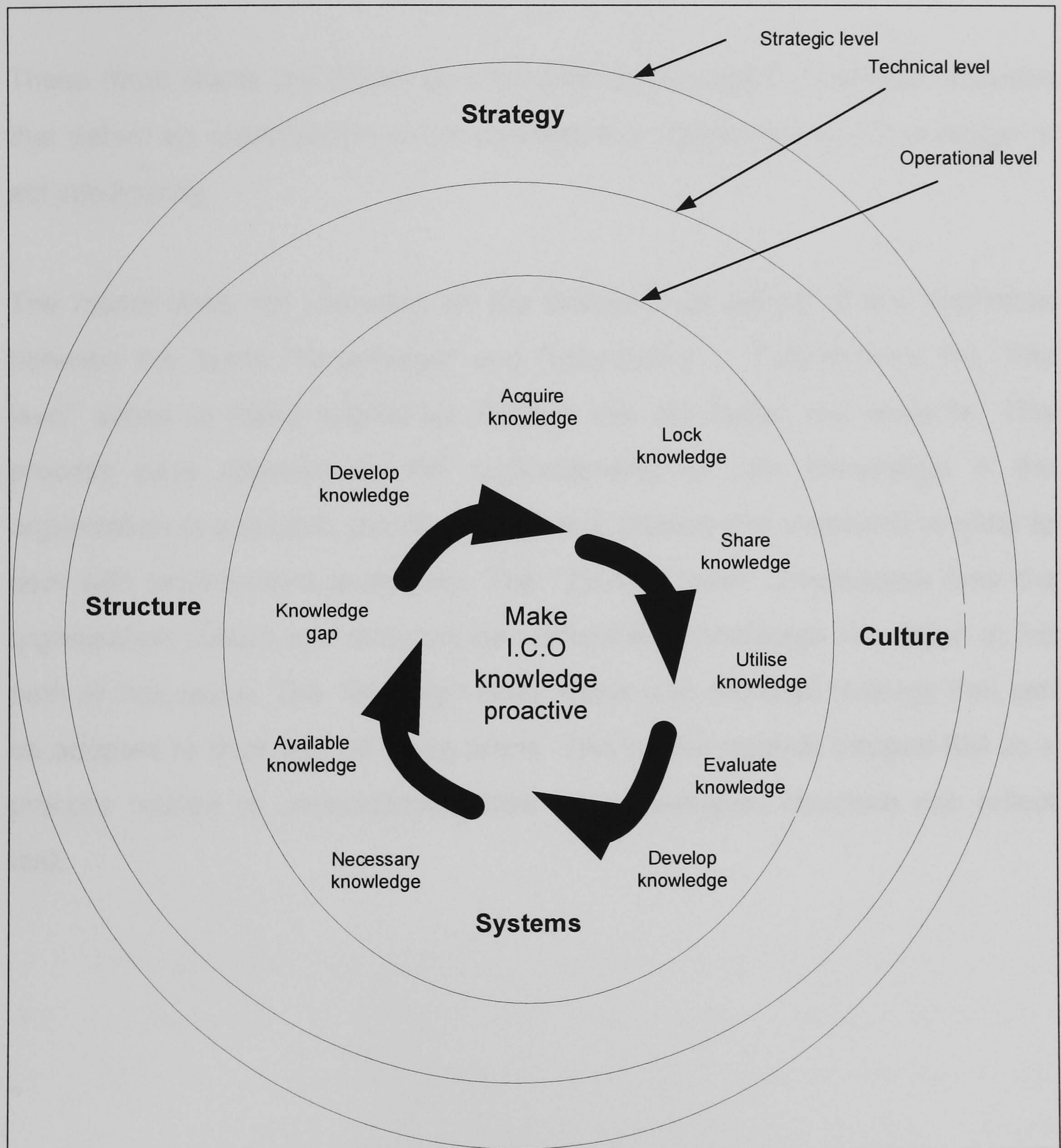


**Figure 4-2: The Four Pillars of KM**  
(Stankosky, 1999)

The first pillar represents the nature and appropriateness of leaderships. The second pillar is concerned with the reflection of organisation value. The third pillar involves the existence and usage of technology such as e-mail and data warehousing. The final pillar involves the learning activities. All four pillars are based on the understanding of the system engineering, organisational development, and system management and organisation behaviour.

## An Integral Knowledge Management Conceptual Model

Beijerse uit (2000), identified an integral conceptual KM model, for use in establishing the relationship between systems, structure, strategy and culture; cognisant of the strategic, technical and operational levels – the details of which can be seen in Figure 4-3.



**Figure 4-3 : An Integral KM Model**  
(Beijerse uit, 2000)

The model of the "integral KM" suggests three levels to make knowledge proactive which are:

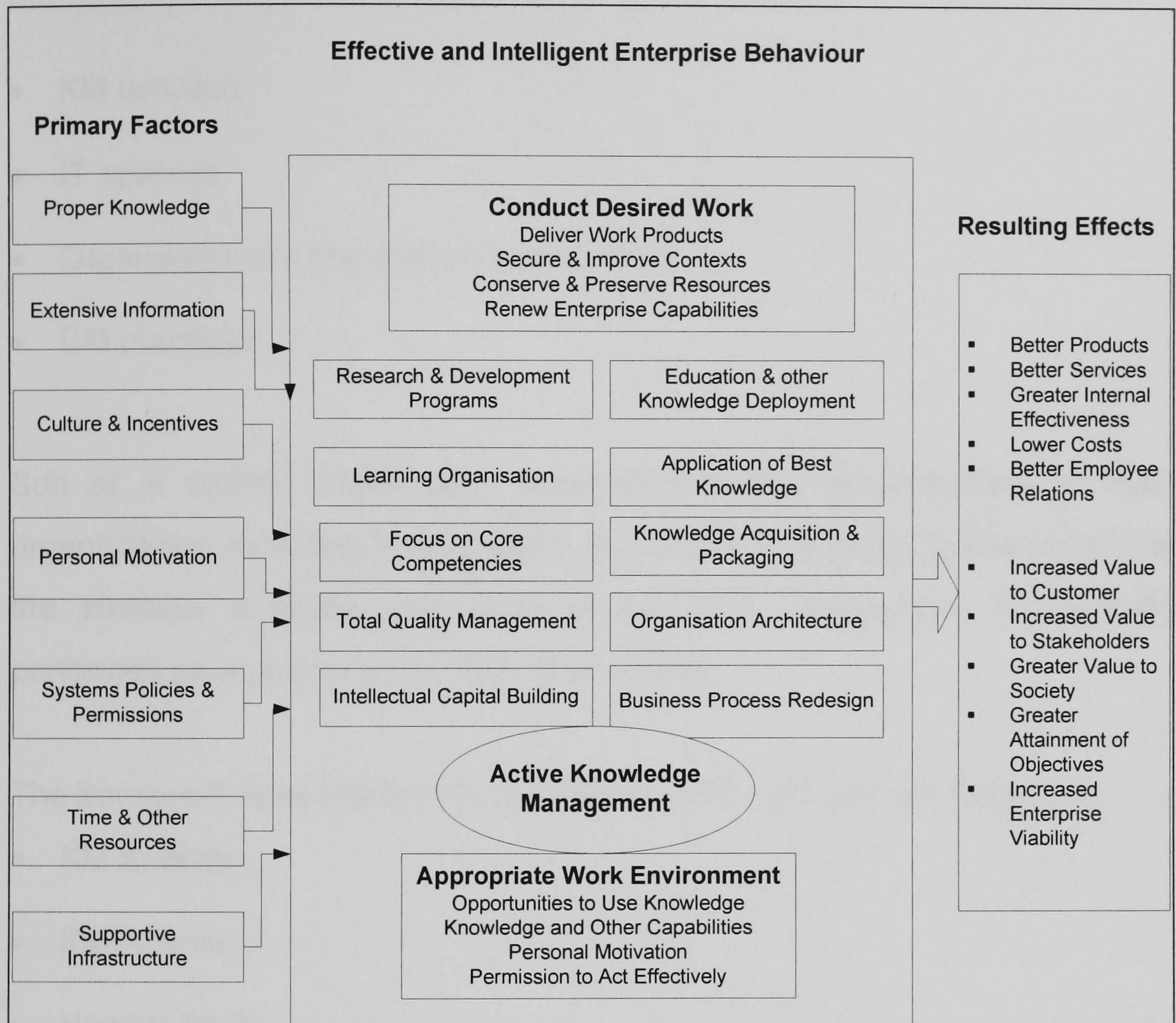
- Operational level,
- Tactical level and
- Strategic level.

These three levels are linked as a continuum of nested knowledge activities that define an organisation which possess the information and knowledge to act intelligently.

The model does not comment on the existence or nature of any distinction between the terms "Knowledge" and "Information". Furthermore, the "first level" seeks to make knowledge through the circulation and systems. This process pays attention to the understanding of how knowledge in the organisation is available, developed, shared, utilised and evaluated in order to deal with environment ambiguity. The "Tactical level" investigates how the organisation culture and structure can reflect the knowledge circulation in the path of innovation. The "Strategic level" deals with the best strategy that can be adopted to deal with all these terms. This model regards integral KM as a process related to understanding how an organisation structure can reflect task.

## Primary Factors Needed to Deliver Desired KM work

Wiig (1999) identified primary factors and the resultant effects of KM in the context of the business environment – see Figure 4-4



**Figure 4-4: Primary Factors Needed to Deliver Desired Knowledge Management Work** (Wiig, 1999)

The framework presented identifies a cycle of three stages based on the IDEF0 approach (Yu and Wright, 1997; Kettinger *et al*, 1996) that identifies the start cycle commenced with the primary factors required (the input), then there are the effective and intelligent enterprise behaviour (the process), and finally the resulting effects (the output). These three phases (input, process, and output) are referred to as systematic activities and include the screening, classification, cataloguing, integrating, and interconnecting of content from both internal and external sources.

## Knowledge Management Framework and Components

Recently, Suh *et al* (2004), identified what they considered to be the key KM components (see Figure 4-5) for the successful realisation of KM implementation, emphasising:

- KM activities;
- IT systems;
- Organisational rules and motivation; and
- CM practices.

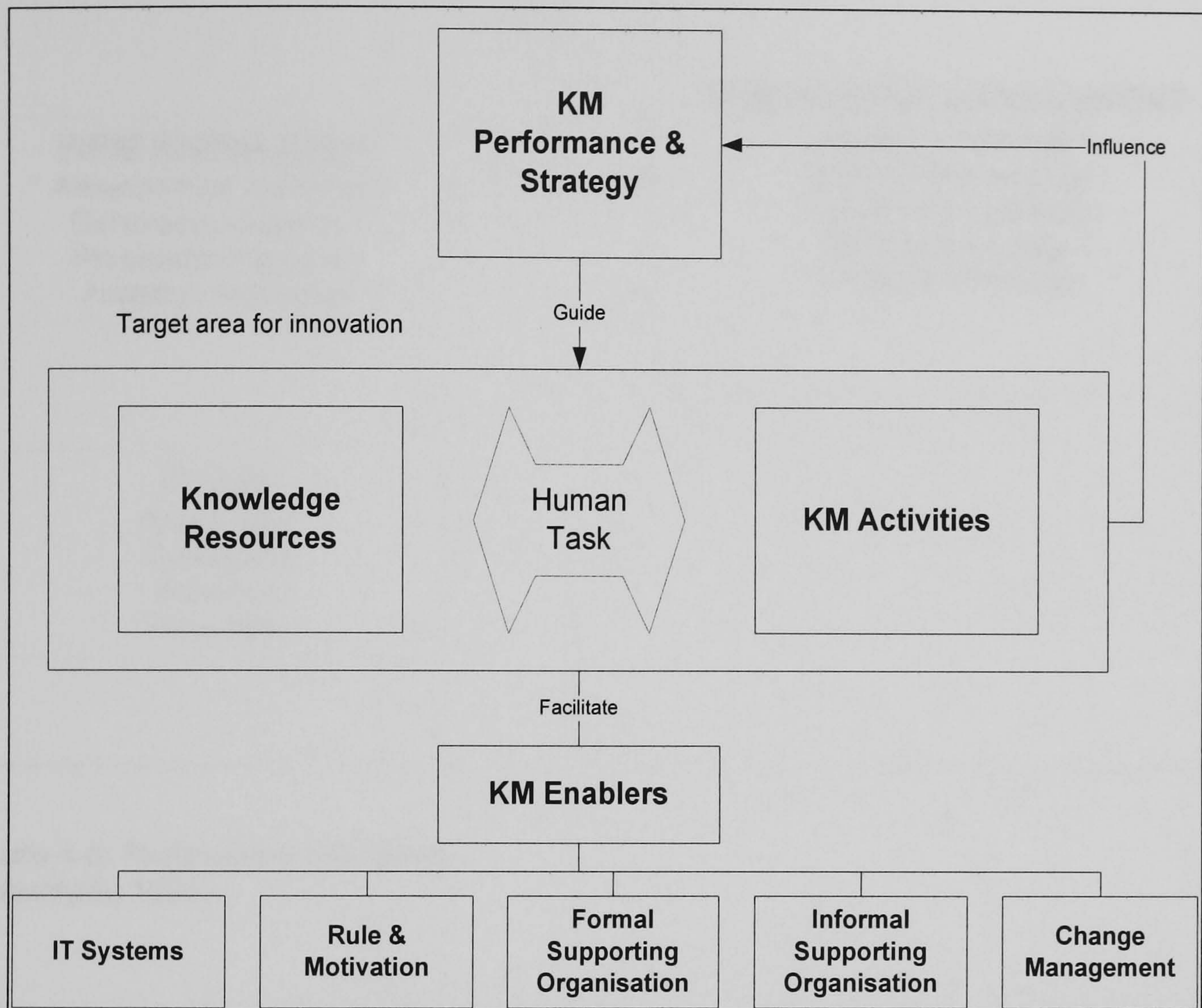
Suh *et al* (2004), additionally, stressed that task characteristics of R&D organisations, including human tasks, should be considered. It was noted that the strategic activities and tasks of an R&D organisation are typically performed on a project basis (Suh *et al.*, 2004).

The framework (see Figure 4-5) contains five KM components, these are:

- KM Enablers;
- KM Activities;
- Human Tasks;
- Knowledge Resources;
- Knowledge Performance and Strategy.

The enablers refer to IT systems, rule and motivation, formal and informal organisation support and CM. KM activities refer to KC, acquisition, transfer and etc. Human tasks is the accomplished by distilling experiences and lessons learned from client engagement projects by collecting, synthesising, and interpreting a variety of information. Knowledge resources are reflected by tacit and explicit resources of knowledge. Finally is the KM performance

and strategy concerned with indexing, filtering, and linking KM activities to apply and use the knowledge that has been collected, captured, and delivered to produce products and services.

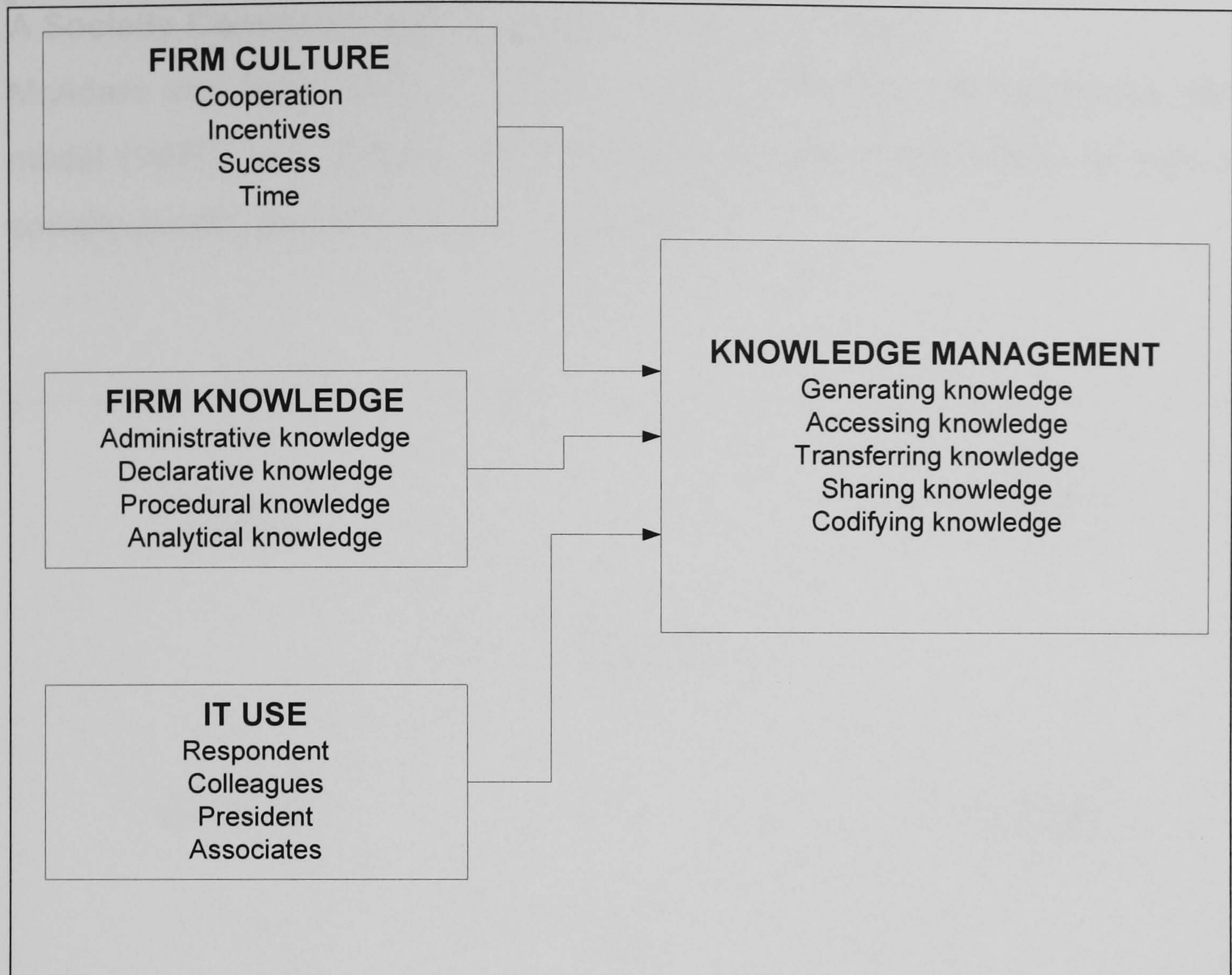


**Figure 4-5: KM Framework and Components**  
(Suh *et al.*, 2004)

### 4.3.3 Precise Framework

Gottschalk (1999) introduced the Preliminary Model for KM in the Professions, based on lessons learned from Norwegian law firms. This model considers (see Figure 4-6):

- KM processes;
- Organisation culture;
- Organisational knowledge; and
- IT systems.



**Figure 4-6: Preliminary KM Model**  
(Gottschalk, 1999)

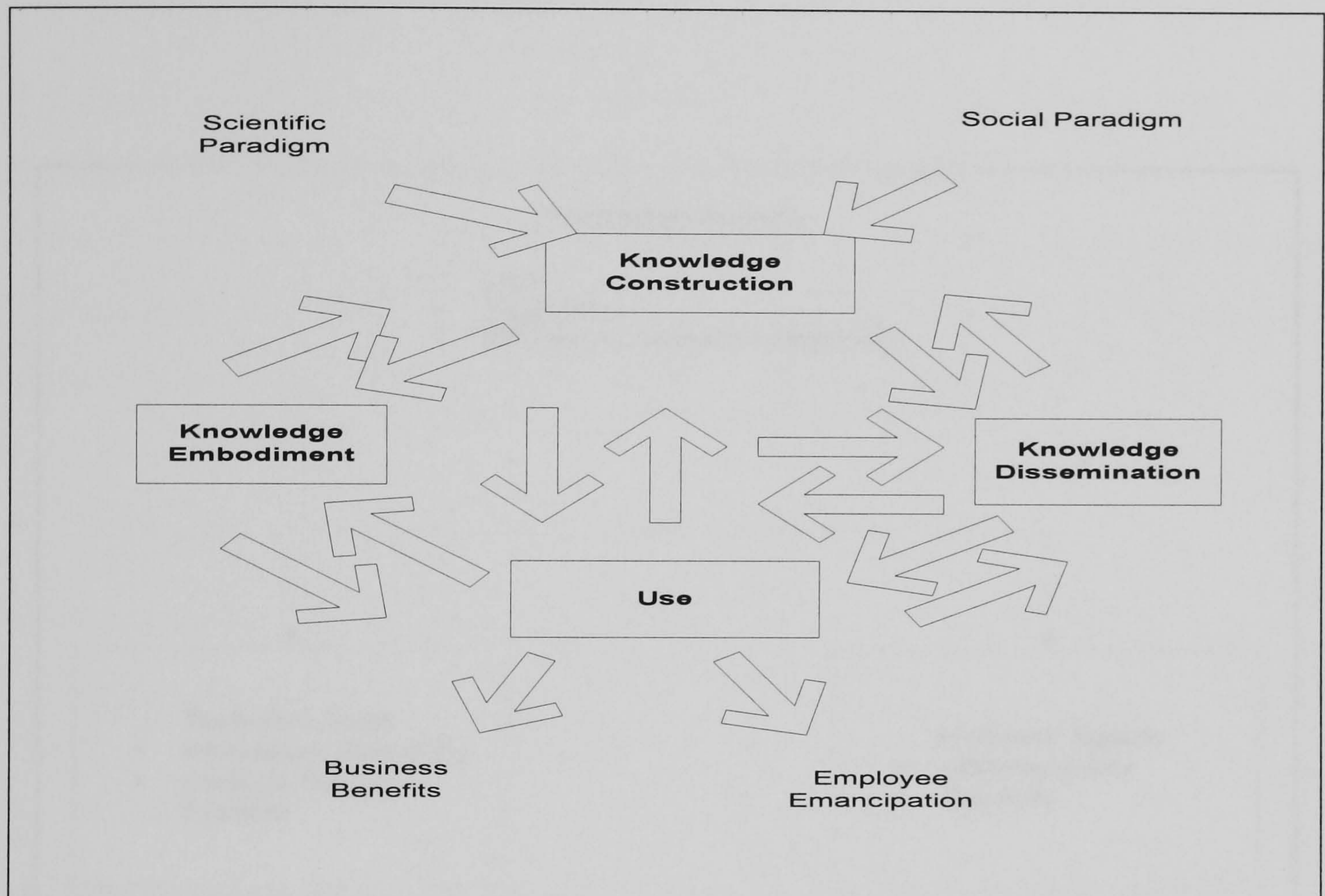
This model suggests that organisations process knowledge through three factors:

- Firm culture;
- Firm knowledge; and
- IT use.

These three elements are responsible for knowledge generation, access, transferring, sharing and codifying. The model does not comment on the link and the continuum of these activities which possess the information and knowledge.

## A Socially-Constructed Knowledge Management Model

McAdam and Reid (2001) produced a modified version of Demarest's KM model (1997), and adapted Clark's and Staunton's model (1989), to give a socially-constructed KM model see Figure 4- 7.



**Figure 4-7: A Modified Version of Demarest's Knowledge Management Model.**  
(McAdam and Reid, 2001)

McAdam and Reid model emphasises four key dimensions of KM:

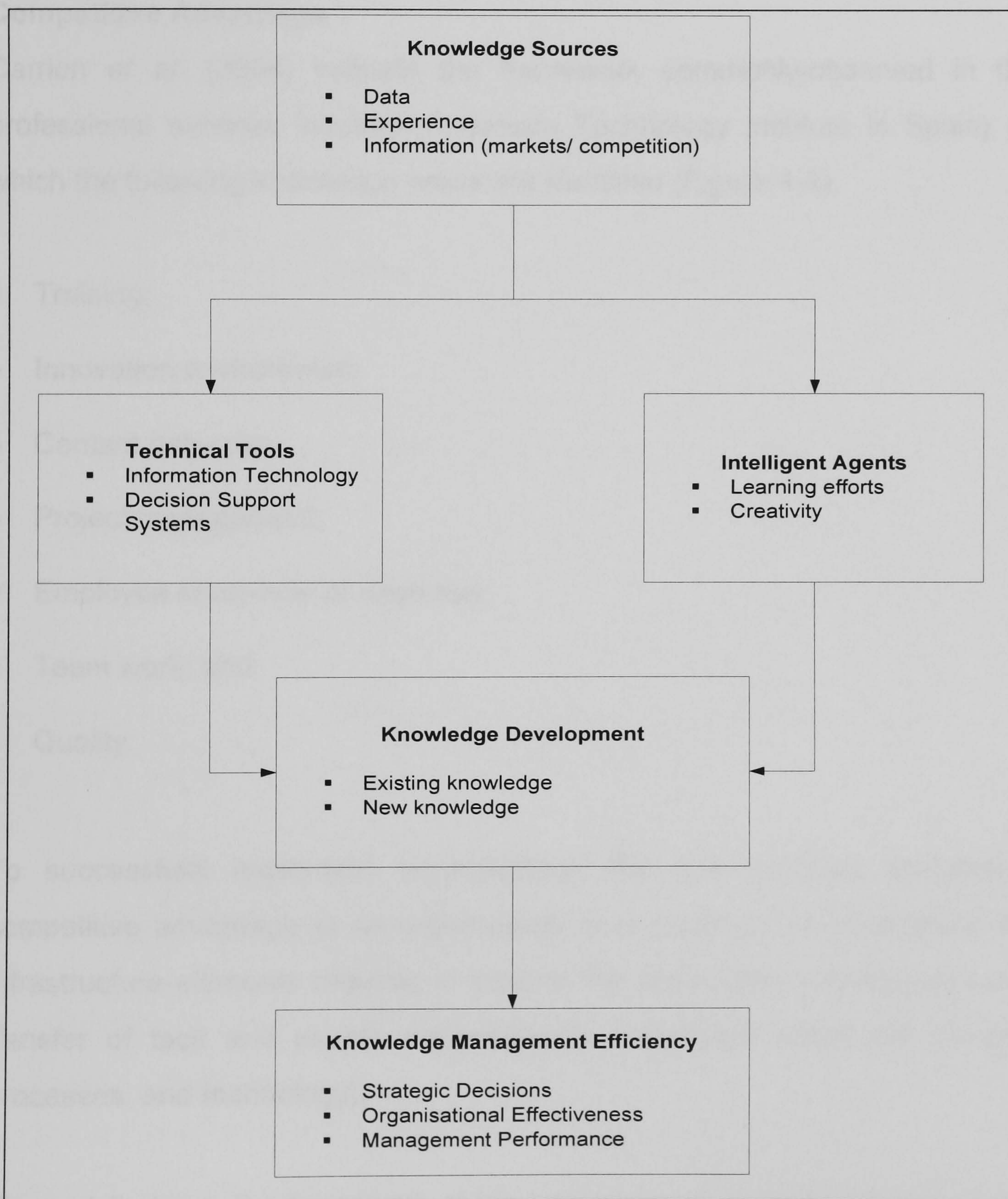
- Construction of knowledge within the organisation;
- The constructed knowledge is then embodied within the organisation, not just through explicit programmes but through a process of social interchange;
- Following embodiment there is a process of dissemination of the espoused knowledge throughout the organisation and its environment;



- The knowledge is seen as being of economic use in regard to organisational outputs.

### A Knowledge Management Efficiency Model

In 2001, Carneiro presented the efficiency model based on the role of intelligence, as shown in Figure 4-8:



**Figure 4-8 : Knowledge Management Efficiency Model**  
(Carneiro, 2001)

The KM efficiency model is involving three types of knowledge resources (data, experience, and information). Intelligent agents are referring to learning efforts and creativity. Technical tools are the perception of IT and the decision support system. The knowledge developments are the existing of knowledge and the new knowledge available.

### **A Framework for Linking Knowledge Management and Sustainable Competitive Advantage**

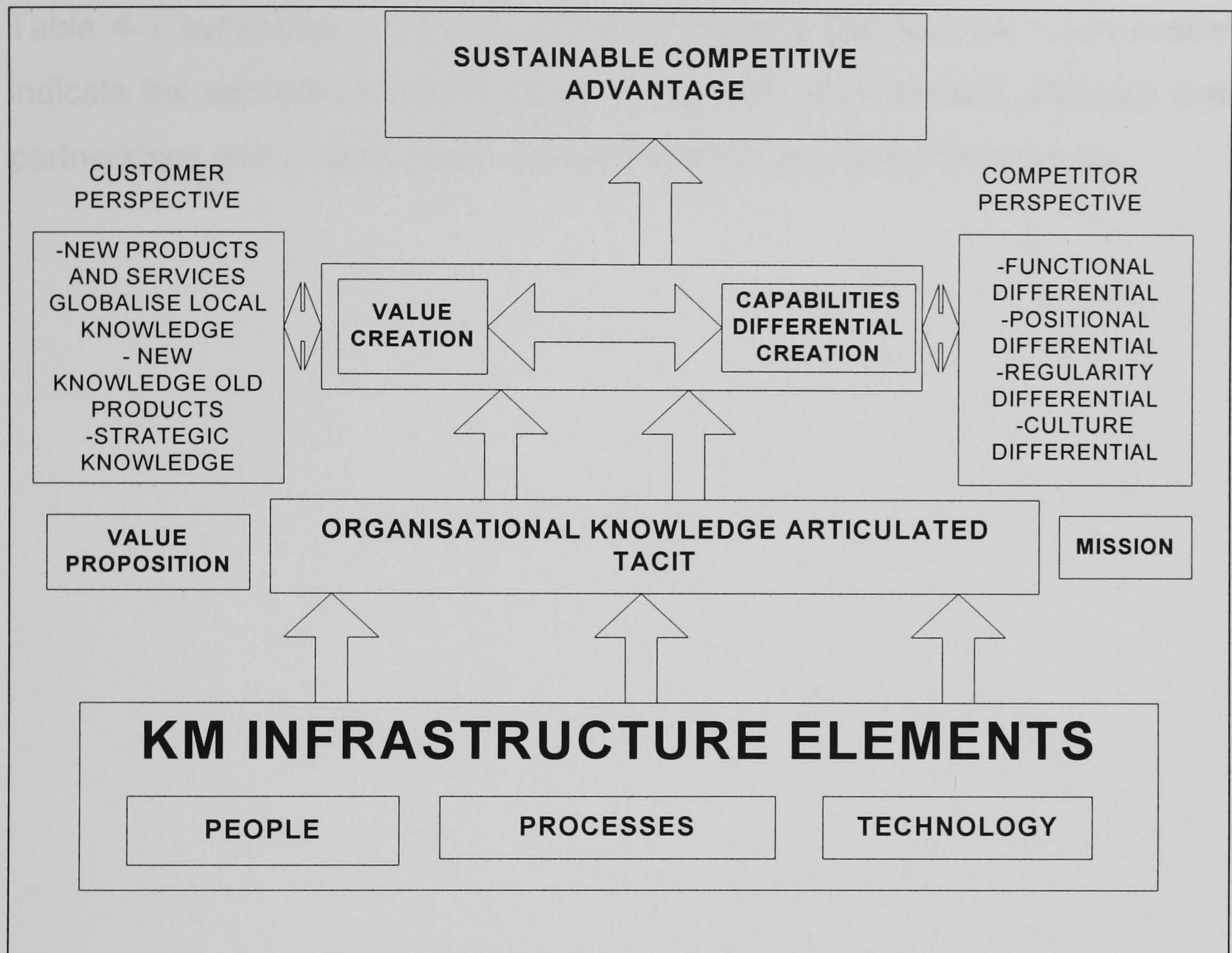
Carrion *et al.* (2004) indicate the framework commonly-observed in the professional services industry (Andalusia Technology Institute in Spain), in which the following knowledge areas are identified (Figure 4-9):

- Training;
- Innovation environment;
- Contact networks;
- Project management;
- Employee know-how or expertise;
- Team work; and
- Quality.

To successfully implement organisational KM that provides sustainable competitive advantage in an organisation, it is important to understand the infrastructure elements required to support the acquisition, management and transfer of tacit and explicit organisational knowledge which are (people, processes, and technology).

Figure 4-9 shows the framework of the interrelationships between knowledge infrastructure, organisational knowledge and the various elements leading to

sustainable competitive advantage. All these elements and its relationships facilitate the management of knowledge and ensure the leading and enhancing of sustainable competitive advantage.



**Figure 4-9: A Framework for Linking Knowledge Management and Sustainable Competitive Advantage**  
(Carrion *et al.*, 2004)

#### 4.4 Analysis of Existing KM Frameworks

Unfortunately, there is no codified, generally accepted framework for KM as a discipline (Rubenstein-Montano *et al.*, 2001<sup>a</sup>). At the risk of over-simplification, generic knowledge models typically focus on KM activities from knowledge life cycle perspectives (Choo, 1996; Leonard-Barton, 1995; Nonaka, 1994; Wiig, 1993).

Descriptive frameworks are compared on 19 key areas related to the implementation of KMS, the first five areas are related to organisational issues such as SMCs; from six to ten are related to CM and HR management; from 11-14 are related to IT; and from 15-19 are related to KM processes.

Table 4-1 summarises the dimensions of existing frameworks. Checkmarks indicate the aspects included in each framework. As illustrated, alliances and partnerships and IT skills were not addressed by any of the frameworks.

Table 4-1: Comparative Summary of the Descriptive Framework

Author	framework	Focus																			
		Organisation Commitments						CM and HR				IT				KM Processes					
		SMC	KMS	ER	AP	KMR	OPP	OS	T&L	TW	OC	ITS	EUIT	ITST	ITSK	KC	KA	KT	KAP	KD	
Collis & Montgomery, 1995								✓	✓					✓							✓
Demarest, 1997						✓					✓			✓							
Van der Spek & Spijkervet 1997	✓															✓	✓	✓			✓
Wiig <i>et al.</i> , 1997			✓			✓															
Wiig 1998b		✓	✓																		
Dataware technologies, Inc. 1998		✓	✓							✓	✓				✓		✓	✓			
Liebowitz & Beckman 1998																					
Monsanto (Junnarkar, 1999)											✓										
Stankosky, 1999	✓		✓						✓	✓											
Wiig, 1999			✓			✓															
Xerox Corporation, 1999			✓			✓															
Liebowitz, 2000																					
Beijerse uit, 2000	✓		✓					✓			✓										
Soliman and Spooner, 2000			✓					✓		✓											
Levett and Guenoy, 2000																					
Teleos, 2001	✓										✓										
Bollinger and Smith, 2001											✓										
Wiig, 2002											✓										
Gottschalk, 1999	✓																				
Suh <i>et al.</i> , 2004			✓						✓												
Carrion <i>et al.</i> , 2004	✓							✓													
Hung <i>et al.</i> , 2005	✓								✓		✓										

AP	Alliances and partnerships	KAP	Knowledge application	OC	Organisation culture
ER	Employees requirements	KC	Knowledge creation	OPP	Organisation Policy and Procedures
EUIT	Existence & usage of IT sys	KD	Knowledge documentation	OS	Organisation structure
ITS	IT System	KMR	KM resources	SMC	Senior Management Commitment
ITSK	IT skills	KMS	KM system	T&L	Training and learning
ITST	IT Strategy	KT	Knowledge transfer	TW	Teamwork
KA	Knowledge Acquisition				

Four key limitations of current frameworks could be identified: lack of detail (focus in some areas only); lack of specification (most of them are generic frameworks); lack of verification (no clear procedures); and failure to address the entire KM process (does not mention the KM processes). Therefore, the brief information given in the literature could lead to debate over whether the frameworks are truly methodologies or simply outlines of methodologies.

Some of the frameworks identified are more conceptual than practical. For example, Wiig et al (1997) articulated the different levels of knowledge within organisations, which in practice, seems to be difficult to differentiate between senior management knowledge and employees' knowledge for example. In addition, the features illustrated by Collis and Montgomery (1995) do not provide much information about the consistent view of an organisation (what it is and how it can be reached); and Demarest (1997), discussed the importance of culture and organisational and technical infrastructures, but failed to identify the 'optimum' level of organisational culture for effective KM implementation.

From a KM prioritisation perspective, Wiig (1999) identified 16 elements for consideration, but did not identify the priorities or commencement point. In a similar context, Martensson (2000) identified senior management commitment issues, but gave no indication about priorities or implementation. This weakness was also evidenced with Levett and Guenoy (2000) and Teleos (2001) work, even though knowledge culture, senior management commitment and intellectual capital had been included. The analyses of these aforementioned frameworks also reveal a high level of generality e.g. Dataware Technologies (1998); Xerox Corporation (1999); and Soliman and Spooner (2000). This generality and limited focus can stifle use, particularly from a decision-making perspective. This was further acknowledged by Rus et al (2001); Hung et al (2005); Liebowitz and Beckman (1998); Liebowitz (2000) and Martensson (2000). Other shortfalls encompass the omission of IT and

organisational matters Junnarkar (1999); through to ineffective measurement approaches (Bollinger and Smith, 2001); and exclusion of the softer issues e.g. culture, people dynamics, process nuances etc.

The work by Wiig (1998<sup>b</sup>) provides useful starting points for implementing KM, it is highly generic and cannot be followed to the letter without putting the ideas into context. As a result, one can argue that all frameworks paint an incomplete picture of what is needed for KM initiatives, because KM is expected to address the entire knowledge processes. Nevertheless, not all of the methodologies possess all of these shortcomings. The purpose of this study is simply to present a method that would overcome the four limitations mentioned earlier these limitations. In order for a KM methodology to address the different types of knowledge to be complete in its treatment of the knowledge processes (Rubenstein-Montano et al, 2001<sup>b</sup>).

Typically, generic knowledge frameworks tend to focus on KM activities from knowledge life cycle perspectives (Choo, 1996; Leonard-Barton, 1995; Nonaka, 1994; van der Spek and Spijkervet, 1997; Wiig, 1993). Whilst these models are important in enriching our understandings on the essentials of KM activities, they do not provide an integrative perspective for actual KM implementation.

## **4.5 Summary**

The majority of frameworks and methodologies reviewed in this chapter contain critical items which need to be addressed from a KM implementation perspective. However, it is acknowledged that a 'one fit solution' for all organisations would be untenable, especially as many commercial organisations have been involved in generating KMS implementation models with different orientations (as a response to their particular organisational contexts). Consequently, it can be understood that more work needs to be

done to build a 'richer picture' of CKIAs in respect of KMS implementation, and this is the objective of Chapter Five which follows.

The findings of this chapter exhibited management's intent in creating and using a business planning frameworks for KM implementation, but most of them didn't mention explicitly the identification of critical success factors for KM implementation.

The identification and measurement of key resource capabilities, or critical knowledge areas, in an organisation can serve as an important and practical foundation for KM implementation. It is an essential step in defining what is needed and determining the KM implementation strategy. A critical knowledge area is another critical success factor that can be used in conducting situational and comprehensive analysis, formulating differentiating strategies, making strategic decisions, and aligning the organisation infrastructure for KM implementation.



# **CHAPTER 5**

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## **CRITICAL KNOWLEDGE IMPLEMENTATION AREAS**

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### **5.1 Introduction**

From a KM literature review perspective, the majority of the literature to date has focused on the nature of knowledge, types of knowledge, and the theoretical bases of KM, but there are insufficient empirical methods that focus on implementing a successful KMS although, effectively implementing a KMS and becoming a knowledge-based organisation is seen as a compulsory condition of success for organisations as they enter the era of the knowledge economy (Binney, 2001). Some organisations are concerned mainly with capturing explicit knowledge. Others are attempting to collect tacit knowledge, whilst many others are trying to gather both. However, it should be noted that there is no 'one-size-fits-all' prescription for KM, although some specific systems are represented in that manner (Bollinger and Smith, 2001).

Determining which factors enable or obstruct the KMS implementation within organisations, constitutes an important task for any research into the implementation of KMS. Finding the right strategy to develop employee support for realising knowledge-driven corporate strategies, and to facilitate employees in their daily work processes, is a key challenge for every KM project (Jang *et al.*, 2002).

Surveys which have employed the concept of enablers have also evoked that of barriers, and vice-versa, which is to be expected since one term has little meaning without the other. These areas (enablers or barriers) are concerned with the organisational infrastructure that can either enhance or depress the efficiencies of KM activities (Sarvary, 1999). KMS implementation areas typically include awareness of the value of knowledge assets, the significance of their role in the organisation, the existence of a KM strategy, its integration with corporate strategy, the commitment of top-level management, and the components of OCL (Chauvel and Despres, 2002<sup>a</sup>). Furthermore, these areas can also be seen as those phenomena which were perceived as hindering the implementation of a KM programme and several surveys have explored failures and obstacles in this light (Chauvel and Despres, 2002<sup>a</sup>). The Cranfield Survey (1998), for example, grouped these areas into four categories arising from people, management, structure and knowledge. In this context, enablers or barriers could be leveraged as a positive or negative force; for example if people are well trained they will accept KM, and if they are not, they may reject it.

Organisation commitment, CM and HR management; IT and activities of KM processes could be either enablers or barriers for an effective KMS implementation. In this respect, the KPMG survey (1998) examined failures due to the misuse of technical infrastructure and the 'un-management' of knowledge. Similarly, the 1999 AMA and Management Review Research survey assessed barriers due to the nature of knowledge and people, while

the Good Practices in KC and Exchange survey (Rajan *et al.*, 1999) focused more on the constraints to KC.

Organisations are now recognising the value of implementing KMS strategies that focus on the importance of employee skills (people), and talents, process flexibilities (techniques) and technological experiences (technology) that merge during KMS to help in leveraging corporate knowledge (Edwards *et al.*, 2003; 2005). Consequently, connecting people, technologies and techniques to enable and encourage KM processes, has become the premise for understanding how knowledge can be implemented across organisations in order to improve their products, services, and processes, and help it respond to customer needs (KPMG, 2003). Therefore, before going through the importance of KMS implementation areas the connection between people, technology and techniques is discussed in the next section.

## **5.2 The Link between People, Technologies, and Techniques in Knowledge Management**

Literature presents two initiatives for KM implementation. The first being KM implementation in the context of IT development and practice; whilst the second being KM implementation in respect of HR management and development (Scarborough and Swan, 1999). Drawing out from both initiatives, it can be concluded that KM implementation that is solely dominated/ driven by IT is more likely to ignore the complexities of organisational processes; and thereby is considered to be a sub-optimal solution for an organisation. Nevertheless, KM implementation relating to people is still evolving. The first process can be implemented with the help of computer databases which have become key enablers for any KM exercise; the second is implemented in the form of CoP (Arora, 2002).

KM that is IT driven has been largely criticised, as it focuses on making existing knowledge more widely available; assuming that people are willing to share their knowledge and will accordingly use the information which is available to them on the intranet for example (Storey and Barnett, 2000).

The emphasis so far has tended to be on knowledge as a commodity, and on making experts' knowledge more explicit and accessible via computer applications. However, technology alone has proven to be not enough, and recent Victorian government report made the point that technology is the "pipeline and storage system for knowledge exchange" but of itself is not KM (Victorian Law Reform Committee, 1999).

Knowledge Management that is people driven, on the other hand, provides the seeds of a further problem, namely giving tacit knowledge more value over explicit knowledge (Grant, 1996). In this approach, it is assumed that learning occurs while applying and acting upon knowledge, as argued by Schon (1983) with regard to the idea of the 'reflective practitioner'. The realisation of the tacit knowledge potential "*requires the close involvement and co-operation of the knowing subject*" (Lam, 1998), thus making people the only KM solution. The HR function can contribute to the creation or acquisition of knowledge (de Pablos, 2004), and facilitate or disturb the transfer of knowledge flows. Knowledge must flow among knowers; this means that human relationships within an organisation are crucial considerations with regard to KC and acquisition within that organisation. This perspective takes as given, the circumstance that knowledge is hard to make available through computer systems. Technological solutions can not be captured and grafted onto knowledge. Rather, in order to manage knowledge, organisations need to construct an environment of participation, co-ordination, and co-operation (Carneiro, 2000).

Some authors believe that through the interaction between people, technologies, and techniques, an organisation can be supported in accomplishing the complex and novel tasks involved in KM initiatives. Therefore, one of the critical tasks of management is to co-ordinate different packets of knowledge through information exchange and sharing (Bhatt, 2001; Carneiro, 2000). The technology, techniques and people are referred to as KM tools, being differentiated as IT and non-IT tools. To distinguish between them Al-Ghassani *et al.* (2002) use the term 'KM techniques' for 'non-IT tools' and 'KM technologies' for 'IT tools' respectively. Table 5-1 highlights the main differences between the two.

<b>Knowledge Management Tools</b>	
<b>KM Technologies</b>	<b>KM Techniques</b>
<ul style="list-style-type: none"> <li>• Require IT infrastructure</li> <li>• Require IT skills</li> <li>• Expansive to acquire/ maintain</li> <li>• Sophisticated implementation/ maintenance</li> <li>• More focus on explicit knowledge</li> <li>• Examples of tools:               <ul style="list-style-type: none"> <li>- Data and text mining</li> <li>- Face to face practice</li> <li>- Groupware</li> <li>- Recruitment</li> <li>- Intranet/Extranet</li> <li>- Training</li> <li>- Knowledge bases</li> <li>- Taxonomies</li> <li>- Ontologies</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Require strategies for learning</li> <li>• More involvement of people</li> <li>• Affordable to most organisations</li> <li>• Easy to implement and maintain</li> <li>• More focus on tacit knowledge</li> <li>• examples of tools:               <ul style="list-style-type: none"> <li>- Brainstorming</li> <li>- CoP</li> <li>- Face to face interactions</li> <li>- Recruitment</li> <li>- Training</li> </ul> </li> </ul>

**Table 5-1: Knowledge Management Tools: A Comparison between Technologies and Techniques**

(Al-Ghassani *et al.*, 2002)

This research argues that KMS implementation should be developed on the basis of interaction between the organisation, people, technologies, and techniques of the process.

### **5.3 The Important Areas in Knowledge Management System Implementation**

KMS implementation is a topic that has not been well explored in the literature (Alavi and Leidner, 2001; Gray, 2000), and is an exercise which depends upon a number of factors. KMS should be built extensively to marshal the strengths of people, technologies and techniques that can provide a valuable reference point, and as Carneiro (2000) states, the effective deployment of KM requires an investment in KM systems and technologies, and organisational commitment.

KPMG's experience with more than 115 KM projects, a series of conditions are necessary to assure successful KM implementation, including the provision of sufficient funding and business-driven targets, clear definitions of roles and responsibilities, effective monitoring, training, support, and incentives to participate. Such factors are relevant independently of whether the implementation takes place in a single department, across unities, across companies or between partners (KPMG, 2003).

Organisations which have been successful in obtaining long-term benefits from KM have required a change in organisational philosophy (Bhatt, 1998), such that the organisation demonstrates effective commitments to KM that are based on shared understandings and good relationships between individuals and the organisation, as confirmed by a number of empirical studies (Hooff and de Ridder, 2004).

From a KM implementation perspective, the 'knowledge implementation gap' that characterises the inputs- and processing-driven approach, has also been the subject of criticism in scholarly research on KM (Alavi and Leidner, 2001; Zack, 2001). However, these gaps seem to persist within most theoretical research and industry practices related to IS and KM. As discussed in

Malhotra (2000), such gaps have persisted over the past decade despite advances in the understanding of KM. In addition, changing people's behaviour is one of the critical implementation areas in KM, according to Ernst and Young (Glasser, 1998) this is because KM forces organisations to redefine their traditional work procedures, power structures, training, and culture. It also mandates changes in IT infrastructure to enable the rapid capture, storage, and distribution of information required, although this has limits in terms of information interpretation. Finally, processing knowledge requires evaluation forms, a logical input for the determination of the available knowledge, the necessary knowledge, and subsequently the identification of the knowledge gap (Bonora and Revang, 1993; Hedlund, 1994; Nonaka and Takeuchi, 1995).

Literature and other practitioner evidence regarding KM implementation introduce several conditions for successful implementation, which are discussed in the next sections. These conditions cover four major influences these being: organisational commitment; CM and HRM; IT; and the management of knowledge processes.

### **5.3.1 The Importance of Organisational Commitment**

Various authors have specifically investigated the relationship between commitment and knowledge processes (Hislop, 2002; Mohamed *et al*, 2004; Scarbrough and Swan, 1999; Smith and McKeen, 2002). These studies have identified various dimensions of organisational commitment (Mowday *et al.*, 1982; Reichers, 1985), which are considered as being affective to KMS implementation, and these are:

#### **5.3.1.1 Senior Management Commitment**

KM requires senior managers to think differently about organisational work and KM activities, and to change how they invest their effort and time,

specifically, to consider costs. For senior management to add value to any organisation, it has first to develop a clear vision of the strategic potential of KMS. Furthermore, senior management is responsible for ensuring organisational survival. These managers are uniquely positioned to develop and exploit strategic potential ideas and to set conditions for the flow of knowledge around the business to ensure that managerial decisions are taken effectively to address continual change requirements (Bollinger and Smith, 2001).

Bailey and Clarke (2001) state that for senior management to add value by leveraging external knowledge to make informed judgements about trends in the uncertain future in order to create clarity of direction. They then need to communicate this critically important information to all organisational staff. In other words, senior managers need to step up from their managing role to a leading role. Hence, using their organisational visibility to convey what is strategically important focusing their activities to create a knowledge valuing, creating and sharing.

Senior managers ought to have the motivation to invest in organisational resources to drive towards creating favourable conditions for KMS by changing the OCL. Subsequently, commitment to valuing KMS is gained and sustained (Bailey and Clarke, 2001). This, as argued, can only be built and exploited if senior managers devote time to communicating with pertinent parties (Davenport and Prusak, 1998; Davenport *et al.*, 1998; Trussler, 1998; Liebowitz, 1999; Choi, 2000; Skyrme and Amidon, 2000; and Heisig, 2001).

### **5.3.1.2 KM Strategy**

An analysis of KM failures reveals that many organisations who were unsuccessful in their attempt at KMS implementation, did not define their goals and strategy beforehand. Therefore, KMS is not integrated into the



goals and strategy of the organisation (Doz and Schlegelmilch, 1999; Hansen *et al.*, 1999).

Lawton (2001) noted that 50-60% of KM deployments failed, because organisations did not have a good KM deployment methodology or process. The most important managerial context for investing in and promoting the use of KM is argued to be the organisation's strategy. This is interpreted as KM efforts should not be divorced from strategy planning and execution (Bailey and Clarke, 2001). In other words, an organisation's KM strategy must be driven by a clear sense of what its competitive strategy is. Unfortunately, in many KM projects, strategy is not considered as a key evaluation criterion or a motivating factor (see for example Davenport *et al.*, 1998; Ruggles, 1998).

Hansen *et al.* (1999) explained that for an organisation to consider developing a Knowledge Management Strategy (KMST), it ought to know its market and subsequently find answers to the three following questions:

- What does the market want?
- What are the driving forces?
- How may the organisation be able to best provide answers?

Soliman and Spooner (2000) state that a good knowledge strategy needs to delineate clearly the resources to be dedicated to tacit and explicit KM. A recent study (PriceWaterhouseCoopers, 1999) suggests that in order to harness and increase the know-how experience and expertise of employees, organisations ought to implement the following strategy:

- Focus only on what the business needs to know, i.e. become knowledge focused;

- Make important knowledge visible, i.e. become knowledge visible (e.g. create and make explicit pathways to the experts and important wisdom within the company);
- Pay attention to the vocabulary of knowledge, i.e. become knowledge defined (e.g. customers' needs versus customer feedback);
- Go beyond the company to tap knowledge from customers, suppliers and competitors, i.e. become a knowledge seeker;
- Make it clear to employees that knowledge sharing is a core value for the company, i.e. become a knowledge culture;
- Measure the results of the implementation of the KM programme, i.e. become a knowledge assessor; and
- Reward the sharing of expertise and intelligence, i.e. become knowledge exemplified.

The above strategy could be regarded as a checklist to ensure that the KMS covers all key elements of the organisation and articulates the purpose of the KMST. Furthermore, a KMST ought to be linked to what the organisation is attempting to achieve (Gronhaug and Nordhaug, 1992; Teece, 1998). Moreover, the KM strategy has to answer the following questions: What benefits does the organisation expect to gain from its work with KM? How will it affect the employees' work? (Klaila, 2000). Gopal and Gagnon (1995) concisely state that "*effective KM starts with a strategy*". Therefore, within a KMST, knowledge is recognised as an organisation's most valuable and under-used resource, and the IC is placed at the centre of what an organisation does (Ash, 1998). To start to create a KMST, an organisation needs to build systems for capturing and transferring internal knowledge and best practices (Allerton, 1998).

Based on the discussion points above, Wiig (1997) has identified five strategies that are used by organisations to implement KM systems, these being:

- The pursuit of a business strategy. Here the focus is on KC, capture, organisation, renewal, sharing, and use at each point of action.
- The focus on intellectual asset management such as patents, technologies, structural knowledge assets, customer relations, operations, and management practices.
- The focus on a personal knowledge asset accountability strategy. Here, each employee is responsible for his/her own knowledge-related investments, renewal of knowledge, and sharing of knowledge assets within the employee's area of accountability.
- The KC strategy, with a focus on OL, R&D, and employee motivation to innovate and learn.
- The KT strategy. Here the emphasis is on systemic approaches to transferring knowledge, such as acquisition, organisation, restructuring, warehousing, and repackaging for distribution to the point of use. The specific method selected by an organisation differs based on the individual business and its unique needs.

Organisations wishing to implement KMST should engage effective utilisation of existing assets and resources, including the existing level of knowledge (Lang, 2001). This is supported by Von Krogh *et al.* (2000), who claim that strategy will ultimately determine the areas an organisation will do business in, and to what extent it will be successful in competing in those areas. Knowledge will be vital for an organisation's long run strategy and it will be important to envision future knowledge needs (Zack, 1999).

### **5.3.1.3 Meeting Employees' Requirements**

Several authors have argued that the introduction of a reward system or changes in compensation incentive policies rarely have an effect on the KM processes, because the long-term process needs to be natural (Ellis, 2001; Finerty, 1997; McDermott, 1999; O'Dell and Grayson, 1998). However, one of the most important issues when working on a KMST is to create the right conditions for people to share and apply knowledge (The Banker, 1997). Furthermore, the personal reward systems must support the culture of sharing knowledge (Keeler, 2000; Mayo, 1998), and to improve this process it is crucial to reward employees who contribute their expertise, and to make sure employees understand the benefits of KM (Cole-Gomolski, 1997).

Traditional compensation, reward and pay systems are under attack for being neither cost-effective nor motivational (Despres and Hiltrop, 1995). However, non-monetary rewards then become important, as in a knowledge-intensive environment, employees are potentially more motivated by intrinsic career considerations (Sharkie, 2003). In this respect, a study undertaken by Fish and Wood (1997) showed that intrinsic career considerations were more important than monetary rewards in motivating employees to take on international assignments. It is also suggested that once a reward system has been instituted, the quantity of knowledge processes is likely to increase, but the quality may decrease (Scheraga, 1998). In addition, Michailova and Husted (2003) argued that the use of encouragement, stimulation or incentives is inadequate in hostile sharing environments, suggesting that any kind of rewards evaporate quickly and do not increase motivation for knowledge sharing.

Organisational rules or systems are explicit means of motivation or coercion to stimulate KM activities among the organisational members. Reward and incentive systems may be popular examples of such organisational systems (Lai and Chu, 2000). Therefore, a motivating organisation culture is especially

important for the successful implementation of KM initiatives (Bender and Fish, 2000). The competitive instincts of human nature render incentives as one method of optimising employee performance and corporate results. It becomes evident that organisations wanting to implement a successful KMS must establish a dynamic compensation system for the enhancement of employees' abilities to process knowledge and gain from it.

#### **5.3.1.4 Alliances and Partnerships**

Long-term partnerships and collaboration can help the organisation to learn from others, and transfer knowledge to its own organisational base. In this regard, it has been argued that partnering can provide opportunities for improving the performance of KM processes (Rycroft and Kash, 1999), and within such a framework, it then becomes possible for individual organisations in the same industry to prepare themselves for KMS at their own discretion (Siemieniuch and Sinclair, 1999, 2000).

Managers often seek the knowledge they lack from external sources in order to bridge knowledge gaps. The key issues here are how to explore new knowledge sources with network partners (Grant, 1996). In summary, an integrated KM framework cannot be complete without both an internal and external perspective. The internal knowledge base of an organisation must be complemented with external partnering practices and the involvement of other knowledge network members; and the uniqueness of each organisation's networking configuration is expected to shape its core competencies and, ultimately, to determine business profitability in the long run (Siemieniuch and Sinclair, 1999).

#### **5.3.1.5 Knowledge Management Resources**

Knowledge resources include internal and external HR, data and documents of various forms, customers, and associate organisations or partners (Bierly and Chakrabarti, 1996; Chesbrough and Teece, 1996; Cohen and Levinthal,

1990; Grant, 1996; Holsapple and Joshi, 2000; Lai and Chu, 2000). Moreover, Davenport (1997) emphasised the importance of financial resources to KM practices, which in many cases can be expensive.

CRMinistry (2001) in conjunction with SupportIndustry and STI Knowledge, revealed that out of 49 companies 63% of companies reporting a KM initiative, spent between US\$100,000 and US\$249,000; 16% spent between US\$250,000 to US\$499,999; 6% spent between US\$500,000 and US\$749,999; 2% spent between US\$750,000 and US\$999,999; 8% spent between US\$1,000,000 and US\$1,999,999; and 4% spent between US\$2,000,000 and US\$4,999,999.

It is important to place parameters around the value variable, so that managers may estimate resource value when making strategic decisions about accessing or developing knowledge resources (Sveiby, 1997). From a KM perspective, managers make choices about knowledge resources leading to organisational heterogeneity and sustainable advantage. Furthermore, valuable knowledge resources are then combined to create superior capabilities leading to effective KM processes (Massingham, 2004).

Through humans and their related tasks, knowledge resources are exploited for KM activities, such as KA, storage, sharing, and utilisation. Hence, adequate resources to support knowledge flows and collaboration need to be allocated. According to Barney (2001), resource based logic can help managers to *"more completely understand the kinds of resources that can generate sustained strategic advantages"*. Furthermore, he also adds that this assists managers to *"identify ... the most critical resources controlled by the organisation ... and to nurture and maintain these resources"*. Therefore, to be a strategic asset, the KM resource must possess four characteristics, which are: value; rarity; inimitability; and non-substitutability (Massingham, 2004).

### **5.3.2 The Importance of Change Management**

Successful implementation of KMS is linked to such entities as CM and people. In a recent study where the importance of people, as opposed to technology and processes, was examined when implementing a KMST, 70% reported that employees are the most important factor and 75% reported that there should be an even greater emphasis on people (People-Management, 1998). In the view of the best-practice organisations, people and CM are at the heart of creating a successful knowledge-based organisation (Martensson, 2000). It is safe to claim that 'people' and CM ought to be the main drivers of KM and the most difficult problems to resolve during the implementation of KMS (Civi, 2000; Gooijer, 2000; Robertson and Hammersley, 2000; Soliman and Spooner, 2000). In this regard the drivers of CM and HR management are explained below.

#### **5.3.2.1 Organisational Policy and Procedures**

The successful implementation of any new business process requires foresight and planning. It also requires an understanding of how the new process will affect the organisation's business strategy. Project success is expected to be more achievable if there is a tried-and-tested set of procedures to follow. The policies, procedures, and guidelines that identify the goals, expectations, and suggested practices within an organisation in terms of KM ought to be clearly articulated and known; only then can the systems and tools that support the framework and culture be successful (Soliman and Spooner, 2000).

In compliance with organisational rules and procedures, a strong focus on hierarchies and internal regulations is expected to create a business environment and workplace climate in which employees are more likely to rigorously perform.

An organisation implementing a KMS requires the creation of 'new' roles for its employees working within the knowledge strategy, the knowledge workers who do the work of generating, representing, transferring and using knowledge. As HRM provides broad strategies to influence the cultural assumptions and beliefs of employees (Marshall *et al.*, 1996), it ought to play a central role in the move towards KM policies and procedures.

### **5.3.2.2 Organisational Structure**

A facilitating structure is important for the development, acquisition and locking of knowledge. Davenport and Volpel (2001) observe that a key aspect of the management of knowledge in organisations is the development of an organisational structure to perform knowledge-oriented tasks. In this respect, some studies have shown that an open and flexible organisational structure supports KM best (De Long and Fahey, 2000; Nonaka and Takeuchi, 1995). Zhou and Fink (2003). In addition, it is concluded that organisational structure is more important for effective KM than OCL and IT.

Organisational structures involve the relationship between new KM groups and existing parts of the organisation that address knowledge issues. The various providers of knowledge services in organisations will have to determine how they relate to each other and what the ideal division of labour is for different KM requirements (Davenport and Volpel, 2001).

In structural terms, the organisation needs to consider whether to create a leadership role to develop and drive the KM programme. It is argued that those organisations achieving the greatest success in KM have appointed a senior-level executive to assume the mantle of full-time CKO when planning KMS implementation (Gopal and Gagnon, 1995). Posts such as knowledge project managers or CKO (these roles go by a variety of names, but are mostly described as knowledge managers) that can layer within the knowledge structure, are being established in many organisations, with the



most senior, and visible leader being the CKO or equivalent role (Earl and Scott, 1999). Davenport and Volpel (2001) also observe that the new CKO positions are appearing in many organisations, and in almost every large professional services organisation.

Chief Knowledge Officers need to understand knowledge and its uses in various aspects of the business (Davenport and Volpel, 2001). The role of CKO should be a 'champion of knowledge' with effective communication skills and extensive KM processes (Patel *et al.*, 1999). These capabilities are argued to be necessary for KMS implementation, and organisations have to staff KM functions in their new structures.

The distribution of organisational responsibilities through managerial roles has proven to have a significant impact on the management of organisational knowledge. This distributed network can provide access to different realms of ideas, different groups of people and offer different opportunities for utilising ideas (Bailey and Clarke, 2001).

Many organisations have devolved responsibility to an existing or new position, whilst others use a cross-functional team to develop KM activities. Where a new position is created, this is generally that of the CKO who is charged with the leading role (Davenport and Volpel, 2001). According to Lloyd (1999), the characteristics and challenges of the CKO include:

- Interpersonal/communication skills;
- Passionate visionary leadership;
- Business acumen;
- Strategic thinking skills;
- Championship of change with the ability to withstand ambiguity and uncertainty; and

- Collaborative skills (these are rare skills demonstrating the ability to pull together people from different parts of the organisation to work as one team).

Despite the fact that there are sound reasons for appointing knowledge managers, few organisations in Australia for instance have done so (Eginton, 1998 and; Sbarcea, 1998).

In conclusion, the presence of an appropriate organisational structure (Byrne, 2001), and the development of a culture that supports organisational change and growth, is important to improve KMS across organisations (Schein, 1996). However, having created an organisational structure to manage knowledge is by no means enough for success at KM, although it is an important ingredient of success.

Despite numerous studies on the benefits and pitfalls of diverse organisation structures, none of these could suggest a general structure that would best support the implementation of KMS. This is attributed to each organisation having its own needs and environment. Consequently, the appointment of the KM manager is expected to reflect those needs (Carneiro, 2001).

### **5.3.2.3 Training and Learning**

The role of HRM in KM has been discussed by a number of researchers and practitioners (Clarke and Staunton, 1989; Soliman and Spooner, 2000; Thite, 2004; Wiig *et al.*, 1997).

Armstrong (2000) and Garavan *et al* (2000) regard the role of HR in KM as "to facilitate the dissemination of learning through workshops, projects and conferences and later, to take responsibility for co-ordinating the preparation of business plans which incorporate the outcome of the learning activities".

The main tasks of HRM are to monitor, measure, and intervene in construction, embodiment, dissemination and use of knowledge by the employees (Soliman and Spooner, 2000). Therefore, to succeed, a KMS ought to emphasise the management of these human relationships. In this regard, Lank (1997) argues that organisations need to adapt quickly to the changing environment and must commit to permanent learning. Furthermore, a KMS requires profound changes in policies, procedures, training, education, TW and especially culture (Greengard, 1998<sup>a</sup>).

The importance of training capabilities for any organisation is well recognised, especially for those organisations concerned with preserving human assets (Wickert and Herschel, 2001). This mandate can also be useful for integrating the capacity to solve problems and to participate actively in the decision-making process. Hence, organisations could be placed to develop relationships and manage working groups in which the learning process leads to knowledge improvement and contributes to better performance levels (Carneiro, 2001).

Training also plays an important part in the process of knowledge flow or transfer. In this regard, Carneiro (2001) states that education and training programmes are powerful tools for transferring knowledge, however, they are not the main routes of the learning process.

One of the most obvious attempts to reduce the effect of 'knowledge erosion' is training (Wickert and Herschel, 2001). Formal and informal, on-the-job, as well as off-the-job training offer the advantage of broadening employees' knowledge and skill base, allowing them to perform new tasks or old ones better (Bender and Fish, 2000). The applications cover the transfer of explicit knowledge via training interventions, or the planned development of tacit knowledge through developmental interventions such as experiential assignments or membership in a community of interest. In addition to generic

training specific training is also often required for discipline specific needs (Wickert and Herschel, 2001).

In order to transfer tacit knowledge, training is argued to be a very effective approach (Bender and Fish, 2000). Study tours of other companies, cross-training and twinning (matching similar organisations for transfer of know-how) all allow for exchange of tacit know-how that is otherwise hard to accomplish (Ellerman, 1999).

On-the-job training (learning by doing) is still one of the most effective ways of passing on tacit knowledge (Wickert and Herschel, 2001). Therefore, KM initiatives may find advantages in rotating employees (as a training method) throughout parts of the organisation to ensure that they gain a broad knowledge of how to perform a certain task that is not necessarily part of their job (Bender and Fish, 2000). Such rotation can prevent the breakdown of certain processes once a key employee leaves (Nonaka, 1991). Furthermore, knowledgeable employees can teach or train employees in a certain field by passing on their knowledge in lectures, meetings, presentations, and on-the-job-training, by demonstrating how to do things and by influencing them in their knowledge-building process by giving additional information or useful advice about how to approach a certain task (Stonehouse and Pemberton, 1999).

Training also plays an important part in knowledge processes, although conventional training tends to be based on passive learning (Binney, 2001). Learning as argued, ought to be an experiential and interactive process so that systems could employ techniques based on these principles (Carneiro, 2001; Stonehouse and Pemberton, 1999; Pemberton and Stonehouse, 2000). In this connection, there is an emerging emphasis on developing 'learning organisations' and collaborative skills. Communities where people can exchange ideas and learn from each other are another emerging form of tacit

knowledge development where people can learn from the experiences of others (Binney, 2001).

Overall investment in and development of knowledge and capabilities of an organisation's workforce is becoming a measure of the value of an organisation. This is attributed to this investment being currently seen as increasing the knowledge content and capability of an organisation (Shani, et al, 2000).

Organisations ought to be prepared to gather external data, because many powerful insights may come from competitors, clients and providers. This may include helping to set up and, possibly, fund knowledge networks, as well as defining and developing the skills of learning from other people (Mayo, 1998). Training is therefore, expected to have a grip on key knowledge needed to stay or become competitive. Subsequently, determining training requirements and needs is of importance in order to meet future expectations.

#### **5.3.2.4 Teamwork**

KM teams are required not only to improve the performance and position of the organisation but also to ensure the effectiveness of KM programmes (Chauvel and Despres, 2002<sup>b</sup>). The more structured the implementation of the programme, the more likely it is to succeed. This means that strategies for the implementation of KMS ought to receive appropriate attention, especially from the HR department (Skelin, 1999). In this respect, Soliman and Spooner (2000) state that for effective implementation of KMS, the HR department needs to assist in:

- Forming the KM team;
- Storming the KM programme;
- Norming the KM rules;

- Performing the KM activities; and
- Reforming the KM programme.

Teamwork in an organisation and collaborative arrangements provide organisations with many opportunities to manage the knowledge review process (Inkpen, 1996). The use of teams and collaboration has proven to become especially useful to collective learning within organisations (Shani, et al, 2000). Notwithstanding these issues, continuous learning, negotiations, and readjustments are necessary to enhance the dynamics of the knowledge development process. In this regard, many organisations such as Federal Express, 3M, Exxon, and Chaparral Steel are making use of self-managed teams continually to develop and reinvent the knowledge process (Daft *et al.*, 1993).

Members of knowledge work teams are expected have access to different knowledge bases and collaborate in developing new ideas, new products, new markets, new strategies, new organisational designs, new corporate visions etc. (Coleman, 1999).

Collaborative knowledge teams are argued to give corporations an edge on creativity and innovation (Stebbins and Shani, 1995). Furthermore, these teams can also be characterised as teams that work in non-routine, non-linear transformation processes, where team members possess a high variety of skills and diverse technical and scientific knowledge (Greengard, 1998<sup>c</sup>). As such, in performing knowledge work they deal with uncertain tasks and situations, potentially very diverse team members, unique group characteristics, and varying characteristics of the larger organisation (Woodman *et al.*, 1993). The transformation process involves complex team dynamics and work processes that are difficult to analyse and control. Therefore, the implementation of teamworking during KMS implementation is argued to be very important. Furthermore, rather than have people contribute

individually, managers may wish to assign people to small groups, get them to meet regularly, and give them collective responsibility for knowledge sharing (Ellis, 2001).

### **5.3.2.5 Organisational Culture**

Successful KM implementation requires an OCL that encourages its members to create and share knowledge (Holsapple and Joshi, 2001; Leonard-Barton, 1995). Consequently, KM efforts are generally accompanied by attempts to bring cultural changes (Rubenstein-Montano *et al.*, 2001<sup>b</sup>). Not surprisingly, major factors influencing KM success are also identified as affecting organisational performance (Alavi, 1997; Nonaka and Takeuchi, 1995; Probst, 1997; von Krogh *et al.*, 1998; Wiig, 1997).

A successful culture will need to exist to foster employee development and encourage highly competent employees to exercise their talents to impact positively on the organisation (Zwell, 2000). Culture may also need to provide a work environment in which employees are engaged, challenged, motivated and rewarded in a positive way for their performance and contribution to the organisation's success. For example, people will not use the technology, and may even subvert it, if there is a lack of trust and respect, and if they sense a lack of interest in common goals (Carayannis, 1998).

Cultural attributes will impact upon how knowledge is shared, stored, distributed and used (Rubenstein-Montano *et al.*, 2001<sup>b</sup>). To direct individual knowledge for the organisational purposes, an organisation should develop and nurture an environment of knowledge sharing, transferring, and integration between its members (Nonaka and Takeuchi, 1995). For example, in organisations where the culture continues to advocate the motto 'knowledge is power', individuals may not want to distribute or share their knowledge for fear of losing their edge over other colleagues (Rubenstein-Montano *et al.*, 2001<sup>b</sup>).

Knowledge sharing can occur formally and informally (Rubenstein-Montano *et al.*, 2001b). However, by co-ordinating the pattern of interaction between its members, technologies, and culture, an organisation can work with complex and novel situations (Hutchins, 1991).

Greengard (1998<sup>c</sup>) noted that "*no knowledge management system can work without an organisation undergoing a significant cultural change*". Furthermore, Greengard (1998b) also identified three cultural barriers that organisations were often usually confronted with when adopting a KM initiative, these are:

- People do not like to share their best ideas,
- People do not like to use other people's ideas, and
- People like to consider themselves as experts and prefer not to collaborate with others.

Therefore, a change in culture might be the answer to overcoming KMS implementation barriers, especially since holding information is usually seen as more valuable than sharing it (Anthes, 1998; Warren, 1999). This was also supported by Cole-Gomolski (1997), who evidenced corporate culture as a major barrier. In another study, (People-Management, 1998), culture was seen by 80% of those surveyed as the biggest obstacle in creating a knowledge-based organisation.

In summary, KM initiatives tend to refer to changing corporate culture and business procedures in order to make sharing of knowledge possible. Then, it becomes as much a feat of developing technological solutions as working through the social and cultural sub-systems.

Having a positive culture is of critical importance because organisations operate in all areas through people and it is their contribution which



determines success. In the literature, employee know-how and OCL are said to possess the characteristics of strategic assets (Michalisin *et al.*, 1997). The biggest challenge for KM, as articulated, is not a technical one – as it can be integrated into any number of IT systems - but rather a cultural one (Forbes, 1997; Koudsi, 2000).

Interaction between a KM effort and the existing OCL is expected to result in changes to that culture, which may need to change for the KM to succeed.

### **5.3.3 The Importance of Information Technology**

The Greek origins of the word 'technology' (technologia) refer to the systematic treatment of an art. The WWWebster Dictionary (2005) defines "technology" as "... *the practical application of knowledge especially in a particular area*". It is in this sense that technology, relating to the tools and techniques that are currently employed for managing knowledge in organisations are included. Every analysis in this area is based on IS literature (Armstrong, 2000; Davenport, 1995; Davenport *et al.*, 1996; Davenport and Glaser, 2002), and an effective IT system is also commonly identified as a critical success factor in KM initiatives (Demarest, 1997; Lee and Choi, 2003; Leonard-Barton, 1995; Zack, 1999).

The role of technologies in KM has always been a debatable topic, both in academia and industry (Bhatt, 2001). However, recently the majority of business managers believe in the power of IT in KMS. It is argued, that IT can provide an edge in harvesting knowledge from piles of old buried data repositories (Bhatt, 2001). Furthermore, Ruggles (1997) identified the value of technology in providing KM tools to enhance and enable the implementation of sub-processes of KM e.g. knowledge generation, codification, and transfer. This is also supported by Offsey (1997) who states that technology is clearly required to enable the organisation's KM processes.

It can be concluded that without new technologies to create revolutionary change in the way knowledge workers create, communicate and manage information and knowledge, organisations are unlikely to be able to implement a successful KMS.

IT dimensions that affect the implementation of KMS, as described in the literature, are presented in the following section.

### **5.3.3.1 Information Technology Strategy**

Recently there have been significant changes in the KM technologies landscape (Tsui, 2005). According to Orlikowski and Iacono (2000), the organisational changes associated with the use of technology, are brought about by the consolidation of vendors in the market as well as the realisation that embedding knowledge in processes is a critical success factor in nearly all KM initiatives (Eppler *et al.*, 1999; Seely, 2002).

The current KM approaches and concepts in the corporate world may be conveniently divided into the strategic choice approach and the technology determinism approach. The strategic choice approach posits that technology is a flexible resource that can be put to various uses, depending on its user's (individual or organisational) purposes and motive (Thomas, 1994; Zuboff, 1988). Technology determinism dictates that technology is the impetus that determines or changes the social system (Marx and Smith, 1994). Putting both approaches into the KM context, it can be suggested that investing heavily in IT and new technology would help to transfer any organisation into a knowledge-based organisation.

Another aspect to be considered in IT strategy is to develop and maintain the right IT infrastructure to ensure the compatibility of technology and the integration of existing and new systems. By aligning IT with the organisational business strategy (Aouad *et al.*, 1999), savings are expected to be achieved

by avoiding issues resulting from the migration from legacy systems and the integration of new ones (Kagioglou *et al.*, 1998). These issues arise when existing hardware and software components suited for one purpose need to be used in conjunction with another new system or a different system in another location. In this respect, it appears that the selection of a system that suits all functional areas within global organisations deems to be almost impossible (Riege, 2005). Consequently, many organisations and individuals have developed such a belief during their implementation of KM initiatives (Yahya and Goh, 2002).

Empirical research indicates that many organisations are finding it hard to change their practices and structures when they want to incorporate IT into their existing organisational structures (Kling and Lamb, 2000), especially in terms of motivating the employees to contribute and share knowledge (Chong *et al.*, 2000).

Whilst it is accepted that modern IT significantly facilitates extensive knowledge processes (Davenport and Prusak, 1998), it is also known that IT is weak in information interpretation and high level communication (Bhatt, 2001). Moreover, Stewart (1998) argues that, the more appropriate role of technology in the KM process is to support the 'real' knowledge network, i.e. the informal one in which people simply talk to each other. Nonetheless, even if technology is rarely the ultimate solution to or driver of a knowledge process strategy, the integration of the right technology strategy is important.

### **5.3.3.2 Existence and Usage of Information Technology Systems**

It is argued that, the use of IT can help to assist the process of KM (Dougherty, 1999). Hence, this section reviews a number of the KM-enabling technologies and tools described in the literature and their relationship to the KMS implementations.

Schreiber *et al.* (1999) defined knowledge systems as the tools for managing knowledge, helping organisations in problem-solving activities, and facilitating decision-making. Such systems have been used in the areas of finance, medicine, engineering, product design, construction etc. (Chau *et al.*, 2002; Davenport and Prusak, 2000; Hendriks and Virens, 1999; Tiwana and Ramesh, 2001).

Historically, IT has had the net effect of making knowledge more explicit (Hansen *et al.*, 1999), allowing for the capture, search, sharing, and distribution of knowledge. The goal for KM technology argued to create a connected environment for knowledge exchange and to expand access to valuable information and codified knowledge (Seng *et al.*, 2002) on a timely basis. This connected environment acts as the technical embodiment of the corporate memory (Bhatt, 2000). In order to create this connected environment, it is important to capture the synergy between people and people; as well as people within IS (Abdullah *et al.*, 2002). In particular, the technology must support the exchange and transformation from tacit to explicit knowledge, which also implies a transformation of individual knowledge into organisational knowledge (Mentzas *et al.*, 2001). Therefore, both tacit and explicit knowledge can be managed better by using a KMS: a specialised system that interacts with the organisation's systems to facilitate all aspects of knowledge processing (Abdullah *et al.*, 2002).

There is little doubt that numerous technologies such as the Internet, mobile telephones and KBS will facilitate the sharing of knowledge and assist in the implementation of KM programmes (Soliman and Spooner, 2000). The Internet has grown from a research network to a universal IS, being the largest information provider offering timely, very cheap, and often free, information (Attaran and Attaran, 2002). It can also provide access to databases, books, manuals, expertise, training information and even sound and video clips, serving as a vehicle for the exchange of ideas or opinions.

Organisations are using the Internet for the transmission of data and exchanging information, documents and files (Attaran and Attaran, 2002). Along with many internal needs, which are satisfied by organisations' intranets, there is also another urgent need to find better ways of external knowledge sharing with customers and business partners. Extranets have proven to be extremely powerful systems to meet these needs (Huang and Nof, 1999).

Intranet, e-mail systems, or inclusive groupware software are argued to assist greatly in reducing formal communication barriers (Attaran and Attaran, 2002). The more the intelligent agents share similar knowledge and professional experience, the more effectively knowledge can be communicated via electronically mediated channels (Carneiro, 2001). Intelligent agents (human value) and technical tools can provide the basis for long-term organisational effectiveness of organisations that wish to institutionalise KM (Carneiro, 2001). KM is becoming progressively more useful because management is taking into account the value of intelligent systems and intelligent agents (Wooldridge and Jennings, 1995).

Modern ICT tools and systems provide sophisticated functions for publication, organisation, visualisation, contextualisation, search, retrieval and distribution of knowledge as well as functions supporting communication, co-operation and linking of individuals in networks (Maier and Sametinger, 2003).

There are several technological dimensions, such as business intelligence technologies to assess competitive and economic environments, collaborative and distributed learning technologies to overcome structural and geographical hurdles, knowledge discovery technologies to find new internal and external knowledge, knowledge mapping technologies to track sources of knowledge about employees, suppliers, distributors, sub-contractors and customers, and security technologies (Gold *et al.*, 2001).

Nissen *et al.* (2000) identified that KM has its roots in a number of IT systems and principles including:

- Artificial intelligence;
- Business process reengineering;
- IS;
- Information management (IM);
- Expert systems and decision support systems; and
- Data mining and data warehousing.

Tsui (2002; 2005) argues that technology can accomplish a lot more than merely storing and retrieving data; and points out the fact that over the decades, advancements in artificial intelligence and other information processing techniques have led to the verification and generalisation of stored data, as well as the discovery of new actionable knowledge. This has been accelerated by using such technologies as: e-mail, groupware, expert systems, data mining, database technologies, data warehouses, decision support systems, web technologies, intranets etc. Furthermore, Tsui (2002; 2005) identifies five emerging models for deploying organisational KM systems where one or a combination of technologies may be adopted: 1) expert systems and decision support systems can be used for KC; 2) data warehouses for knowledge storage; 3) and intranet technology for knowledge diffusion; 4) databases of codified knowledge assets are systematically organised to facilitate searching, browsing, and retrieval; 5) knowledge repositories may contain lessons learned, best practices, planning documents, project proposals, and marketing presentations. This is supported by several other researchers (Basu, 1998; Hayes-Roth and Jacobstein, 1994; Wielinga *et al.*, 1997). Moreover, the advent of electronic

resources (Gery, 1991), provides effective channels for globally exchanging knowledge, as confirmed by Carneiro (2001), who observes that:

*“The effective use of IT to communicate acquired knowledge requires an interpretative tool. The more the intelligent agents share similar knowledge and professional experience, the more effectively knowledge can be communicated via electronically mediated channels. When interpretive tool is not well shared and knowledge is primarily tacit, communication and professional experience is best supported by more interactive methods such as video conferencing and face- to- face conversation.”*

A variety of tools are argued to provide the mechanism for building sustainable KM systems that can be used to create learning linkages (Carneiro, 2001). These new tools, with the advent of great number of personal computers and communication networks permit the organisations to acquire and retain new knowledge in order to obtain better competitive positions (Halal and Smith, 1998; Tapscott, 1996).

Some knowledge can be formalised in software programs and made available to decision-makers across organisations, although such a system requires that the knowledge be accessible, understandable and storable by the intelligent agents (Carneiro, 2001). In this respect, Mentzas *et al.*, (2001) state that the implementing of KMS is currently being shaped in terms of IT by three major influences:

- Software vendors providing IT tools;
- A significant body of early adopters who have demonstrated the benefits of considering knowledge as a key asset; and
- Global consultancy organisations and system integrators that provide related services.

Binney (2001) identified causal relationships between enabling technologies and KM applications mapped against core processes – the details of which can be seen in Table 5-2.

	Transactional	Analytical	Asset Management	Process	Developmental	Innovation and Creation
Knowledge Management Application	Case-Based Rescanning	Data warehousing	Intelligent Property	TQM	Skills Development	Communities
	Help Desk Applications	Data mining	Document Management	Benchmarking	Staff Competencies	Collaboration
	Customer Service Application	Business intelligent	Knowledge Validation	Best Practices	Learning	Discussion Forums
	Order entry application	Management information system	Knowledge repositories	Quality Management	Teaching	Networking
	Service Agent Support Application	Decision support system	Content Management	Business process re-engineering	Training	Virtual teams
		Customer Relation Management		Process Improvement		Research and Development
		Competitive intelligent		Process Automation		Multi-disciplined Teams
Enabling Technologies	Expert Systems	Intelligent Agent	Document Management Tools	Workflow management	Computer-based Training	Groupware
	Cognitive technologies	Web Crawlers	Search Engines	Process Modelling Tools	Online Training	E-mail
	Semantic networks	Relational and OODBMS	Knowledge Maps			Chat Rooms
	Rule-based Expert Systems	Neutral Computing	Library Systems			Video Conferencing
	Probability Networks	Push Technologies				Search Engines
	Rule induction Decision Tree	Data Analysis and reporting Tools				Voice Mail
	Geospatial IS					Bulletin Boards
Portals, Internet, Intranet, Extranet						

**Table 5-2: Enabling Technologies**  
(Binney, 2001).

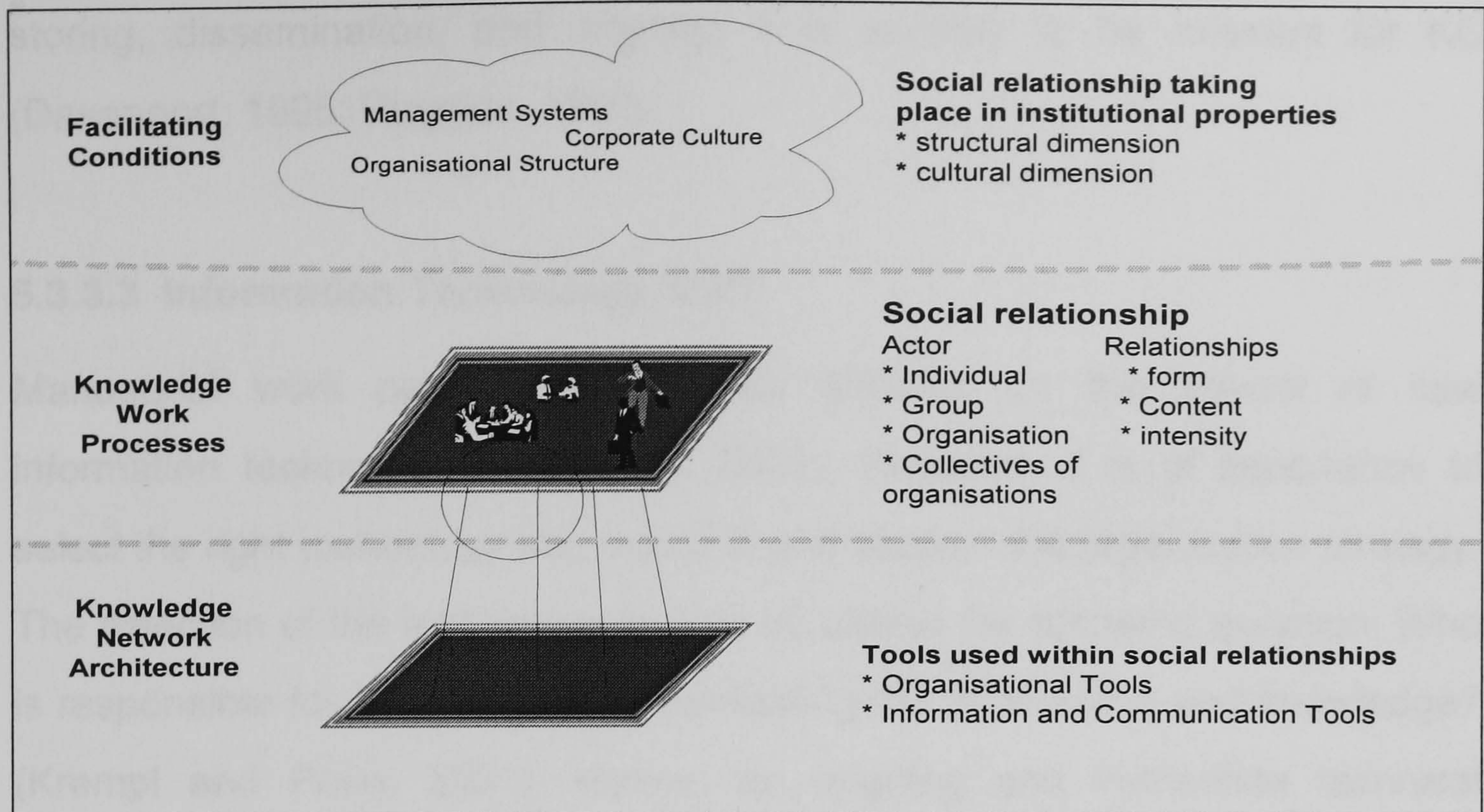


IT makes concentration and diffusion of knowledge possible, and allows top managers to obtain information more quickly and accurately, nevertheless, it enables middle managers to be more informed and make timely decisions.

According to Sandelands (1999), knowledge is captured in a database or network where IT is being applied to manage KA development. Knowledge network represents a common body of knowledge and enable therefore, an efficient knowledge exchange (Probst, 1997; von Krogh and Nonaka, 2001).

Seufert *et al.* (1999) illustrate the knowledge network being divided into three building-blocks (see Figure 5-1). The Facilitating conditions comprise the network's internal structural and cultural dimensions in which knowledge work processes take place. Therefore, they define the enabling or inhibiting environment for KC and transfer. On the other hand knowledge work processes comprise social interaction and communication processes on an individual and group level, which can advance for knowledge evolution to an organisational and interorganisational level. And finally, knowledge network architecture comprises the tool-set used within social relationships. These tools include organisational tools, e.g., roles like the knowledge activists (Von Krogh *et al.*, 1997) as well as information and communication tools, e.g. the groupwareenabled data warehouse concept used to enable and improve knowledge work processes (Nonaka *et al.*, 1998).

Knowledge networks have been successfully used by many international, KM-experienced companies during the last four years (Enkel, 2002) - see Figure 5-1.



**Figure 5-1: Reference Model of a Knowledge Network**  
(Seufert *et al.*, 1999)

New computing and telecommunication technologies allow organisations to communicate quickly and effectively with subsidiaries and business partners around the globe (Lang, 2001). This assists in capturing, organising and transferring information on a worldwide scale (Neef, 1999). The improvements in IT make it easier to collect, store and distribute information and hence, is considered a good conductor of information (Sena and Shani, 1999). Nevertheless, advances in IT have enabled cost reduction and accelerated the transferring of best practices (Elliott, 1999<sup>a</sup>).

The most common technologies used are those that allow organisations to build repositories, provide broad access, and allow seekers of knowledge to find the knowledge that meet their needs (Davenport and Volpel, 2001). Thus, technology can be regarded as fundamentally necessary for the provision of a KMS framework. Furthermore, Seng *et al.* (2002) argue that if there was only one thing that could transform KMS from being just a concept to a business reality (that solves problems and exploits opportunity) it would have been technology. Although this argument could be true in respect of knowledge

storing, dissemination, and sharing; it is unlikely to be relevant for KC (Davenport, 1995; Ruggles, 1997).

### **5.3.3.3 Information Technology Staff**

Managerial work patterns have been affected by the advent of new information technologies (Carneiro, 2001). However, it is of importance to select the right technology that would fit and support the organisation strategy. The selection of the technology begins by asking the following question: Who is responsible for capturing, and maintaining the information and knowledge? (Krempf and Pace, 2001). Hence, an ongoing and immediate technical support function, internal or external is required. The role of technical support is not just finding timely solution for a problem, but also the anticipation of problems and pitfalls (Neef, 1999).

There is an expanding market for outsourced software services and remote maintenance. These services are needed to ensure that technical problems are dealt with quickly and resolved effectively, in order not to create barriers to implementation (multifunctioning technology) (Riege, 2005). Thus, a qualified KM worker is required to possess depths of knowledge in particular areas, technical skills, information/ resource management, and IT skills (Skyme, 1998; Parker *et al.*, 2005).

### **5.3.3.4 Information Technology Skills**

Existing and new technologies are often capable of supporting effective KM processes. However, without a close fit with employees' need requirements, technology in itself can become a barrier, not because of technical problems but because actual problem solutions do not match peoples need requirements (O'Dell and Grayson, 1998). The unfamiliarity with IS/IT systems could introduce a potential sharing barrier. However, this can be mitigated, as Riege (2005) argues that users ought to get involved during designing and/ or choosing new systems, as well as modifying existing ones.

An organisation, as explained by McCann and Buckner (2004), builds its stock of knowledge by developing the existing individual and collective knowledge base, skills and capabilities of its members. This is argued to be achieved through R&D, training and development, and creating organisational libraries and databases.

The effectiveness of knowledge workers depends on their basic information and knowledge skills. These workers' tasks are concerned with information handling to create value for others inside as well as outside the organisation (Mentzas *et al.*, 2001).

Knowledge skills can often include filtering information overload, reading and note-taking, analysis, synthesising ideas and information, communicating concepts and knowledge to others, as well as skills in using technology. While high-level professionals may be already proficient with these tasks, their skills can always be developed further. Therefore, organisations ought to embed development of these fundamental knowledge skills into all of their internal training and development programmes evidenced by Dawson (2000): *“Certainly technology has little value unless it is complemented by effective skills and behaviours on the part of those using the technology”*. In the same context, Xu and Quaddus (2005<sup>b</sup>) state that when a KMS is implemented, people should be:

*“actively involved in its adoption; and possess the necessary computing skills, therefore when an organisation is starting to implement a KMS, it should provide sufficient training to help people overcome their fear of the complexity of the KMS. People should also be given plenty of opportunities to practise the skills required for using a KMS”*.

*“If the knowledge is not absorbed, it has not been transferred”*. For example, knowledge about how to use special equipment, machinery and tools, or how to manufacture certain products may require hands-on-experience, training-on-the-job, teaching and direct supervision from trainers in an action of

transmission, and when the recipient gains the full knowledge about the equipment, this is an action of absorption. However, even transmission and absorption have no useful value if the 'new' knowledge does not lead to new development or a new idea (Patel *et al.*, 1999).

One example of knowledge in people is the 'skills' of experienced persons in commercial negotiation – which contributes to whether businesses will fail or succeed (Goh, 2005). Technical specialists, who understand technical problems and possibilities, are expected to know how to enhance products, services or competencies and work with managers to exploit these ideas (Bailey and Clarke, 2001). Nevertheless, while it is a mistake to assume that technology will automatically replace the skill and judgment of an experienced person, dramatic developments in the computerisation of information can provide the means for individuals to exchange information and to manage the knowledge that results. Another term linked with KM skills is 'Teaching/training knowledge': i.e. knowledge about how to train and update the skills of both employees and volunteers (Lettieri *et al.*, 2004). Finding what is important to the user means selecting, filtering, and distilling large quantities of information stored in different formats, representations and media, as well as developing a philosophy and techniques for KM (Tiwana, 2000). Even though such training requires time and money, new initiatives like computer-based training (CBT) allow smaller organisations to realise benefits without having to pay large sums to external training facilities (Wickert and Herschel, 2001).

Technology has proven invaluable for enhancing capabilities for dealing with and adding value to information and knowledge; and is therefore regarded as a primary means of developing knowledge capabilities. However, it is argued to be insufficient in itself for adding value. It is debated that the skills and behaviour of people are those to provide the bulk of the 'added value' in knowledge processes. Thus, it can be concluded that the two primary means

for developing knowledge capabilities are technology, and human skills and behaviours (Dawson, 2000).

#### **5.3.4 The Importance of Knowledge Management Processes**

The success of knowledge organisations depends largely on how effectively and efficiently they can perform their KM processes. In this respect, Dawson (2000) articulates that knowledge capabilities are the capabilities of organisations to perform effectively, the knowledge processes on which their success depends on. Furthermore, Sharkie (2003) defines knowledge processes as the knowledge and information that are produced from an innovation process.

The value of processed knowledge, as argued, can be witnessed in the reduction of lead-time, the enhancement of management efficiency, the reduction of information search cost, and subsequently, the enhancement of the organisation's competitiveness. This would lead to another term, namely, the 'learning organisation' which is defined in a process context by Garvin (1993): “... *an organisation skilled at creating, acquiring, and transferring knowledge, and at modifying its behaviour to reflect new knowledge and insights.*”

Various definitions of KM processes exist (Alavi, 1997; Demarest, 1997; KPMG, 1998; Pan and Scarbrough, 1998; Stein and Zwass, 1995; Wijnhoven, 1998); yet they do not agree on the basic mechanism. For instance, Ruggles (1998), reports on a study of 431 American and European companies that identify different knowledge-related activities being:

- Generating new knowledge;
- Accessing valuable knowledge from outside sources;
- Using accessible knowledge in decision making;

- Facilitating knowledge growth through culture and incentives;
- Measuring the value of knowledge assets and/or impact of KM, etc.

Soliman and Spooner (2000) argue that most organisations utilise five processes for KM in order to:

- Create;
- Capture;
- Organise;
- Access; and
- Use knowledge.

These five processes cover almost the entire scope of HR functions and they are usually used to obtain the details of employees' knowledge (Soliman and Spooner, 2000). Bhatt (2001) argues that the KM process can be categorised into KA, KC, KT, knowledge application (KAP), and knowledge documentation (KD) activities; and that in order to capitalise upon knowledge, an organisation must be swift in balancing its KM activities.

Based on the discussion above, this research followed Hedlund (1994) who stated five knowledge processes that were later modified by Yahya and Goh (2002) to be:

- Knowledge creation;
- Knowledge acquisition;
- Knowledge transfer;
- Knowledge application; and
- Knowledge documentation.

The following sections describe the importance of these KM processes in detail.

#### 5.3.4.1 Knowledge Creation

Knowledge creation refers to the ability of an organisation to develop novel and useful ideas and solutions (Marakas, 1999). Nonaka *et al.* (2000) and Nonaka and Toyama (2002; 2003) argue that in order to create new meanings through interaction, the participants in the process need to have a shared, physical context. New KC brings results that can be unique and difficult to imitate (Amido Rogers, 1996; Leonard and Sensiper, 1998; Lubit, 2001; Mudambi, 2002; Nonaka and Toyama, 2003; Sharkie, 2003). Nevertheless, KC is unachievable without the support of the management: "*Knowledge is manageable only insofar as leaders embrace and foster the dynamism of knowledge creation*" (Nonaka and Konno, 1998).

Shortening the KC cycle is therefore, necessary, and ought to be taken into consideration (Sveiby, 1997; Zack, 1999). Furthermore, the strategic challenge for organisations is to create sufficient knowledge to support a shift to new technologies and new markets before traditional competitors are able to do so. This new knowledge usually contains high levels of tacit and explicit knowledge (Bloodgood and Salisbury, 2001). Such knowledge could be gained through internal and external changes. It can also be generated by informal networks, groups of people brought together by common interests (Patel *et al.*, 1999). KC is an emergent process in which motivation; inspiration, experimentation, and pure chance play an important role (Lynn *et al.*, 1996).

Even though some researchers argue that KC is basically an individual thought process (Crossan *et al.*, 1999; Lynn *et al.*, 1996), some authors have recently shown that KC can be learnt and taught (Marakas and Elam, 1997). In either case, it is believed that KC in the organisation is led by individuals,



i.e. an organisation creates knowledge through its individuals, who learn and generate new 'realities' by breaking down rigid thinking and assumption (Argyris and Schon, 1978; Horgan, 1996; Lewin, 1952).

Edvinsson and Sullivan (1996) assert that the benefit from the KC process is attributed to organisational experiences. This is because it is the experience of working together, exchanging tacit knowledge and then documenting the created knowledge that can be leveraged. The newly-developed capability can then be use elsewhere in the organisation in other business activities to produce more knowledge.

Before it can be managed, knowledge must first be created and applied in an organisation (Dawson, 2000). The KC process demands interaction and involvement of people, technology and information. However, where the human element is present, any process becomes uncertain and may be difficult to handle (Argyris and Schon, 1978). Consequently, prudent HRM is essential.

For a company to become a knowledge organisation, it must start with activities that support KC, such as quality training, keeping in mind that organisations are now increasingly concerned with customer retention. This is achieved by ensuring customer satisfaction. Thus, establishing a quality culture among organisational personnel is another imperative for KC.

#### **5.3.4.2 Knowledge Acquisition**

Knowledge creation has always been regarded as an extremely difficult activity. Therefore, many organisations opt for a simpler route by acquiring knowledge from other sources and then adopt it for their use. Until only a few years ago, many Japanese companies for example were (dis)credited for imitating knowledge from their western competitors and then using it for their own advantages (Aoki, 1988).

Knowledge acquisition is a structured process, because a large part of knowledge that an organisation adopts for its use is already well established. During the acquisition process, organisations often look for efficient ways to categorise, store, and catalogue knowledge (Anumba *et al.*, 2000), some of which is repetitive and needs little modification. However, some of the other knowledge requires extensive modification before it can be used, as Anumba *et al.*, (2000) indicate many KM projects focus on capturing and codifying knowledge. For example, knowledge of accounting, law, and public administration acquired in a country may not be useful in other countries until it is modified to fit the conventions and rules of those new environments (Bhatt, 2000).

For some organisations, KA is a necessity, as they do not rely on inventing knowledge, but interpret past knowledge in a new light. For example, a law firm does not need to invent new knowledge for the success of its cases; rather it analyses its cases in the light of the outcomes of similar cases that have occurred previously. Similarly, the aim of an accounting firm is not to come up with new knowledge, but to use existing laws, regulations.

During the KA phase, organisations do not always re-invent knowledge, but rather try to standardise knowledge by capturing and storing routines, knowledge objects, and modules that are common among multiple projects (Basili and Caldiera, 1995). For example, a number of routines, practices, and programmes, including reusable codes, are common to several software projects. In some cases, the acquisition of easy-to-use and simple templates becomes important for providing common experience to knowledge workers. Common forms, applications, and routines, captured electronically provide the opportunity for collective learning (Basili and Caldiera, 1995).

The validity of knowledge is an important aspect during the acquisition process. If acquired knowledge is not valid, it is likely to result in waste of time

and efforts (Bhatt, 2000). The validity of knowledge refers to the extent to which the knowledge-base produces socially-accepted solutions to the problems. Organisations can use a number of perspectives for knowledge validation such as matching the acquired knowledge with the required specifications and problems. Nevertheless, some of the dimensions that need to be determined in knowledge validity process are: adaptability of knowledge for modification and revisions so that knowledge can be easily used for current and future organisational problems; adequacy of knowledge to provide different perspectives on the organisational issues; coverage of knowledge to detailed conceptualisation of solutions of problems; robustness of knowledge to map different levels of problems with correct solutions; and modularity of knowledge components to help in controlling the focus of the knowledge base in the organisation and the kinds of knowledge one needs to develop (Bhatt, 2000).

In conclusion, KA is an important task in terms of KMS implementation and has to be appreciated as a crucial KM process.

#### **5.3.4.3 Knowledge Transfer**

Knowledge needs to be transferred and shared to achieve an organisation's specific goals. How organisational members interact with each other and with customers can have a direct effect on the premise of the knowledge-base in the organisation (Bhatt, 2000). Moreover, Ash (1998) found that the missing factor in strategic management context was communication.

Gilbert and Cordey-Hayes (1996) also suggest that the process of KT is not a static one, but is rather, dynamic and that as such KM becomes part of the process of continuous learning. This is further emphasised by Allee (1997<sup>b</sup>), who views the renewal of knowledge as the key to competitive advantage, which includes not only creating new knowledge but also letting go of old knowledge. New knowledge is created by people who share and transfer their

knowledge and expertise throughout the organisation from individual to individual; individual to a team or group; team or group to individual; or team or group to team or group (Bender and Fish, 2000).

Siemieniuch and Sinclair (1999; 2000), cite that the transfer of knowledge should cover the following four levels of interaction:

- Transactional level – information about daily events must be communicated;
- Operational level – there must be a provision to co-ordinate and control the transactions (who meets, when and why);
- Policy execution level – negotiate targets, agree operational procedures, etc.; and
- Strategy levels – define role and level of participation in supply chain, discuss market information, and set other policy issues (e.g. define the type and scope of the contracts between companies).

Knowledge needs to be distributed and shared throughout the organisation, before it can be exploited at the organisational level (Nonaka and Takeuchi, 1995). However, the distribution and sharing of knowledge is not an easy task (Davenport, 1994). For example, the knowledge that expatriates transfer can be knowledge and competence that is not held locally (Torbiorn, 1994). It could also be unique technical knowledge (Swaak, 1997), and moreover, it could be technology that involves training host country nationals in its use and application. Furthermore, expatriates transfer corporate culture (Solomon, 1997), process technology, management skills, knowledge about products or services, financial skills and/or market skills (Grosse, 1996).

KT may lead to advantage through speedier deployment of knowledge to portions of the organisation that can benefit most by it (Bloodgood and

Salisbury, 2001). In this regard, explicit knowledge is argued to be more transferable within the organisation (Bloodgood and Salisbury, 2001).

Certain tools and techniques are frequently used to facilitate the KT process, and these do not only include the establishment of networks providing access to knowledge, but also the transfer of people (Bender and Fish, 2000).

In some cases, the transfer of knowledge assets (people) may be required in order to get deep-seated, deep-rooted ideas and knowledge into circulation and to understand particular operations in specific locations (Fahey and Prusak, 1998). According to Grant (2003), organisations need to have channels and forums for communication and knowledge sharing and they should be capable of promoting a dialogue between the different levels of organisation. Garvin (1993) notes that ideas have high impact potentials when shared broadly, rather than held in a few hands.

Research concerning the factors affecting KT has identified a number of different variables, from 'hard' issues such as technologies and tools (Hlupic *et al.*, 2002) to 'soft' issues such as motivations (Ardichvili *et al.*, 2003; Hall, 2001; Hinds and Pfeffer, 2003), organisational climate; communication climate (Moffett *et al.*, 2003), and culture (Hlupic *et al.*, 2002).

Organisational or ethnic cultures can influence the extent to which, and the way in which, knowledge is shared (Davenport and Prusak, 1998; Smith and McKeen, 2002). In the future, in a knowledge age where national boundaries would be of less importance to business, the transfer of knowledge and expertise, and the creation of a 'learning' organisation is expected to become a critical factor to organisational success and competitiveness.

#### 5.3.4.4 Knowledge Application

The main objective for managing knowledge is its use or benefits. Demarest (1997) describes 'use' as ultimately "the *production of commercial value for the customer*". KAP means making knowledge more active and relevant for the organisation in creating value. In this context, innovation is argued to be a key 'use/benefit' of KM. Henry and Walker (1991) and Sternberg (1999) link innovation to 'new knowledge' or new constructed knowledge by showing how tacit knowledge can become explicit knowledge. In order to add value, knowledge must be applied within a particular business context. Specific examples where knowledge is applied to create value include product development, process enhancement, marketing, and all client interaction (Dawson, 2000).

There are a number of ways through which an organisation can apply its knowledge resources. For example, it could repackage available knowledge in a different context, raise the internal measurement standard, train and motivate its people to think creatively and use their understanding in the company's products, processes, or services (APQC, 1999).

Unfortunately, the criteria for evaluating the usefulness of knowledge are not often readily apparent. However, if an organisation believes in the usefulness of knowledge in supporting its practical and day-to-day common activities, management is argued to be able to provide sufficient latitude to the CoP for experimentation to assess the potential of the knowledge.

A number of factors, including time period for the completion of the project, its cost, and uncertainty of benefits, need a thorough evaluation (Bhatt, 2001). Furthermore, management (often) does not appreciate that the scope and potential of knowledge can have a dramatic effect on the outcome of the project's future.

In conclusion, organisational knowledge ought to be applied into an organisation's products, processes, and services; failure to do so effectively, is argued to make it unlikely for the organisation to be able to sustain its competitive advantage.

#### **5.3.4.5 Knowledge Documentation**

Almost all KM definitions include the storage of knowledge to make it readily accessible to employees within an organisation (Anthes, 1998; Ash, 1998; Bassi, 1997; Blake, 1998, 2000; Cole-Gomolski, 1997; DiMattia and Oder, 1997; Finerty, 1997; Hibbard, 1997; InfoWorld, 1997; Laberis, 1998; Mayo, 1998; Yeh *et al.*, 2000). This is often achieved by using various technologies such as Internet and databases, and is a conversion of tacit knowledge to explicit knowledge (Papows, 1998).

The role of IT in knowledge storage is widely acknowledged (Carneiro, 2001); for knowledge to be useful in the future it has to be documented and stored in some memory system. In this sense many procedures are maintained and accumulated within routines that many different people perform, and despite the turnover of personnel and time, routines tend to persist or be remembered (Seng *et al.*, 2002), as well as knowledge.

Once the information is stored in the various databases; it is expected to be made accessible to as many employees as possible within the organisation (LaPlante, 1997). Knowledge should be to be available to the right people at the right time (Nerney, 1997). Then the process begins with people sharing knowledge through conversations and socialising with one another or by exchanging information in digital or analogue form (Laberis, 1998).

A KMS usually addresses documentation software for the needs of the potential user and the potential administrator of the organisation. Therefore, the documentation contains instructions, manuals, drawings etc. regarding the

software. Furthermore, project documentation (project folders, project plans, schedules, cost summaries, progress reports, protocols etc.) should support communication during the project and address the information needs of various people: project members, project management, project steering and supervising (Bloodgood and Salisbury, 2001). Knowledge can be limited to a number of employees who have access to certain information, for not to jeopardise the organisation's ability to successfully compete (Bloodgood and Salisbury, 2001).

The degree to which organisational knowledge remain tacit can be a primary factor in a knowledge protection strategy because of the difficulty of copying this type of knowledge (Hall *et al.*, 1992). Notwithstanding this issue, knowledge protection can lead to products and services that are difficult to imitate, because competitors can not figure out how to compete in an equivalent manner (Hall *et al.*, 1992).

The success of KM initiatives is ultimately determined by a balancing act that requires changes in organisational commitments, people, technologies, and techniques. A number of organisations believe that by focusing exclusively on people, technologies, or techniques, they can manage knowledge. However, that exclusive focus on people, technologies, or techniques does not enable an organisation to sustain its competitive advantages. It is, rather, the interaction between technology, techniques, and people that allow an organisation to manage its knowledge effectively (see Chapter 5). Successful implementation requires not only that knowledge is collected and distributed, but also, more importantly, that knowledge within the organisation is easy to use in daily processes, that it is accurate and up-to-date, and that people can quickly contact subject matter experts for feedback and questions.

Table 5-3 summarises the literature review and important areas in KMS implementation.



	Dimension of Critical Areas	Related Research Studies
1	Senior Management Commitment (SMC)	(Bailey & Clarke, 2000; Bollinger & Smith, 2001; Davenport and Prusak, 1998; Davenport et al. 1998; Trussler, 1998; Liebowitz, 1999; Choi, 2000; Skyrme and Amidon, 2000)
2	Knowledge Management Strategy (KMS)	(Allerton, 1998; Ash, 1998; Davenport et al., 1998; Doz & Schlegelmilch, 1999; Gopal & Gagnon, 1995; Gronhaug & Nordhaug, 1992; Hansen et al., 1999; Klaila, 2000; Lang, 2001; Lawton, 2001; Price Waterhouse Coopers, 1999; Ruggles, 1998; Soliman & Spooner, 2000; Teece, 1998; von Krogh, 2000; Wiig, 1997).
3	Employees' Requirements (ER)	(Cole-Gomolski, 1997; Despres & Hiltrop, 1995; Ellis, 2001; Finerty, 1997; Fish & Wood, 1997; Keeler, 2000; Lai & Chu, 2000; Mayo, 1998; McDermott, 1999; Michailova, 2003; O'Dell & Grayson, 1998; Scheraga, 1998; The Banker, 1997).
4	Alliances and Partnerships (AP)	(Grant & Gnyawali, 1996; Rycroft & Kash, 1999; Siemieniuch & Sinclair, 1999, 2000).
5	Knowledge Management Resources (KMR)	(Barney, 2001; Bierly & Chakrabarti, 1996; Chesbrough & Teece, 1996; Cohen & Levinthal, 1990; CRMindustry.com, 2001; Grant & Gnyawali, 1996; Lai & Chu, 2000; Massingham, 2004; Sveiby, 1997).
6	Organisation's Policy and Procedures (OPP)	(Marshall et al., 1996; Soliman & Spooner, 2000).
7	Organisation's Structure (OST)	(Bailey & Clarke, 2001; Byrne, 2001; Davenport & Volpel, 2001; De Long & Fahey, 2000; Earl & Scott, 1999; Eginton, 1998; Gopal & Gagnon, 1995; Lloyd, 1999; Nonaka & Takeuchi, 1995; Patel et al., 1999; Sbarcea, 1998; Schein, 1996; Zhou & Fink, 2003).
8	Training and Learning (T&L)	(Armstrong, 2000; Binney, 2001; Carneiro, 2001; Clarke & Staunton, 1989; Garavan et al., 2000; Greengard, 1998a; Lank, 1997; Mayo, 1998; Nonaka, 1991; Pemberton & Stonehouse, 2000; Soliman & Spooner, 2000; Stonehouse & Pemberton, 1999; Wiig et al., 1997).
9	Teamwork (TW)	(Chauvel & Despres, 2002a; Coleman, 1999; Daft et al., 1993; Ellis, 2001; Inkpen, 1996; Skelin, 1999; Smith, 2004; Soliman & Spooner, 2000; Stebbins & Shani, 1995; Woodman et al., 1993).
10	Organisational Culture (OCL)	(Alavi, 1997; Anthes, 1998; Carayannis, 1998; Cole-Gomolski, 1997; Forbes, 1997; Greengard, 1998b, 1998c; Holsapple & Joshi, 2001; Hutchins, 1991; Koudsi, 2000; Leonard-Barton, 1995; Michalisin et al., 1997; Nonaka & Takeuchi, 1995; People-Management, 1998; Probst, 1997; Rubenstein-Montano et al., 2001b; von Krogh et al., 1998; Warren, 1999; Wiig, 1997; Zwell, 2000).
11	IT Strategy (ITS)	(Bhatt, 2001; Chong et al., 2000; Davenport & Prusak, 1998; Eppler et al., 1999; Kling & Lamb, 2000; Marx & Smith, 1994; Orlikowski & Iacono, 2000; Riege, 2005; Seely, 2002; Stewart, 1998; Thomas, 1994; Zuboff, 1988)
12	Existence and Usage of IT (EUIT)	(Abdullah et al., 2002; Basu, 1998; Binney, 2001; Carneiro, 2001; Chau et al., 2002; Davenport, 2000; Dougherty, 1999; El Sawy & Majchrzak, 2004; Garvin, 1993; Gery, 1991; Gold et al., 2001; Halal & Smith, 1998; Hansen et al., 1999; Hayes-Roth & Jacobstein, 1994; Hendriks & Virens, 1999; Mentzas et al., 2001; Neef, 1999; Nissen et al., 2000; Parker et al., 2005; Probst, 1997; Sandelands, 1999; Schreiber et al., 1999; Soliman & Spooner, 2000; Swan et al., 1999; Tapscott, 1996; Tiwana & Ramesh, 2001; Tsui, 2002, 2005; von Krogh & Nonaka, 2001; Wielinga et al., 1997).

Table 5-3: Areas Affecting the Implementation of Knowledge Management System

	Dimension of Critical Areas	Related Research Studies
13	Information Technology Staff (ITST)	(Carneiro, 2001; El Sawy & Majchrzak, 2004; Garvin, 1993; Parker et al., 2005; Riege, 2005; Skyrme, 1998).
14	Information Technology Skills (ITSK)	(Bailey & Clarke, 2001; Dawson, 2000; Goh, 2005; McCann & Buckner, 2004; O'Dell & Grayson, 1998; Oltra, 2005; Patel et al., 1999; Riege, 2005; Tiwana, 2000; Xu & Quaddus, 2005,a and b).
15	Knowledge Creation (KC)	(Amido Rogers, 1996; Argyris & Schon, 1978; Bloodgood & Salisbury, 2001; Crossan et al., 1999; Edvinsson & Sullivan, 1996; Horgan, 1996; Leonard & Sensiper, 1998; Lubit, 2001; Lynn et al., 1996; Marakas, 1999; Mudambi, 2002; Nonaka & Konno, 1998; Nonaka & Toyama, 2002,2003; Nonaka et al., 2000; Patel et al., 1999; Sharkie, 2003; Sveiby, 1997; Zack, 1999).
16	Knowledge acquisition (KA)	(Aoki, 1988; Basili & Caldiera, 1995; Bhatt., 2000; Joyce, 1988).
17	Knowledge transfer (KT)	(Allee, 1997b; Ardichvili et al., 2003; Ash, 1998; Bhatt., 2000; Bloodgood & Salisbury, 2001; Davenport & Prusak, 1998; Davenport, 1994; Fahey & Prusak, 1998; Garvin, 1993; Gilbert & Cordey-Hayes, 1996; Grant, 2003; Grosse, 1996; Hall, 2001; Hinds & Pfeffer, 2003; Hlupic et al., 2002; Moffett et al., 2003; Nonaka & Takeuchi, 1995; Siemieniuch & Sinclair, 1999; Smith & McKeen, 2002; Solomon, 1997; Swaak, 1997; Torbiorn, 1994).
18	Knowledge application (KAP)	(APQC, 1999; Collis & Montgomery, 1995; Dawson, 2000; Demarest, 1997; Henry & Walker, 1991; Sternberg, 1999).
19	Knowledge documentation (KD)	(Anthes, 1998; Ash, 1998; Bassi, 1997; Blake, 1998,2000; Bloodgood & Salisbury, 2001; Cole-Gomolski, 1997; DiMattia & Oder, 1997; Finerty, 1997; Hall et al., 1992; Hibbard, 1997; InfoWorld, 1997; Laberis, 1998; LaPlante, 1997; Mayo, 1998; Nelson & Winter, 1982; Nerney, 1997; Papows, 1998; Seng et al., 2002; Yeh et al., 2000).

Table 5-3: Areas Affecting the Implementation of KMS (cont.)

## 5.4 Summary

This chapter identified the critical success areas for KMS implementation and the benefits associated with these. It ends by introducing the tools and techniques used in the implementation of a KMS.

At the end of Chapter Four, it was noted that after reviewing some of the KM frameworks and methodologies in the literature, items categorised as the CKIAs associated with KMS implementation could be readily identified, yet it seemed impossible to provide a solution that would be appropriate for every organisation. As a result, further analysis has been undertaken in this chapter through a comprehensive review of additional relevant literature, to provide a base upon which to build a rich picture regarding the critical areas for KMS

implementation. Furthermore from a consideration of these CKIAs in a variety of scenarios, it is possible to establish that if the context of the environment in which organisations are working is fully taken into account, attention to these factors can enhance the implementation of KMS within organisations and the potential for positive business results.

# **CHAPTER 6**

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## **RESEARCH METHODOLOGY**

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### **6.1 Introduction**

This chapter presents the methodological framework employed to achieve the aims and objectives of the research. First, the research philosophy and approach are introduced, and the choice of the case study strategy is justified. Second, the research processes and design are explained; and the ranges of research methodologies that may be employed in conjunction with research approach and research techniques are discussed. Third, the research techniques in terms of data collection and analysis are introduced, as well as the rating and weight values techniques, and a discussion regarding the sample choice is presented. Finally, this chapter explains how triangulation is carried out throughout the entire research methodology.

## 6.2 Research Philosophy and Approach

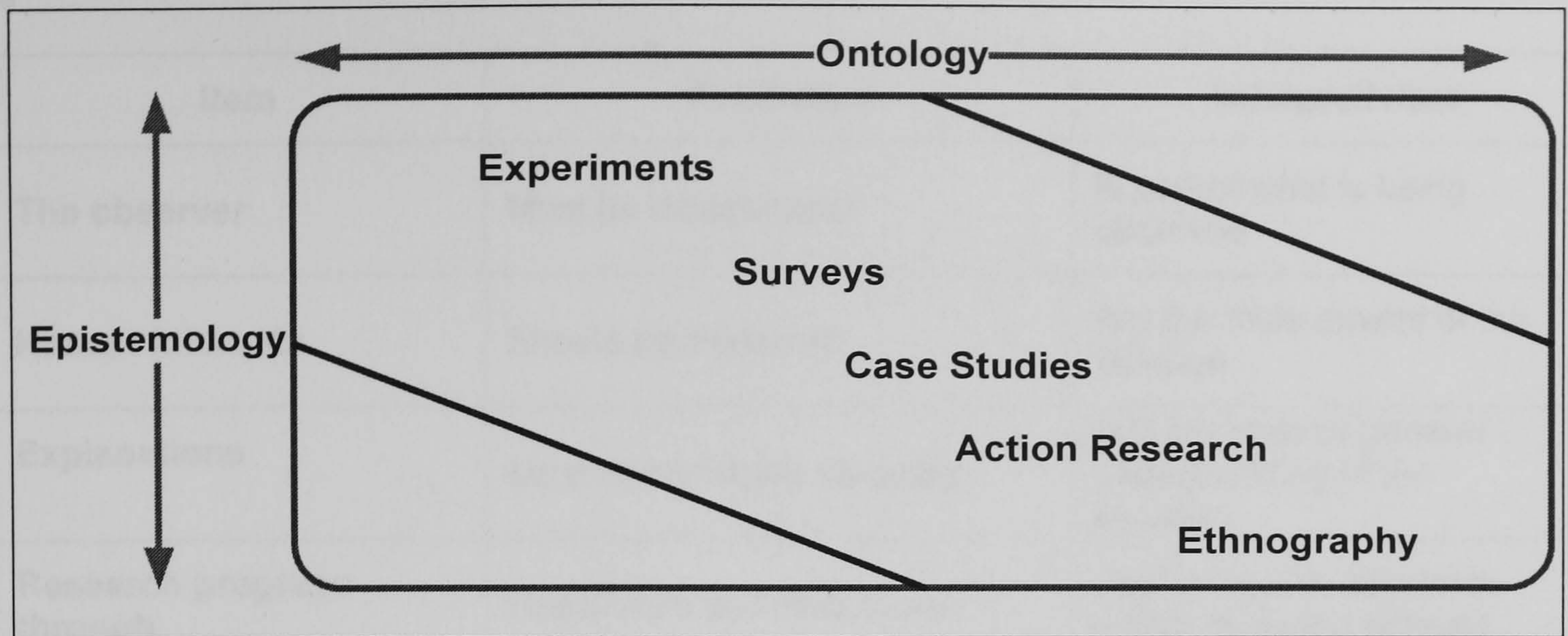
Research philosophy and approach are about designing research activities, including the collection of data in ways that are most likely to achieve the research aim. There are at least three reasons for emphasising the importance of understanding the philosophical issues when conducting a research study (Easterby-Smith *et al*, 2002), these being:

- To clarify the research design.
- To identify and explore why certain research designs are more suitable than others under the different circumstances
- To develop research designs (that may be beyond a researcher's experience)

Yin (2003) asserts that prior to the adoption of any research approach; the following issues should be taken into consideration:

- The type of research question posed;
- The necessity of intervention to control variables; and
- The focus on contemporary events.

Bell (1993) suggests five main approaches which are applicable for conducting both scientific and social research (Action research, Ethnographic research, Surveys, Case studies and Experiments). In the same context, Sexton (2003) suggests that these approaches/ options occupy various positions along a continuum according to their ontological and epistemological foundations see Figure 6-1.



**Figure 6-1: Research Approaches Continuum**  
(Sexton, 2003)

Case studies, action research and ethnography are separated philosophically from experiments and surveys, both epistemologically and ontologically. Whilst case studies, action research and ethnography are underpinned by the notion of interpretivism, experiments and surveys are in the realms of positivism. Easterby-Smith *et al.* (2002) highlighted the differences between positivism and the interpretivism showing the implications for research methodologies, as presented in Table 6-1:

Item	Positivism	Interpretivism
<b>The observer</b>	Must be independent	Is part of what is being observed
<b>Human interests</b>	Should be irrelevant	Are the main drivers of the Science
<b>Explanations</b>	Must demonstrate causality	Aim to increase general understanding of the situation
<b>Research progress through</b>	Hypothesis and deductions	Gathering rich data from which ideas are induced
<b>Concepts</b>	Need to be operationalised so that they can be measured	Should incorporate stakeholder perspectives
<b>Units of analysis</b>	Should be reduced to simplest terms	May include the complexity of "whole" situations
<b>Generalisation through</b>	Statistical probability	Theoretical abstraction
<b>Sampling requires</b>	Large numbers selected randomly	Small numbers of cases chosen for specific reasons

**Table 6-1: Contrasting Implications of Positivism and Interpretivism**  
(Easterby-Smith *et al* 2002)

Amaratunga *et al.* (2002) have summarised the strengths and weaknesses of both notions/ approaches, as depicted in Table 6-2.

	<b>Strengths</b>	<b>Weaknesses</b>
<b>Positivism or (quantitative paradigm)</b>	<p>They can provide wide coverage of the range of situations</p> <p>They can be fast and economical</p> <p>Where statistics are aggregated from large samples, they may be of considerable relevance to policy decisions.</p>	<p>The methods used tend to be rather inflexible and artificial</p> <p>They are not very effective in understanding processes or the significance that people attach to actions</p> <p>They are not very helpful in generating theories</p> <p>Because they focus on what is, or what has been recently, they make it hard for policy-makers to infer what changes and actions should take place in the future.</p>
<b>Interpretivism or (qualitative paradigm)</b>	<p>Data gathering methods seen more as natural than artificial</p> <p>Ability to look at change processes over time</p> <p>Ability to understand people's meaning</p> <p>Ability to adjust to new issues and ideas as they emerge</p> <p>Contribute to theory generation.</p>	<p>Data collection can be tedious and require more resources</p> <p>Analysis and interpretation of data may be more difficult</p> <p>Harder to control the pace, progress and end-points of research process</p> <p>Policy-makers may give low credibility to results from qualitative approach.</p>

**Table 6-2: Approaches Strengths and Weaknesses**  
(Amaratunga *et al.* 2002)

Positivism is rooted in the ontological assumption that reality is external and objective, and that any researcher conducting the same investigation, would find the same result. This view is known as traditional realism. Interpretivism, on the other hand, is ontologically based on the view that the world is socially constructed and subjective, representing the opposite end of the ontological spectrum, idealism (Gummesson, 1991). The difference between these two notions/ approaches is mainly based on their ontological, epistemological and axiological assumptions. Hence, any research ought to be explicit about these approaches (Sexton, 2003). The following sections highlight the philosophical approach adopted in this research.



### 6.2.1 Research Philosophy

The selection of either positivism/ interpretivism may be determined by the nature of the research problem. Furthermore, this selection provides the basis for judging the philosophical approach of the study (Sexton, 2003).

This research is an attempt to 'theory build' rather than 'theory test' as the intention is to construct a framework for KMS implementation. This involves the study of complex interactions between people, techniques, technological influences and KM processes in real-life settings. Moreover, this research study is predominately context-specific, the prerequisite of which therefore require a research methodological approach which appropriately engages 'uncontrolled environment' (Yin, 2003).

The objective of developing a conceptual framework calls for the study to be more exploratory in nature. In this regard, the philosophical approach suggested for the study is that of interpretivism.

There are three possibilities for the research method to be adopted (see Figure 6-1): Ethnography research, action research or case study research. The ethnographic approach is particularly appropriate when trying to understand the reasons for the behaviour of the subject over a prolonged period of time within a natural setting (Burns, 2000). Action research requires solving the problem by becoming part of the problem environment, with a goal to change the status quo of the situation by changing the attitudes or the behaviour of the participants. The case study approach as defined by Yin (1994) notes that this research should be "*an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident*" (Yin, 2003).

Reviewing the different possible research approaches it is found that the case study approach would be the most appropriate approach to fulfil the aim and objectives of the research.

### 6.2.2 Research Approach

The study is mainly concerned with answering the questions 'how' and 'what' within the context of organisations and processes that occur in social setting. However, the research does not intend to observe behavioural patterns or specific phenomena during a specific period of time. Hence, the ethnographic approach does not apply to this study. Furthermore, although the study concentrates on contemporary events, it does not aim to control the environmental variables and hence, action research, is not particularly relevant.

This study occurs in an uncontrolled environment, where it is important to describe the relationships that exist, subsequently, the case study approach would be the most applicable approach for this research. Additionally, a case study approach facilitates the capturing of a greater level on granularity, particularly where a large number of variables exist (Long *et al*, 1985; Yin, 1994; Robson, 1993; Merriam, 1988; and Kerlinger, 1986). Furthermore, a case study approach results in an indispensable understanding of phenomena especially where variables and relationships are not fully defined (Snow and Thomas, 1994).

A case study approach results in an indispensable understanding of phenomena at early stages in the research, especially when variables and relations are not defined (Snow and Thomas, 1994), and this may be the case within the KM phenomena.

Hall (1993) conducted case studies to test strategic analysis techniques for intangible resource capabilities, and Nonaka and Takeuchi (1995) conducted

multiple case studies to develop their model for an organisational KC process. Moreover, Brown and Eisenhardt (1998) used case studies, albeit with an inductive approach, to develop their competitive model. Roos and Roos (1997) applied deductive case studies to the first phase of their research to test a preliminary process model for assessing intellectual performance in enterprises. In addition, Leonard (1999) conducted numerous field case studies to explore the implications of processes, systems, and culture on KM. Finally, Seviby (1997) completed a series of field studies to test his preliminary measurement model for KM.

The successful use of case studies in similar research situations as this study set the grounds for the interpretivism approach to be adopted for this research. Notwithstanding these issues, the complexity of KM and its implementation encouraged many researchers to deploy case study approaches for their studies (see, for example, Carrion *et al.*, 2004; Schwikkard and Toit, 2004; Oltra, 2005; Xu and Quaddus, 2005<sup>c</sup>). Furthermore, Xu and Quaddus, (2005<sup>d</sup>) used a qualitative research approach to develop a comprehensive KM model. There were three stages in this comprehensive research. The first stage was the field study. The field study adopted the semi-structured interview approach to better understand the participants' perceptions of KMS at the organisational and individual levels. It is very common to get qualitative data through interviews (Xu and Quaddus, 2005<sup>d</sup>). Evidence exists that interviewing has been used as an effective tool to collect data for thousands of years (Whitely *et al.*, 1998). Like any other research method, the case study involves choosing a sample of companies using either a random or a non-random method (Zikmund, 2000)

Some of the advantages of using case studies which are relevant to KM and for research of the same nature are introduced by Bajaj (1998) as follows:

- Case study produces concepts which can be related to the phenomenon and which 'intimately' describe the phenomenon being studied. Hence, a

number of concepts can be identified and a clearer view of the factors which determine the KMS implementation requirements can be obtained; and

- The participants in the research themselves generate the factors, which places the responsibility of analysis on the researchers. Standard empirical studies rely on earlier research and theory and these concepts are then 'imposed' upon the respondents, actively influencing their ability to respond objectively.

Two key issues emerge here which the case study has to deal with. First, there is the question of what kind of interventions has to be discovered in order to effect and implement KM perspectives. Secondly, what kind of difficulties might be anticipated in this endeavour?

In respect to the first question, a great deal of the literature on KM is concerned with its meaning and scope (see, for example Edvinsson and Sullivan, 1996; Stewart, 1998; Storey and Barnett, 2000). Furthermore, KM has been used to cover initiatives including 'intellectual capital' and 'OL' attempts with IT tools (Ruggles, 1998) (see also Chapter 3). Therefore, there is a need to run through these points in depth (preliminary research) to find out the relevant elements concerning KM implementation. The second question regarding the problems and the barriers that might obstruct the implementation is covered in this research (secondary research) to find out the significance of those barriers.

The primary purpose of this exploratory case study is to determine how LPUBs can identify and measure CKIAs, in the context of the emerging field of KM. Based upon the literature on KM and Strategic Management, the term CKIAs has been formulated as a label for key KM enablers (Thompson *et al.*, 1997). Furthermore, enablers and barriers are often misunderstood precepts that can leverage success or failure of KM initiatives. The Global KM

Benchmarking Survey (Knowledge Associates, 2001), and the KPMG surveys (1998; 2000) for example, explored the idea of enablers and barriers at length under the term 'critical success factors' or 'key drivers'. Surveys which employed the concept of enablers also evoked that of barriers, and vice-versa, which is to be expected since one term has little meaning without the other.

## **6.3 Research Processes**

### **6.3.1 Literature Review (Theoretical Study)**

The first aim was to review the literature and categorise it in a way that will assist others who approach this topic to better understand and position the diverse aspects of KM being presented in the literature.

The literature review (Chapters 3, 4 and 5) presented a comprehensive understanding of KM in two main contexts: those of managing knowledge, and implementing KM initiatives. The aim of the literature review was:

- to give a greater understanding of the KM phenomena in previous work in this area;
- to establish a list of the CKIAs; and
- to establish the conceptual framework (interpretation framework) to develop and support KMS implementation.

Moreover, based on the analysis of this literature, it is possible to define and further clarify the aim and objectives of this research, leading to an in-depth conceptualisation of the KMS Framework. It is envisaged that this framework will help leverage KMS within the Libyan banking industry.

### 6.3.2 Research Design

As stated previously, the purpose of this study is to explore the situation related to KM within the chosen banks, according to several elements described in the literature review extending over Chapters 3, 4 and 5, and design a method to identify and measure the CKIAs. According to Yin (1994) "a research design is the logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of a study". The overall research methodological design is depicted in Figure 6-2.

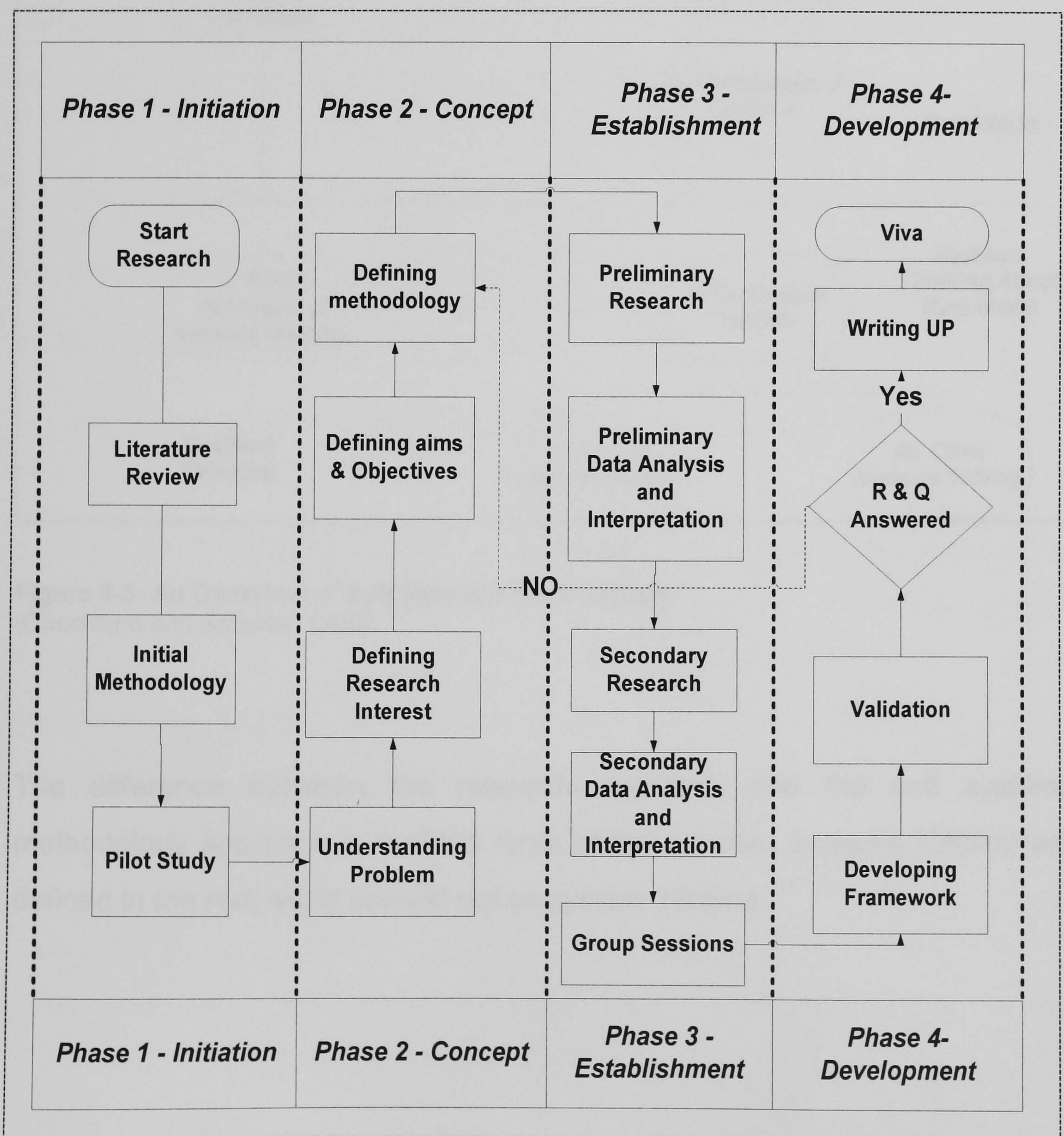
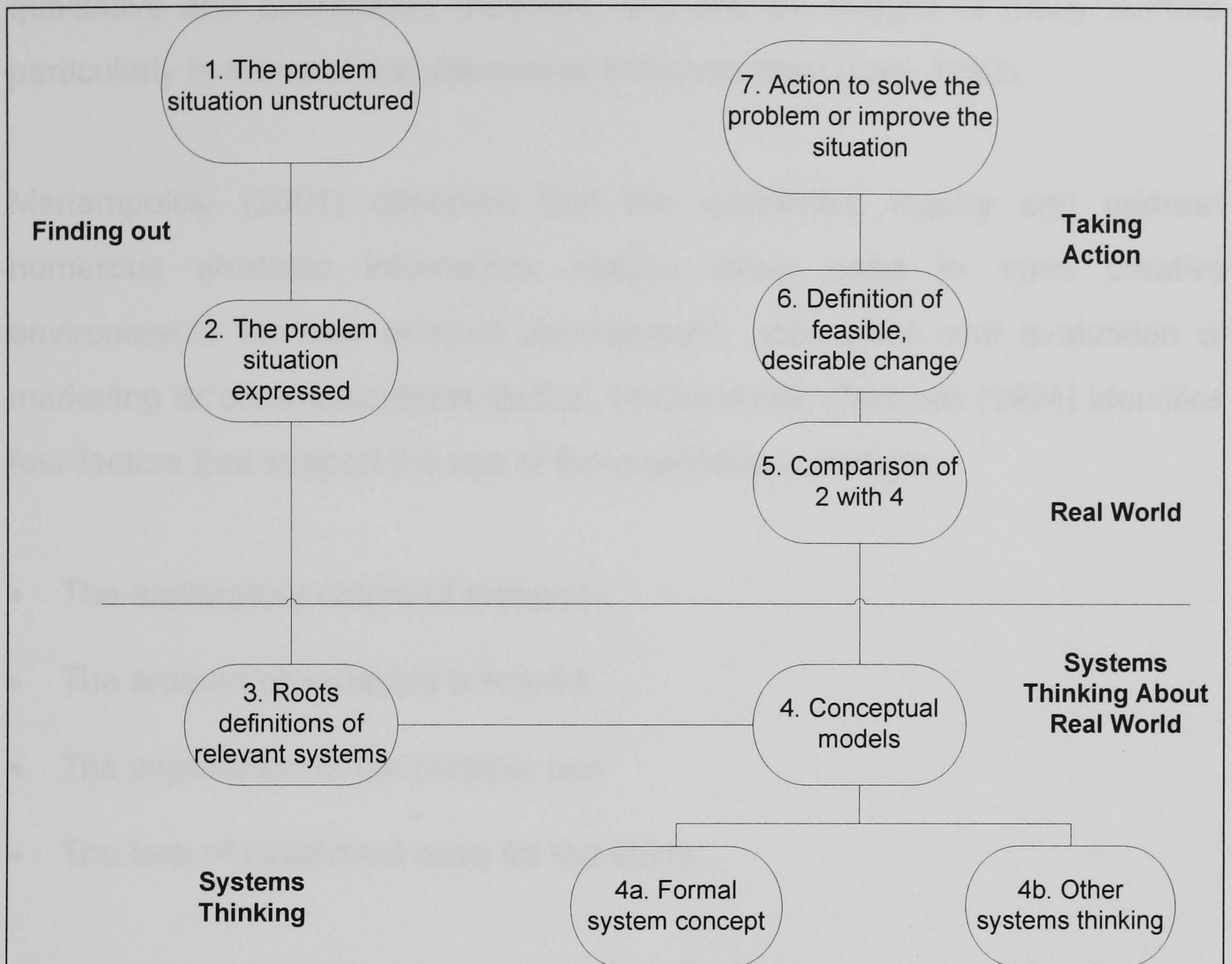


Figure 6-2: Research Methodological Design

This research approach is similar to the soft systems methodology (Checkland and Scholes, 1990; and Wilson, 1990) - see Figure 6-3.



**Figure 6-3: An Overview of Soft Systems Methodology**  
(Checkland and Scholes, 1990)

The difference between the research approach and the soft systems methodology approach is that the roots of the relevant systems (CKIAs) are defined in the real world context not as system thinking.

### 6.3.3 Research Techniques

#### 6.3.3.1 Data Collection Techniques

There are two types of data collection methods commonly used; these are qualitative and quantitative methods, and are the subject of many authors' particularly in terms of the differences between them (Lee, 1992).

Mariampolski (2001) observes that the qualitative inquiry can address numerous strategic information needs, when used in such creative environments for new product development, conception and evaluation of marketing or communications tactics. Furthermore, Creswell (1994) identifies four factors that support the use of the qualitative paradigm:

- The exploratory nature of research;
- The amount of variables unknown;
- The importance of the context; and
- The lack of theoretical base for the study.

Strauss and Corbin (1990) identify the tasks of qualitative research as "*to uncover and understand what lies behind any phenomenon about which little is yet known ... or ... to gain novel and fresh slants on things about which quite a bit is already known*". Such research relies on people's own words, official documents, field notes, audio/video-tapes, etc. for data gathering and collection, its goal being, according to Miller (1991), to provide accurate measurement for social actions by explaining the causal relationships related to specific events and measuring events by objective criteria. The method is confirmatory and uses deductive logic (Byeh, 2004), providing numeric description, statistical, and empirical data. In this understanding, Trochim (1999) stated that:



*“we call data quantitative’ if it is in numerical form and’ qualitative’ if it is not. Notice that qualitative data could be much more than just words or text. Photographs, videos, sound recordings and so on, can be considered qualitative data. All quantitative data based upon qualitative judgments; and all qualitative data can be described and manipulated numerically”.*

Qualitative and quantitative methods can be seen as complementary (Preece, 1994), with different emphases in different disciplines, but sharing a heritage of logical thought and empiricism. The use of multiple approaches enables triangulation of data to occur, which can assist clarify vis-à-vis interpretation. Yin (1994) support this view stating that the case studies that adopt such methods are rated more highly than those that rely only on a single source of data.

This research has adopted a qualitative approach because of its applicability/suitability in organisational/environmental research; it has been used for examining management and IT issues (Muzumdar, 1998, Olson, 1981, Thompsen, 1999; Orlikowski *et al.*, 1991). Furthermore, the qualitative approach is considered to be the most appropriate approach when the focus is on a contemporary phenomenon within a real-life context (Yin 1994; Benbasat *et al.*, 1987; Remenyi *et al.*, 1998; Merriam, 1988).

The study also adopted a quantitative paradigm, in which the most important areas and variables affecting KMS diffusion are found via empirical preliminary research and as Benbya and Belbaly (2005) state: *“some authors provided empirical evidence based on qualitative cases with regard to the performance implications of KMS (Hansen et al., 1999; Gupta and Govindarajan, 2000; Szulanski, 2000)”*. Consequently, a linked study approach, using mixed methodologies (Tashakkori and Teddlie, 1998), was undertaken in which quantitative and qualitative field studies were undertaken.

Yin (1994; 2003) emphasises the importance of multiple source of evidence in case study research. Furthermore, he has identified six sources of data

collection within case study approaches, these being: documents, archival records, interviews, direct observation, participant observation and physical artefacts. However, interviewing is found to be the most widely used data collection technique in a qualitative approach because of its high level of flexibility and its capability to produce data of great depth. Consequently, the research adopted the interview technique as one of the main strategies to obtain the necessary data for this research. This has, however, not been at the expense of other available techniques, such as questionnaire surveys and group sessions that also seemed to have benefits for this research.

Interviews, group sessions and questionnaires allow for data triangulation for the first, second, third and fifth objectives (see Chapter 1). Additionally, interviews with strategic and operational decision-makers (especially top level and operational level managers) provide another stream of data, which enables the evaluation of the framework (seventh objective). Objectives four and six are ascertained from data analysis phase (see Chapter 7 and Chapter 8).

Due to the immensity of the concept of KM, it is a complex task to identify or standardise those factors that are important in terms of KM implementation. Some authors emphasise the importance of IT in KM, whereas others stress that people are the most important component. As a result, the literature develops different implementation factors of KM and the practitioners are using different methods for different aspects of KM (Raisinghani and Meade, 2005). In order to accomplish the objectives of this study, it is necessary to explore the most important factors so that an appropriate KMS implementation strategy can be developed for the banking industry. The major difficulty in accomplishing this task was to establish a technique for data collection.

Based on the nature of the research, the literature review and the research approaches applicable to this research, five phases of data collection and validation have been identified, namely:

- **Phase 1:** pilot study and initial scanning-based semi-structured interviews.
- **Phase 2:** preliminary research:
  - In-depth unstructured interviews, and
  - In-depth structured interviews (by questionnaire)
- **Phase 3:** secondary research
  - In-depth structured interviews (by questionnaire)
- **Phase 4:** focus group sessions
- **Phase 5:** validation of the framework
  - Workshop
  - Semi-structured interviews

Phases 1 and 2, the interviews had a twofold purpose:

- (1) To develop a basic understanding about the nature of the implementation of KM, evaluate and validate the questionnaires (pilot study);
- (2) To identify the relevant key dimensions (CKIAs) leading to KM implementation and the awareness of the KMS at the LBs (preliminary research).

Phase 3, the interviews with the three banks had a twofold purpose:

- (1) To learn about the individuals' views concerning the nature of the important areas of KM implementation, and
- (2) To assess the current situation regarding those critical KM implementation areas.

In phases 1, 2, and 3 the interviews were used to build the framework for KM implementation within the Libyan public baking industry. In phase 4, the validation of the framework was conducted.

### **Phase 1: Pilot Study**

A pilot study was designed for a number of reasons. Firstly, it was necessary to become more knowledgeable about the main topic (most of KM literature is based on a western perspective), prior to considering the implementation of KM in organisations in developing countries. Secondly, to eliminate any ambiguity regarding the important areas related to KMS implementation. Finally, it is always a good practice to test the research instrument (in this case, the questionnaire), for its suitability to the intended purpose. This is evidenced by Denzin and Lincoln (1998) who suggested that when there is a high degree of unpredictability, a pilot study is a good means to add value to the research. The comments obtained from the pilot study were used to improve and refine the questionnaire.

In the pilot study four core areas were investigated, these being:

- How banks understand KM;
- The importance of KM to the banking sector;
- What KM activities have been performed; and
- What are the basic infrastructures for KM implementation?

The pilot study was conducted in May 2003, with two leading banks, one based in the UK (Bank 1), and the other based in Libya (Bank 2) (see Table 6-4). A semi-structured questionnaire was used to elicit core, qualitative information from these two organisations, and the recipients were domain

experts who were IT or HR managers with special interest or responsibility for KM or information management.

Bank	Turnover	Total Workforce	Core Business Area	No of People Interviewed
Bank (1) UK	£25M	300	Trade and Investment	2
Bank (2) Libya	£60M	500	Trade and Investment	2

Figure 6-4: Banks Turnover and Workforce

Some new issues were raised in the pilot study, which resulted in additional questions relating to CM, IT, and the importance of the responsibility for KM. Consequently, the pilot study is regarded to have been a valuable part of this research study.

## Phase 2: Preliminary Research

This phase was exploratory by nature, and involved conducting a literature review and field study, in which both qualitative and quantitative data collection methods were used. The primary objective of this phase was to identify the important areas and variables affecting the adoption and implementation of KMS, and simultaneously to investigate the awareness of KM within the LPUBs. In this phase, the two data collection techniques of semi-structured interviews, and open-ended questionnaire were used, and both were derived from the pilot study, and the literature.

Oltra (2005) supports the use of semi-structured interviews noting:

*“A longitudinal study, that involves say, semi-structured interviews with the respondents, would give a better comprehension of these critical success factors CSFs”.*

The open-ended questionnaire (Sveiby and Simons, 2002) was designed to test the validity of the factors and variables that were believed to have an influence on KMS implementation.

The interviews allowed the researcher to discuss the drivers and barriers of KM in the organisation more closely, and in this exercise, over 25 senior executives from IT, HR, Planning and Developments (P&D), and core business sectors were involved. This diversity of participants (actors) was necessary to gain a holistic appreciation of the totality of their experiences in their functional or professional group, and the broad sampling helped to generate a wide and comprehensive variety of opinions, views and issues related to KM.

### **Phase 3: Secondary Research**

The aim of this phase was to obtain important measures that determine the relationship/ effectiveness (Carneiro, 2001) between the critical knowledge areas in relation to KM. In this respect, how to connect the established measures of KM implementation with the Banks' mission statements was considered. During this phase, the intention was to explore how to isolate, relate, or integrate any of the measures of the critical knowledge areas for KMS implementation missions. The IC literature presents several arguments in this regard, Edvinsson (1997), for example, emphasises that an organisation should only measure what is strategically important for growth (the things that will guide the company into the future). Furthermore, Sveiby (1997) asserts that the choice of indicators depends on the company's strategy.

Stewart (1994) sums up the process offering three principles for the implementer to follow: (1) keep it simple - having too many measures can blur focus and lessen their importance to users; (2) measure what's strategically important; and (3) measure activities that produce intellectual wealth. In summary, Stewart (1997) emphasises that only areas whose leverage will increase the value of the product or service performed, should be identified for inclusion within the KMS implementation. Cognisant of these imperatives, it was deemed necessary to apply an instrument which would evaluate an

organisation's current status relative to the implementation of KM. Hence, a questionnaire was developed to establish and assess the organisation's status relative to the critical areas in KM implementation. This method serves as an effective means to start assessing the strategic exploitation of CKIAs.

In this phase the semi-structured interview technique was used in order to gather 'rich' data from the interviewees (see Chapter 7). McCracken (1988) supports semi-structured interviews and discusses how interviews can draw on the past as well as the present to extract a deeper understanding of an issue than can be gained from a simple survey-type inquiry. However, during these semi-structured interviews, there was also the possibility to explore secondary issues (unscripted) as they emerged during the meetings, because of the flexibility offered by the nature of the interviews. This method also helped to minimise data absence, interpretation errors, and maximised commitment to the project by individuals, who were happy to provide more detailed responses than if they had simply been given a questionnaire to complete (Levett and Guenov, 2000).

#### **Phase 4: Group Sessions**

The main purpose of conducting these group sessions was to fill in the information gaps that remained after the literature review and the preliminary or secondary data collection stages. Such information was concerned with particular aspects related directly to the understanding of the CKIAs and their involvement in KMS implementation. Group sessions are a useful and effective naturalistic approach in this context for studying the emerging trends and issues, as they provide a conducive platform for sense-making (Krueger and Casey, 2000). This approach is qualitative in nature, and the recommendation in the literature is that a group of 4-6 participants sharing similar backgrounds, attitudes and behavioural patterns is led by a moderator, through a (typically) two hour discussion, of a particular topic (Greenbaum, 1998). In this particular research, three such group sessions were held, the

first being allocated for discussing the preliminary research findings, the second focusing on the secondary research finding, and the third group discussing the overall research results. These focus groups were very useful mechanisms for making sense of fuzzy KM issues and assessing the level of KM understanding among senior managers, IT, HR, and P&D managers. The approach also made it possible to accommodate multi-viewpoint sessions, and to elicit as many points of view as possible. Additionally, it afforded an opportunity for constructing a collective mental profile of the practitioners whilst appreciating a range of practical issues perceived according to their backgrounds and work contexts, apart from the theoretical discourse or anecdotes commonly found in the literature. The group sessions can be said to have been successful in that they did provide most of the missing data needed for this research.

### **Phase 5: Framework Validation**

This phase involves the comparison of the pre-field and post-field KMS implementation framework in order to determine whether the framework would enable the banks to implement a successful KMS. In the pre-field investigation, a workshop with members of the LBs was conducted, and in the post-field activity, meetings with the UK bank that had already implemented a KMS, were held to ensure and increase the construct validity of the study (Yin, 1994).

#### **6.3.3.2 Data Analysis Techniques**

The next most important factor to be considered in respect of the chosen research techniques is the method of data analysis. This aspect is often fraught with several difficulties within the context of case study research (Yin, 2003).

Some methods for case study data analysis are available, but it is necessary to establish a data analysis strategy before collecting the data, since the



likelihood is that a great amount of data will be collected, and without a strategy, the interpretation would be problematic. Furthermore, there is a danger that in the absence of a data analysis plan (before beginning the case study) unwanted or inappropriate data may be gathered.

Yin (2003) describes three strategies for case study data analysis. The first and most preferred, is to rely on the theoretical propositions upon which the original research questions were based. The second strategy is thinking about the rival explanations. And the third and least preferred strategy is to develop a case description. Furthermore, Yin (2003) explains a few data analysis techniques to be used within these strategies, these being: pattern matching, explanation building and logic models. Pattern matching basically compares an empirically-based pattern with the predicted one (Yin, 2003). Trochim (1989) considered pattern-matching as one of the most desirable strategies for analysis. This technique compares an empirically based pattern with a predicted one.

Explanation-building is considered a form of pattern-matching, in which the analysis of the case study is carried out by building an explanation of the case. This implies that it is most useful in explanatory case studies, but it is possible to use it for exploratory cases as well as part of a hypothesis-generating process.

Logic models analysis is a well-known technique in experimental and quasi-experimental analysis. It is possible that a single dependent or independent variable could make this simpler than pattern-matching, but sometimes there are multiple changes in a variable, making starting and ending points unclear.

In this study because of the triangulation approach used to collect data, it is necessary to use multiple data analysis techniques as well. Triangulating methods of analysis is commonly recommended to overcome validity

problems (King *et al*, 1994; Balnaves and Caputi, 2001). When multiple threats to the validity of measures emerge, the use of multiple sources of data generated by multiple methods of analysis takes place to overcome these threats. If the different measures seem to lead to similar conclusions, then the level of uncertainty in the results is reduced. Conversely, results that do not converge can point to either error in data analysis and collection or, for assessment purposes, to areas where changes in the processes involved are indicated. Usually a combination of different types of both quantitative and qualitative methods for producing measures is recommended (King *et al*, 1994).

This research used 'explanation building' to analyse the qualitative case study data. This research uses (in terms of the qualitative research) explanation-building as an iterative process that begins with a theoretical statement, refines it, revises the proposition, and repeating this process from the beginning. Furthermore, the secondary research uses pattern-matching (In terms of the quantitative research) as this technique compares an empirically based pattern with a predicted one. If the patterns match, the internal reliability of the study is enhanced. However, the actual comparison between the predicted and actual pattern might not have any quantitative criteria. Notwithstanding these issues, it was necessary to provide a checklist of KM implementation requirements for use in assessing the importance of these requirements, as well as the organisation's current environment in relation to those requirements. Furthermore, as noted by Levett and Guenoy (2000), it is necessary to evaluate in advance, the scales used to measure each of requirements. This procedure was conducted according to the methodological suggestions of Churchill (1979) and Anderson and Gerbing (1988), to assess the respective uni-dimensionality, reliability and validity of the variables. Hence, the statistical technique of 'confirmatory factor analysis' using SPSS 11.5 software was employed.

### 6.3.3.3 Rating and Weight Value Technique:

A scale has been developed which both recognises the multi-dimensional characteristics of learning and collects explicit information about the critical KMS implementation areas. The rating of the responses was based on the Likert scale (Easterby-Smith *et al.*, 1991; Preece, 1994), considering the qualitative nature of the questions asked in preliminary research. Respondents were asked to rate the level of importance they placed on each element using a five-point Likert scale (1= not important at all, 2= slightly important, 3= moderately important, 4= very important, 5= extremely important).

In the secondary research the choice of the variables representative of the domain experts and each critical dimension was distilled from the KM literature and the preliminary research. The resulting five categories of answers were provided for each question starting with E “not applicable” (N/A) = 1; D “urgently requiring attention” (URA) = 2; C “requiring more attention” (RMA) = 3; B “further improvement possible” (FIP) = 4; and A “satisfactory/best practice” (BP) = 5. This research follows the capability maturity model CMM methodology (Paulk *et al.*, 1993).

### 6.3.3.4 Sampling Techniques

The meanings and perceptions of knowledge and KM differ between organisations and across industries (LAW, 2001). In this context, this research aims to explore a diverse range of KM-related issues, from the organisational, technological, managerial and conceptual HR perspectives.

In the selection of study subjects and/ or participants, it was decided to focus on senior managers and practitioners with IT, HRM, and R&D - related backgrounds. These categories were chosen from the literature review findings and thus deemed appropriate to capture a holistic appreciation of KM, (especially regarding technology and HR implementation issues). Therefore,

the intention was to solicit viewpoints, opinions and perceptions from these banking industry leaders and practitioners, which could contribute to the empirical-grounding of fresh insights and structures on KMS implementation in the banking sector. This approach will enable the framing of issues for analysis, highlighting of industry concerns, and the establishment of missing links and new relationships among existing practices and research.

During the pilot study it was deemed appropriate to sample three banks. In this context the CBL, a specialist bank, and a commercial bank was chosen (see Chapter 2).

### **6.3.3.5 Triangulation**

In a research context, triangulation refers to the process of checking one set of information against another, through the combination of two or more methods of data collection. Patton (1987) discusses four types of triangulation as follows:

- Theory triangulation
- Data triangulation
- Investigator triangulation
- Methodological triangulation

'Theory triangulation' involves the use of multiple professional perspectives to interpret a single set of data/information. Unlike investigator triangulation, this method typically entails using professionals from outside the field of the study. One popular approach is bringing together people from different disciplines; however, individuals within disciplines are used if they are in different status positions. In theory it is believed that individuals from different disciplines or positions bring different perspectives. Yin (1994) provides a list of data sources that can be used during 'data triangulation' such as interviews,

analysis of documents and direct observation. Bratthall and Jorgensen (2002) extended Yin's (1994) work by adding some practical guidelines for use during data source triangulation. 'Investigator triangulation' involves using several different investigators/evaluators in an evaluation of the programme. This would manifest as an evaluation team that consists for example of colleagues within the same university area/field of study. In order to triangulate, each different evaluator would study the programme using the same qualitative method (interview, observation, case study, or focus groups). The findings from each evaluator would be compared. If the findings from the different evaluators arrive at the same conclusion, then validity has been established. If the conclusions differ substantially, then further study is warranted to uncover the "true" and "certain" finding. 'Methodological triangulation' is concerned with using different methods of research such as case studies, surveys and experiments.

In this research, triangulation in terms of theory, data sourcing and investigators, is employed to fulfil the validity of the research approach. Validity, in this research, relates to whether the findings of the study are true and certain. "True" in the sense of the research findings are accurately reflecting the real situation. "Certain" in the sense of the findings are being backed by evidence. In terms of 'theory triangulation' is used in the preliminary and secondary research incorporating people from different disciplines (HR, IT, accountant, etc.) and different positions (executives, deputed, managerial, employees etc.). In terms of 'data triangulation' the research combined qualitative and quantitative methods; and finally the research used 'investigator triangulation' during the validation stage in Libya and the UK.

## **6.4 Summary**

The study has been completed using a number of research strategies and techniques in order to develop the theories leading to the answers to the

research questions raised. The approach followed in this research allowed for substantial triangulation, in order to reduce the biases inherent in the case study strategy.

In term of research process, this study has followed the logic steps that started and continued with a comprehensive review of the literature, conducting a pilot study, conducting the case study and finally validating the study framework. As effective methods for collecting rich and broad-based data, both qualitative and quantitative techniques were used, thereby allowing flexibility in data collection, and providing the most appropriate means of securing rich information concerning the emerging trends and issues within the subject area of the research study. Furthermore, the scaling and sampling methods that were used deemed appropriate to be adopted in this research due to the nature of the questions raised. Finally, this research used a multimethod (triangulation) that combined various research theories, investigators, and sources of data. The use of multiple methods increases the robustness of results because findings can be strengthened through triangulation. The cross-validation is achieved when different kinds and sources of data converge and are found congruent (Yin, 1994).

The following chapters report on the analysis of all the data collected, and identifies the CKIAs and their effectiveness in the LBs' environment. It reports on the gap analysis technique used to determine the difference between the desired state of affairs in these areas, and the actual situations. Finally, it discusses the findings from the group sessions conducted in Libya, which contributed to the adjustment of the results.

# **CHAPTER 7**

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## **DATA ANALYSIS**

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### **7.1 Introduction**

This chapter focuses on the description and analysis of the data obtained from the preliminary research. Most of the related data were collected from three Libyan public banks through face-to-face interviews. The preliminary research was divided into two parts. Part one was semi-structured interviews with the aim of providing clear evidence about how LPUBs understand the term 'knowledge' and 'KM' as well as the importance of KMS to LPUBs. In the second part open-ended questionnaire was developed from a set of 19 CKIA identified from the literature review (see Figure 7-1).

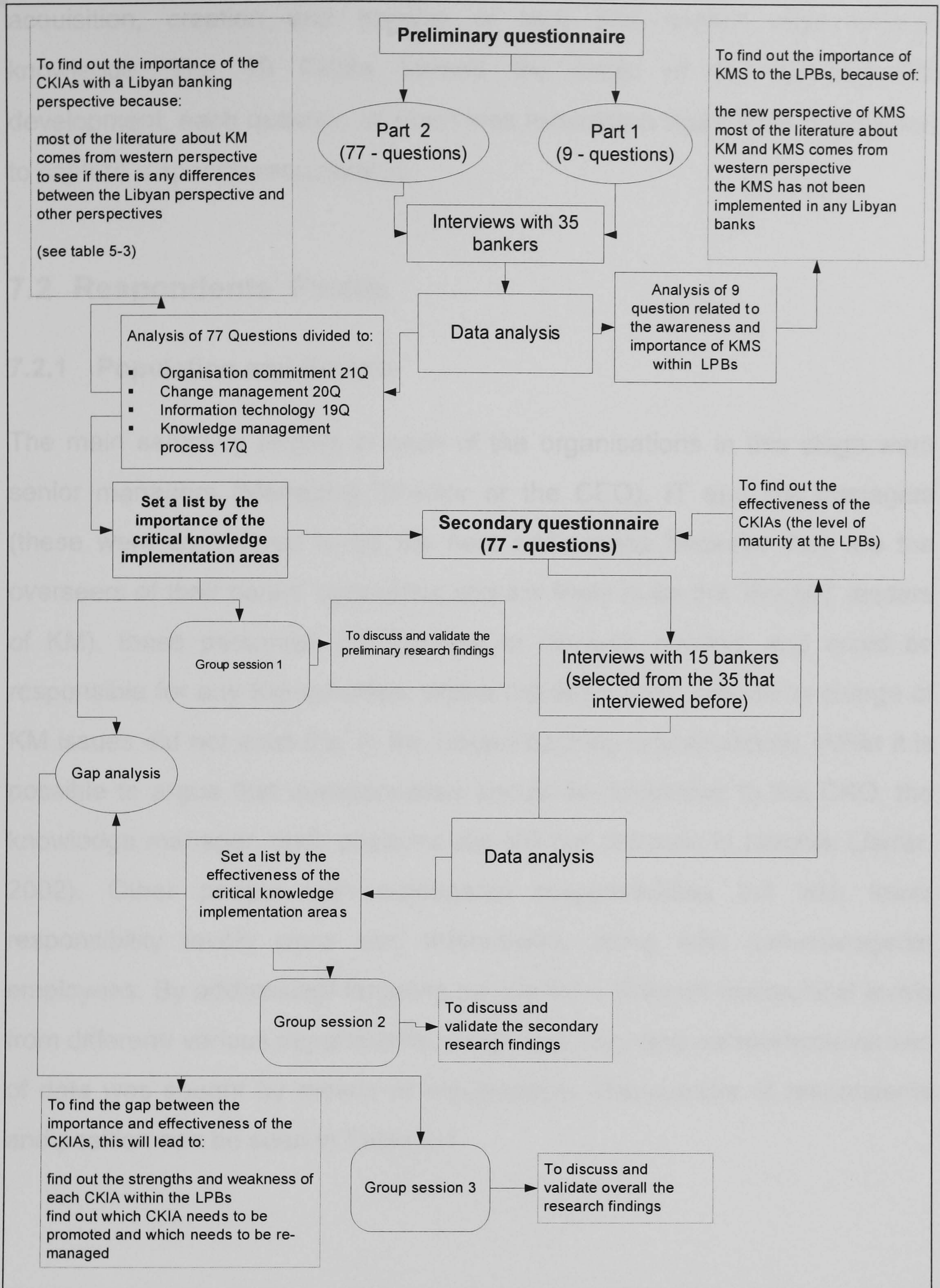


Figure 7-1: Structure of Data Analysis

For the successful implementation of organisational KMS, it is important to understand the KMS important implementation areas required to support the



acquisition, creation and transfer of tacit and explicit organisational knowledge. The 19 CKIAs formed the basis of the questionnaire development, each question of which was formulated and CKIAs augmented to capture a specific requirement.

## **7.2 Respondents' Profile**

### **7.2.1 Population and Sample**

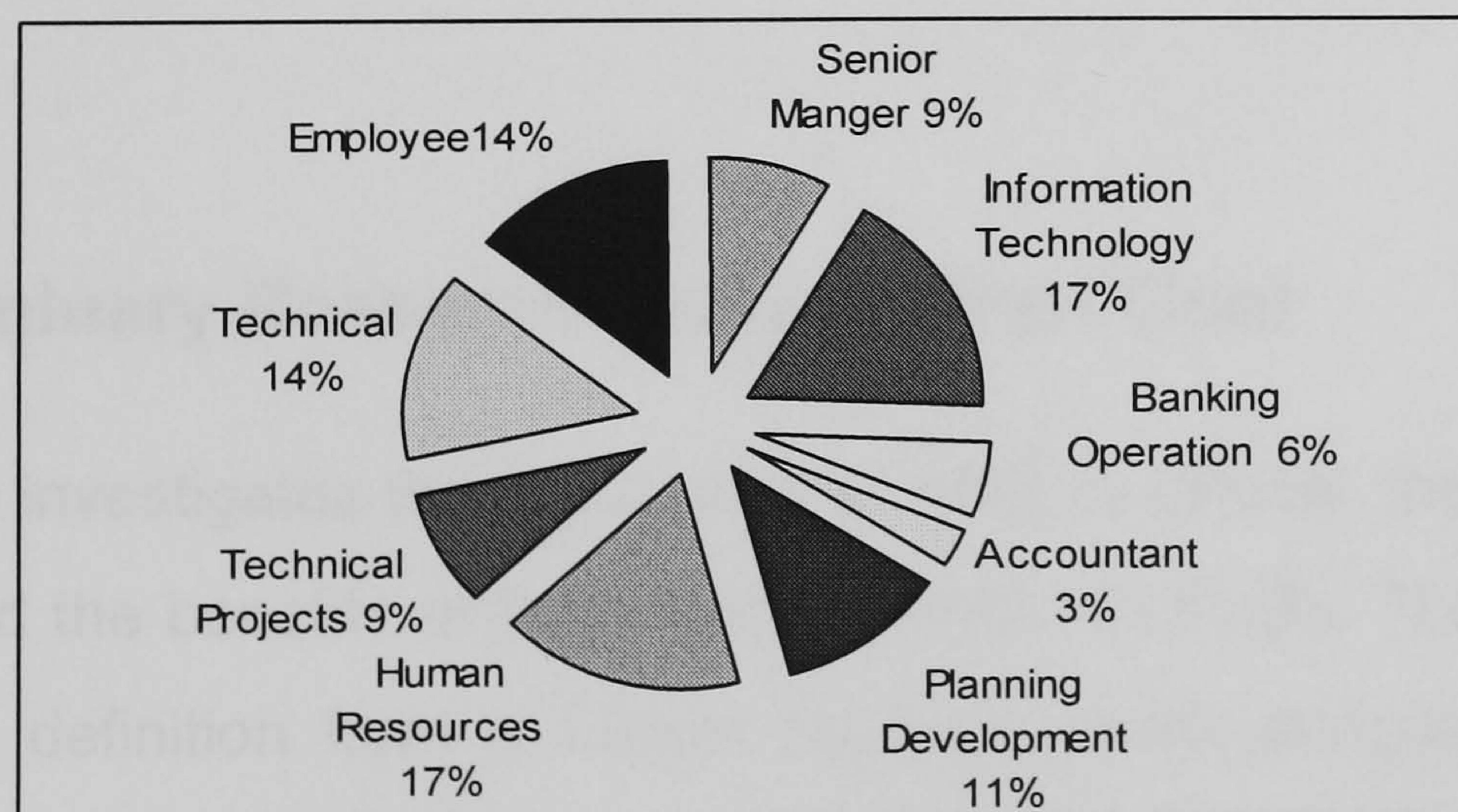
The main sampling targets in each of the organisations in this stage were senior managers (Managing Director or the CEO), IT and HR managers (these were considered to be the best addressees because they are the overseers of their banks' operations and are likely to be the 'thought' leaders of KM), these personnel are involved in decision making, and could be responsible for any KM activities, where the appropriate person in charge of KM issues did not exist (i.e. in the Libyan banking organisations). While it is possible to argue that questionnaires should be forwarded to the CKO, the knowledge manager, such positions are still not common in practice (Jarrar, 2002). Other people with managerial responsibilities but with lower responsibility levels were also interviewed, along with non-managerial employees. By addressing/ targeting people from different hierarchical levels from different/ various departments, a high accuracy and comprehensiveness of data was sought by means of triangulation. The number of respondents and position can be seen in Table 7-1.

Position in the Bank	Total No. of interviews
Senior Manger (Head of the bank or deputy)	3
Head of IT Department	6
Head of Banking Operations	2
Head of Accountancy and Administration	1
Head of Planning and Development	4
Head of HR	6
Head of Technical Projects	3
Technical	5
Employee	5
<b>Total</b>	<b>35</b>

**Table 7-1: Number and Details of Interviewees**

A total of 35 people were interviewed in face-to-face meetings. These 35 people must be considered as not being totally random, but rather as a convenience sample, since they were particularly targeted (Gay 1991). However, this does not necessarily mean that such a non-probability sample is not representative of the population, but rather that the researcher must be more careful about claims to generalise from the results (Trochim, 1999).

From a job role/ functional perspective, the breakdown of the respondents can be seen in Figure 7-2.



**Figure 7-2: Position of the Respondents**

The 35 respondents were derived from three banks – the details of which can be seen in Table 7-2

Bank	Turnover	Total Workforce	Core Business Area	No. of People Interviewed
Bank (1)	£15090.34 M	1160	Central Bank	9
Bank (2)	£60M	1133	Real Estate and Investment Bank	15
Bank (3)	£25M	3000	Trade and Investment Bank	11

**Table 7-2: Size and Annual Revenue**

### 7.2.2 Questionnaire Validation

To gauge the acceptance of the questionnaire, four people from two banks participated in a pilot study which was undertaken with two leading banks; one based in the UK (Bank 1), and the other based in Libya (Bank 2) to validate the questionnaires. Of these four people, two served in IT, one in HR management and one in R & D. The participants suggested adding the title of section 5, the usage of IT to section 4, and that the existence of IT be one section in the IT part of the questionnaire. Except for this one change, the suitability of the questionnaire was accepted by all the pilot study participants. The questionnaire was considered finalised after modifying the fifth section of the IT part, and it was deemed ready for use during the interview.

### 7.3 Preliminary Research Analysis (Part One)

This section investigates the importance of KMS to LPUBs, the level of KMS adoption and the benefits of implementing KMS in LPUBs. The ambiguity of KM and its definition from a Libyan banking sector perspective required clarification. This was undertaken by a validation questionnaire with 35 respondents (see Table 7-2), the rationale of which was to follow this up with the second part of the preliminary research.

**Q1- Do you think knowledge is a valuable asset “in your bank” and should be processed and managed by KMS?**

The interviewees with 92% indicated that knowledge asset is the most valuable resource for the banks in today’s environment. The respondents also indicated that the "intangible assets" (i.e. knowledge/IC assets) in the banks should be processed and managed, see Table 7-3.

<b>Answer</b>	<b>Yes</b>	<b>No</b>	<b>Don't know</b>	<b>Total</b>
Interviewees	32	1	2	35
Percentage	92%	3%	5%	100%

**Table 7-3: Q1 Responses**

**Q2- Does “your bank” have a number of experts who may possess a huge amount of knowledge?**

The participants’ responses indicate that the banks under study have a clear understanding of the value of their employees, especially the "experts". Approximately 78% agreed that the banks should be extremely aware of the importance of providing their expert bankers with challenging work to retain their knowledge to the banks database, see Table 7-4.

Answer	Yes	No	Don't know	Total
Interviewees	27	4	4	35
Percentage	78%	11%	11%	100%

Table 7-4: Q2 Responses

**Q3- Is the concept of KM clear to you and at your bank or it shapes with other concepts?**

With respect to the questions dealing with the "knowledge perspective", it appeared that some respondents were not familiar with the term or concept of a 'KM'. 15% were familiar with the term, 65% neutral, and 20% were unfamiliar.

There was some confusion over the terms 'KM' and 'IT'. Some of the respondents indicated that term 'IT' as the means of KM; whereas others mentioned 'IC', some others indicated that KM is a processing of organisational knowledge, HR management, organisation learning. Only few others indicated they are not familiar with the KM concept, see Table 7-5.

Answer	Familiar	Neutral	Not familiar	Don't know	Total
Interviewees	5	23	7	0	35
Percentage	15%	65%	20%	0%	100%

Table 7-5: Q3 Responses

**Q4- Do you think your bank naturally will be transformed to KMS?**

It was evident that the respondents did not feel that the banks were ready to transform itself into KM-based-banks. Only 11% agreed that the banks were

ready to be transformed into KMS 20% were neutral, 69% disagreed, see Table 7-6.

Answer	Agree	Neutral	Disagree	Don't know	Total
Interviewees	4	7	24	0	35
Percentage	11%	20%	69%	0%	100%

**Table 7-6: Q4 Responses**

**Q5: Select the stage of development of the KM initiative in your unit and in your bank?**

88% of the interviewees said that there was no KM programme in place, 7% said that they are not considering any KM programme, 3% said that the programme is under consideration, and 3% said they have the KM activities, see Table 7-7.

Answer	There is a KM system	KM programme is under consideration	Not considering any KM programme	No KM programme in place	Others	Total
Interviewees	1	1	2	31	0	35
Percentage	3%	3%	6%	88%	0%	100%

**Table 7-7: Q5 Responses**

37% of respondents indicated that they were not in a position to implement KM, 20% indicated insufficient organisation processes; 11% were not aware of KMS within their organisation. 11% identified insufficient knowledge about KMS; 6% identified financial limitation; and 15% others, such as insufficient technology, insufficient employees' skills, lack of guidance and methodologies, KMS limitation, and KMS is not important, see Table 7-8.

**Q6-Why do you think your bank has not implemented any KM systems?**

Answer	Bank isn't aware of KMS	Inability to implement KM	Insufficient organisation processes	Insufficient knowledge about KMS	Financial limitation	Others	Total
Interviewees	4	13	7	4	2	5	35
Percentage	11%	37%	20%	11%	06%	15%	100%

**Table 7-8: Q6 Responses****Q7- Do you think your bank should have clear strategies for implementing KMS?**

This question was meant to explore the bank's vision of the KMST. 78% indicated that the banks needed to have clear strategies for acquiring, transferring and using knowledge among their employees. 17% of respondents thought that their bank should not have a clear strategy and 5% did not know, see Table 7-9.

Answer	Yes	No	Don't know	Total
Interviewees	27	6	2	35
Percentage	78%	17%	05%	100%

**Table 7-9: Q7 Responses****Q8- Is KMS important to your bank to be success in today's business environment?**

80% of respondents noted that KMS was important to their business environment, see Table 7-10.

Answer	Yes	No	Don't know	Total
Interviewees	28	2	5	35
Percentage	80%	6%	14%	100%

Table 7-10: Q8 Responses

If the answer in previous question was yes, why (possible more than one answer):

91% said the bank has knowledge loss, 77% said there is lack of knowledge “knowledge not available”, 88% said the bank suffers from error duplications, 65% said data and information are not interpreted well, 82% mentioned other issues like:

- Lack of competitors' information;
- Lack of customers' information
- Lack of alliances and international organisations' information; and
- Lack of internal and external environments' information

These responses can be seen in Table 7-11.

Answer	Knowledge loss	Lack of knowledge	Suffering from error duplications	Data and information are not interpreted well	Others
Interviewees	32	27	31	23	28
Percentage	91%	77%	88%	65%	82%

Table 7-11: Q8 Responses (cont.)

In the group sessions all interviewees indicated awareness of the risk of not having an appropriate KMS to manage their daily operations in terms of capturing the large amount of information flows generated by the employees, customers and supply chain. The risk can even grow exponentially as many



of the exchanged or shared information is often stored in a primitive way without being effectively exploited due to the lack of an intelligent and solid KMS provided for this purpose.

### Q9- What are the Benefits of Knowledge Management System?

The survey interviews showed that many benefits can be obtained by KMS in all LPUBs, particularly, when supported by government and senior management, see Table 7-12.

No	Benefit	Percentage
1	Exploitation of the bank's thinking power;	76%
2	Capturing insight and experience to make them available and usable when, where and by whom required;	76%
3	Improve the customer relationship and management,	67%
4	Enhance employees' development and satisfaction	81%
5	Create new value through new services (innovations);	83%
6	Enhance current value of existing services (knowledge about customers);	74%
7	KMS could be a base to many other banking programmes (such as National Payment System);	97%
8	Reduce/avoid costs/promote reuse (knowledge about processes);	65%
9	Reduce uncertainty / increase speed of response (knowledge about the environment);	84%
10	Increasing workers productivity and performance;	87%
11	Fostering collaboration, knowledge sharing, continual learning and improvement;	89%
12	Employees will spend less time looking for information and expertise;	69%
13	Enabling for more intelligent decisions	95%
14	Help banks to become more competitive	90%
15	Better customer handling	56%
16	Faster response to key business	67%
17	Improved employee skills	82%
18	Improved productivity	77%
19	Increased profits	61%
20	Increased innovation	88%

**Table 7-12: Benefits of Knowledge Management System to the Libyan Public Banks**

No	Benefit	Percentage
21	Sharing best practice	85%
22	New ways of working	55%
23	Create additional business	77%
24	Staff attraction / retention	81%

**Table 7-12: Benefits of Knowledge Management System to the Libyan Public Banks (cont.)**

Although many of the benefits of KMS are sometimes intangible and difficult to quantify and obtain, there is a common view about KMS potential benefits.

## **7.4 The Critical Knowledge Implementation Areas (Part Two)**

The critical areas affecting the adoption of a KMS in organisations were summarised after reviewing previous studies with consideration given to empirical implementation one. In comparing the relationship between the knowledge and KMS implementation, the most important critical areas associated with the success of KMS are verified. An exploratory case study is designed to determine how the LPUBs can identify the CKIAs, in the context of the emerging field of KM. On the basis of the literature on KM and KMS implementation, the term critical knowledge areas have been formulated as a label for key KMS implementation.

### **Questionnaire Development and Reliability**

The first draft of the CKIAs questionnaire was produced after the exploratory literature review work, as the author recognised that the use of a questionnaire would only be beneficial when the issues to be investigated are clearly understood as this has been achieved after completing the chapter five (CKIAs). Therefore, the development of the KM questionnaire was an iterative process. The CKIAs questionnaire was cautiously modified and refined during the course of this research (literature review), and being tested in a pilot study (see chapter 6)

The open-ended questionnaire (these questions are easier and quicker to answer, these for allowing more questions to be asked without increasing the time needed to complete the questionnaire Oppenheim, 1992) was developed from a set of (19) critical knowledge implementation areas identified from the literature review, which then grouped to include four parts, and nineteen sections; each section contains a number of closed questions; these vary from two to five questions as follow:

Part I: Organisation commitment (21 questions)

- Senior management commitment (5 questions)
- Knowledge management strategy (4 questions)
- Employees requirements (5 questions)
- Alliances and partnerships (2 questions)
- Knowledge management resources (5 questions)

Part II: Change management (20 questions)

- Organisational policy and procedures (3 questions)
- Organisational structure (4 questions)
- Training and learning (5 questions)
- Teamwork (3 questions)
- Organisational culture (5 questions)

Part III: Information technology (19 questions)

- IT strategy (3 questions)
- The existence and use of IT (10 questions)

- IT staff (4 questions)
- IT skills (2 questions)

#### Part IV: Knowledge management processes

- Knowledge acquisition (3 questions)
- Knowledge creation (3 questions)
- Knowledge transfer (5 questions)
- Knowledge application (2 questions)
- Knowledge documentation (4 questions)

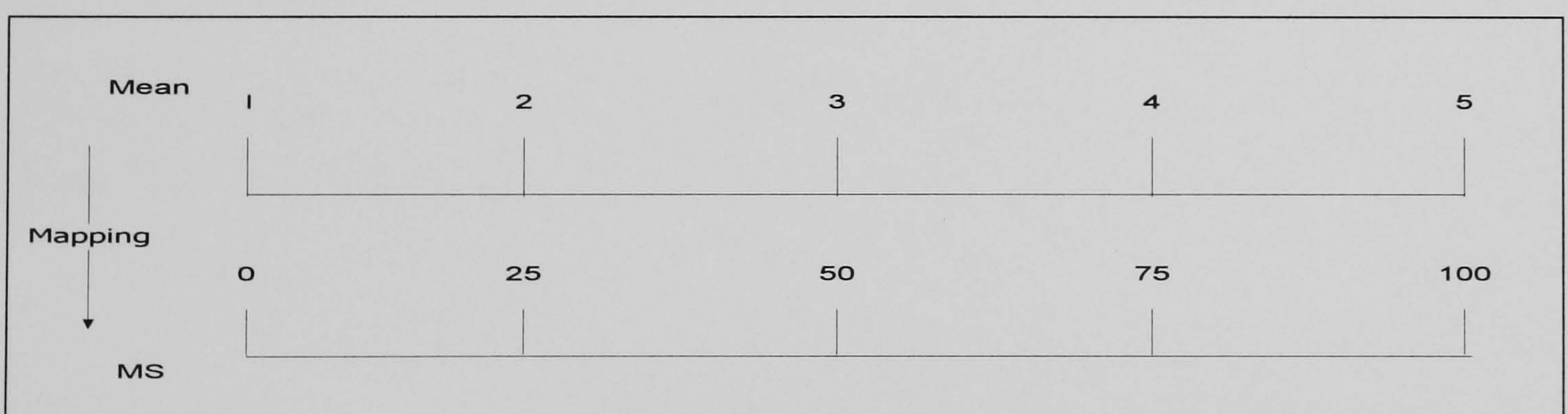
Each of the above mentioned sections evolve around a key area that support the implementation of KM as identified in chapter five. All the questions in the four part and 19 sections of the CKIAs questionnaire and what does each one aim to investigate are shown in tables (7-14, 7-15, 7-16, and 7-17).

The aim of this study is to use the experiences and perceptions of bankers to gauge the importance of a set of CKIAs for adopting KMS. Hence, the questionnaire was designed based on the 19 CKIAs, and split into four main sections and categories. The first section (I) explored the importance of the organisation's commitments, the second section (II) explored the importance of CM and HR issues, the third section (III) explored the importance of IT issues and the last section (IV) explored the importance of KM process issues (see Appendix A). Respondents were asked to rate the level of importance; they placed on each area using a five-point Likert scale (1= not important at all, 2= slightly important, 3= moderately important, 4= very important, 5= extremely important).

The use of Likert scale with a midpoint tends to undermine extreme positions (Albaum, 1997). Moreover, respondents are generally reluctant to express a radical view even if they have one, and all too often, they tend to take a reasonable route by offering a “socially acceptable answer” (Lee and Choi, 2003). These areas were categorised each activity into strategic themes. The respondents' answers to questions were coded, and analysed using SPSS package. The research findings are used to define a number of CKIAs which helped to measure the effectiveness of these areas in regard to the Libyan banking environment.

The data collected was analysed using the SPSS software along with standard statistical analysis techniques, e.g.

- Frequency tables to present numbers and percentages of categorical questions.
- Descriptive measures such as mean, median, mode, and standard deviation
- Measure of strength (MS) =  $(\text{mean}-1)*25$ , if scale of measurement is from 1 to 5 (see Figure 7-3).



**Figure 7-3: Measure of Strength**

The formula maps a scale from 1-5 to a scale of 0-100 (percentage of strength) for example: mean = 3.98 MS=  $(3.98-1)* 25= 74.50\%$ . Reliability refers to the accuracy and precision of a data collection procedure (Litwin,

1995). The reliability of the four parts of the research questionnaire are presented in Table 7-13.

No	Items	Reliability	Results
1	Questionnaire (I)	Alpha=.7101	Acceptable
2	Questionnaire (II)	Alpha=.7249	Acceptable
3	Questionnaire (III)	Alpha=.7041	Acceptable
4	Questionnaire (IV)	Alpha=.7328	Acceptable

**Table 7-13: Questionnaires Reliability**

From Table 7-13, it can be seen that the values of alpha are all within an acceptable range between 0.7041 to 0.7328.

### **Importance and Rank of the CKIAs**

Respondents were given 21 questions regarding their OC, 20 regarding CM, 19 regarding IT and 17 regarding KM processes. These statements described various issues of KM, and rated them on a scale of 1= not important at all, 2= slightly important, 3= moderately important, 4= very important, 5= extremely important. The following tables present the descriptive statistics (Table 7-14, 7-15, 7-16, and 7-17).

Organisation Commitments	Mean	Std. Deviation	MS%
The senior management has currently a clear vision and goals about KM	4.66	0.59	91.50
The senior management provides adequate support to the core KM programme	4.57	0.74	89.25
Senior management is committed to KM processes	4.54	0.74	88.50
The senior managers have the motivation to invest in organisational resources to create favourable conditions for KM implementation	4.66	0.59	91.50
The senior management has a primary focus on establishing a culture that appreciates KM processes	4.71	0.46	92.75
The relationship between your bank's strategies and KM strategy	4.46	0.98	86.50
The bank is committed to see KM at a strategic level and delivers KM strategies to all its employees	4.43	0.65	85.75
The bank intends to manage KM in future	4.57	0.65	89.25
The bank handles any risks associated with the implementation of knowledge management	4.69	0.53	92.25
The bank is committed to meet employees' requirements in terms of KM	4.43	1.09	85.75
The bank provides adequate help to the employees to win work	4.14	0.91	78.50
The bank encourages employees to create and share their knowledge	4.26	0.95	81.50
The bank provides a compensation system regarding knowledge management implementation in your bank	4.31	0.80	82.75
The bank motivates the employees according to their knowledge	4.37	0.84	84.25
Alliances and partnerships are used as a part of KM strategy	4.43	0.74	85.75
The involvement of employees in external relationships in terms of knowledge management	4.26	1.04	81.50
Providing budget and sources for KM programmes	4.23	0.84	80.75
Providing time and resources to take part in the learning and sharing exercises	4.17	1.01	79.25
Providing enough technologies, policies and procedures for generating, sharing and storing knowledge	4.31	0.90	82.75
Eliminating any existing and future rules that are likely to obstruct the continuous knowledge sharing	4.29	0.83	82.25
The bank reviews the organisational resources regarding to KM	4.34	0.91	83.50

**Table 7-14: Descriptive Statistics of Questionnaire (I)**

<b>Change Management</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>MS%</b>
The bank has polices and procedures that are clearly articulated for the implementation of KM.	3.74	0.82	68.50
These policies and procedures impact on the corporate KM goals and objectives.	3.11	1.47	52.75
The procedures and polices minimise hierarchical and bureaucratic procedures that may obstruct KM processes.	3.20	1.61	55.00
Existence of knowledge management department.	3.83	1.15	70.75
KM structure is flexible enough to the deliver KM strategies.	3.31	1.35	57.75
There is a champion for KM activities.	3.11	1.35	52.75
Everyone within the bank holds responsibility for KM initiatives.	3.69	1.02	67.25
Employees' skills and abilities are known and considered in terms of KM.	4.29	1.02	82.25
Re-skilling employees will help in implementing successful KM initiatives.	4.20	1.02	80.00
Changes in skills are needed in respect of KM implementation.	4.03	1.12	75.75
Employees are given adequate training to use ICT (software, networks, and databases) to perform KM.	4.49	0.74	87.25
Learning is continuous in all levels.	4.60	0.65	90.00
The relationship between knowledge management and your teamwork.	4.11	0.72	77.75
The exchange of knowledge between teamwork in your bank	4.20	0.76	80.00
The members of knowledge work teams have access to different knowledge bases.	4.14	0.81	78.50
The employees are encouraged to create a friendly culture.	4.63	0.60	90.75
The culture supports innovation, learning and knowledge sharing.	4.43	0.81	85.75
The culture provides a work environment in which employees are engaged, challenged, motivated and rewarded.	4.46	0.70	86.50
The bank encourages workers to participate in the establishment of their own goals and performance objectives.	4.51	0.56	87.75
The workers and co-workers openly discuss what they need of one another.	4.49	0.61	87.25

**Table 7-15: Descriptive Statistics of Questionnaire (II)**



IT	Mean	Std. Deviation	MS%
IT supports core KM initiatives	3.94	0.97	73.50
The impact of IT on providing and collecting knowledge from clients	3.63	1.29	66.75
IT is used as a part of strategic KM implementation alliances	3.74	1.34	68.50
IT expertise will help to implement KM	3.60	1.33	65.00
The nature of your IT Department	3.37	1.21	59.25
The extent and nature of involvement of IT users in the formulation and implementation of KM strategy	2.89	1.51	47.25
There is a champion for IT projects to implement KM	3.57	1.33	64.25
Attaching to IT skills in terms of KM	4.23	0.94	80.75
Measuring IT skills in terms of KM	4.26	0.85	81.50
The existence of a website	4.31	1.13	82.75
The existence of corporate intranet	4.51	0.74	87.75
The existence of Extranet	4.54	0.56	88.50
The existence of efficient non-computerised knowledge support	4.37	0.65	84.25
The existence of explicit workflows	4.57	0.61	89.25
The existence of a document management system	4.49	0.70	87.25
The existence of an internal network where knowledge is diffused (Databases...)	4.63	0.65	90.75
The existence of electronic tools to seek information	4.37	0.88	84.25
The existence of a web server sharing information with customers, suppliers, universities, etc	4.54	0.61	88.50
The computerised organisation area	4.43	0.61	85.75

**Table 7-16: Descriptive Statistics of Questionnaire (III)**

Knowledge Management Processes	Mean	Std. Deviation	MS%
Business strategies in your bank should have influence on the capturing of information/knowledge	4.34	0.73	83.50
Knowledge should be accessible to everyone in your bank	4.00	1.03	75.00
Gaining knowledge about customers, clients, vendors and others	4.23	0.91	80.75
Creating and storing knowledge in paper or electronic documentation in your bank	3.80	1.20	70.00
Having accurate and effective knowledge.	3.57	1.14	64.25
Up-dating Knowledge processes projects and innovations	2.80	1.51	45.00
The impact of knowledge sharing on your clients.	4.37	0.81	84.25
Sharing of knowledge among employees to help in winning work	4.49	0.82	87.25
Having enough information technologies in the bank to enable knowledge sharing strategy	4.54	0.56	88.50
Transferring knowledge between functions	3.97	1.25	74.25
Sharing knowledge between individuals	4.51	0.70	87.75
Using knowledge in decision-making	3.74	0.89	68.50
Integrating KM in business activities	4.09	0.89	77.25
The participation of IT tools in storing and formulating overall knowledge	4.11	0.83	77.75
Having clear objectives for KM protection	3.91	0.92	72.75
Getting feedback from the customer regarding the organisation's services	4.09	0.85	77.25
Getting the right amount of knowledge needed in your bank on time	4.23	0.97	80.75

**Table 7-17: Descriptive Statistics of Questionnaire (IV)**

A mean score was calculated for each factor in order to examine its perceived importance level. The resultant values are summarised in Table 7-18, ranging from 3.35 (organisation policy and procedures) to 4.63 (SMC). All the values are falling within the range of “moderately important” to “very important”. This can be interpreted that all the factors were perceived by the respondents as playing a vital role in KMS implementation (Wong and Aspinwall, 2005).

CKIA	Item	Mean	Rank	MS%
1	Senior management commitment	4.63	1	90.75
2	KM strategy	4.54	2	88.50
3	Employees' requirements	4.30	8	82.50
4	Alliance and partnership	4.35	6	83.75
5	KM Resources	4.27	9	81.75
6	Organisational policy and procedures	3.35	19	58.75
7	Organisation structure	3.49	16	62.25
8	Training and learning	4.32	7	83.00
9	Teamwork	4.15	12	78.75
10	Organisational culture	4.51	3	87.75
11	IT strategy	3.77	15	69.25
12	IT staff	3.36	18	59.00
13	IT skills	4.25	10	81.25
14	Existence and usage of IT	4.48	4	87.00
15	Knowledge acquisition	4.19	11	79.75
16	Knowledge creation	3.39	17	59.75
17	Knowledge transfer	4.38	5	84.50
18	Knowledge application	3.92	14	73.00
19	Knowledge documentation	4.09	13	77.25

**Table 7-18: the Mean and Ranking of Critical Knowledge Implementation Areas**

Another area worth exploring was the ranking of the areas based on their mean importance scores (see Table 7-18). The results reflect that the importance of the areas perceived by the 'thinkers' are commonly shared and agreed by the 'doers'. This is considered an essential finding because a more global statement can now be made about the areas that are crucial for KM implementation. This categorisation would help LPUBs to customise their emphasis and focus when addressing the CKIAs.

The analysis conducted previously shows the CKIAs with the highest scores in respect of importance are: SMC and support (4.63); KM strategy (4.54); OCL (4.51); existence and usage of IT (4.48).

## 7.5 Summary of Preliminary Work

In the preliminary analysis phase, the respondents interviewed had well-established background in the field of senior management, HR, IT and R&D. The results from the three investigated banks were found to be in general agreement. This permitted a more robust conclusion to be drawn from the study. The preliminary research was an attempt to improve the understanding about the importance of KMS in the Libyan banking industry, the benefits that the LPUBs can gain from applying KMS as well as drivers for effective implementation of KM mechanisms across the LPUBs. This was endorsed by the need to survive in an information-driven economy. For example, the banks will not be able to compete in an open economy unless they have invested in such new programmes to get the most value out of the banks' assets. In this context, an effective KM programme was regarded as an appropriate tool to control business focus helping LPUBs to address a clear, concrete and imperative problem through the design of KM activities.

The identification of CKIAs is an essential step in defining competitive forces and determining strategy in this research. The instrument developed in this study provides a realistic checklist to assess the perceptions of KMS within an organisation, and/or measure the level of understanding among the workforce. The responses of the participants in the individual interviews indicate those CKIAs that have to be measured very clearly. It could also be used as basis to assess and evaluate the status of KM implementation and thus, help to identify areas for improvement.

This research has incorporated 19 dimensions of critical factors affecting the KMS implementation, identified from the literature review and the pilot study, and as finally clarified by the preliminary research. The results show that most of the 19 CKIAs are ranked between 'very important' to 'extremely important', with a mean score between 4.63 and 3.35. As a result, all the CKIAs have to be taken forward to the next step of this research. However, it

is essential to note, that the empirical investigation in this study did not cover all CKIAs, but did address those presented in the literature.

The results show that the factors that are considered to be of most significance, and would thus enhance the implementation of KM are SMC, KM strategy, IT skills, KT and KC. These factors are fundamental issues related to different areas in KMS implementation such as organisational commitment, IT, and KM processes. This suggests that the LBs did not focus on a comprehensive methodology for adopting KMS.

Before formulating any KM mechanisms, it is important to assess the organisational readiness, especially, for those parts of the organisation, which are to be directly affected by the new KM processes. In this understanding, it is argued that an organisation should only measure what is strategically important for growth (Edvinsson and Malone, 1997; Stewart, 1994). The preliminary study aimed at exploring the perception of the respondents with respect to the importance of the CSFs.

The secondary research phase was deemed necessary to assess the CKIAs in practice within the LPUBs, because the realisation of an effective KMS requires an appropriate level and integration of organisational commitment, CM practices, IT systems and other KM enablers. This is inline with Wong and Aspinwall (2005), regarding the importance of CSFs. The aim of the secondary research is to determine how the effective use of the CKIAs can support or enhance a well-defined KM implementation strategy.

It is also important in terms of KM implementation to identify the existing gaps within the OC; CM and HRM, IT and knowledge management process (KMP) before suggesting any KM framework for implementing KM within the LPUBs, as well as to assess the banks' readiness for implementing these frameworks. The preliminary study provides answers to some fundamental

questions related to KM and its implementation. These answers are then used as the basis for the secondary research (see Chapter 8).

# **CHAPTER 8**

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## **SECONDARY DATA ANALYSIS**

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### **8.1 Introduction**

This chapter focuses on the description and analysis of the data obtained from the secondary research and group sessions. Most of the related data were collected from three Libyan public banks through face-to-face interviews. In this part of the research it is important to find out the current state of the (19) CKIAs areas within the Libyan banking environment, the same three banks were used in the structured-interviews. It was necessary thereafter to assess the LBs' readiness regarding to the CKIAs, especially, for those parts of the banks, which will be directly affected by the new KMS. Moreover, the results obtained by both preliminary and secondary research are discussed in three group session conducted in the LPUBs.

### **8.2 Secondary Research**

After the identification of the critical knowledge areas, it is deemed necessary to determine the current status of these areas within the LPUBs. Consequently, how to connect the established measures and points of KM

implementation within the mission statement and value proposition was considered when defining the critical knowledge areas. This secondary research phase is also used to align the critical knowledge areas with the business results.

### 8.2.1 Measures of Effectiveness

The intention in this exercise is to focus on and determine how to measure the unique knowledge areas and to assess and evaluate the effectiveness of CKIAs in terms of KMS implementation (the effectiveness measure) within the LPUBs. After reviewing many studies described in the literature (see Carrion *et al.*, 2004; Gold, *et al.*, 2001; Wong and Aspinwall, 2005), the questionnaires for measuring the critical knowledge areas were constructed. The impacts or contributions are determined using direct weighting techniques such as ranking and rating.

KM strategies need to be aligned to the organisation's strategic objectives, since these links will enable an assessment of the effectiveness of KMS implementation areas in terms of the degree to which such goals are realised. In order to assess the current situation regarding the KMS implementation areas within the Libyan banking industry, four questionnaires were prepared after consulting a number of best practice and survey design publications as well as face-to-face interviews, all of which informed the questionnaire design. The same banks that participated in the preliminary research were used. The questionnaires (see Appendix B) were composed of four main parts as follows:

**Part I – Organisation Commitment:** this part was composed of five sections and 21 questions; the first was concerned with senior managers' commitment in terms of KM; the second was meant to learn how KM strategy can influence the implementation of a KMS; the third concentrated on how senior managers met ER (motivation system) in terms of KM; the fourth section



explored the extent to which the banks had partnerships and alliances with other banks; and the fifth was about the extent of senior managers' support and the resources provided for a KMS.

**Part II – Change Management and Human Resources Management:** this part was composed of five sections and 20 questions. The main objective of the first section was to address organisational policies and procedures (OPP); the second explored the OST; the third focused on training and learning; the fourth considered TW; and the fifth aimed to discover the nature of the OCL.

**Part III – Information Technology:** this part it was composed of four areas and 19 questions, the main objective of the first section was to assess the strategic incorporation of IT into KM; the second section addressed the existence and usage of IT systems (EUIT) to facilitate KM implementation; the third evaluated whether sufficient IT staff were in place to enable the implementation of KM; and the fourth focused on IT skills and their role in KM.

**Part IV- Knowledge Management Processes:** this part was composed of five sections and 17 questions; the first one was concerned with KA, the second section was meant to obtain information relating to KC; the third focused on KT; the fourth on KAP; and the last one considered KD.

In order to optimise the ratio of responses, before any interview was conducted, it was important to explain to all interviewees the exact aim and objective of each questionnaire. Due to the ambiguity surrounding the concept of KM, each question was carefully explained in order to improve the data reliability, and all results were recorded anonymously, which could improve reliability of data, since the temptation to give false responses is minimised when opinions can not be traced back to particular respondents. Each interviewee was met four times, and on each occasion, was asked to

answer one questionnaire. This approach was adopted for two reasons, these being firstly that it would have been difficult for respondents to take out such a large amount of time as was required to complete four questionnaires, all at once. Secondly, by dealing with each questionnaire on separate occasions, it was possible to properly focus the attention of the participants. The interviews were conducted between April and August, 2004. Respondents were asked to indicate their extent of agreement, using a grid containing five possible answers in the scenario format used by Levett and Guenov (2000) as follows: if KM related issues were used as a strategic tool (satisfactory/best practice), if they were used as an operational tool (further improvement possible), if they had some value (requiring more attention), if they had a little value (urgently requiring attention) and If they had no value the organisations would not use them theoretically (not applicable). E “not applicable” (N/A) = 1; D “urgently requiring attention” (URA) = 2; C “requiring more attention” (RMA) = 3; B “further improvement possible” (FIP) = 4; A “satisfactory/best practice” (BP) = 5.

### **8.2.2 Population Sample**

A total of 15 people were asked to complete the questionnaire, in a face-to-face interview situation. As shown in Table 8-1, 3 of the respondents who participated in this study were Senior Managers (one head of the bank and two deputy heads), 3 were executive managers (one IT manager, one HR manager and one development manager), 3 were heads of information, accountancy, training divisions, 3 were technicians, and 3 were administrative and support staff.

Position in the Bank	Total No. of Interviewees
Senior Manger (Head of the bank or deputy)	3
Executive (Head of IT, HR, Department)	3
Managerial (Head of information, training division)	3
Technical (Structural engineer, programmer)	3
Administrative or supportive (Secretary, accountant )	3
<b>Total</b>	<b>15</b>

**Table 8-1: Interviewees Categories**

### 8.2.3 Questionnaire Validation

The questionnaires were based on the 19 CKIAs listed in the preliminary research, and a number of questions measuring attitudes were raised: the chosen response can be not applicable (N/A); urgently requiring attention (URA); requiring more attention (RMA); further improvement possible (FIP); and satisfactory/best practice (BP). There was also a number of questions regarding the CKIAs related to the implementation of KM within the Libyan public banking industry, these questions were based on the literature surveys in Chapters 3, 4 and 5, as well as the preliminary research.

To gauge the acceptance of the questionnaires, four bankers from two banks participated in a pilot test; of these four bankers, two served in IT, one in HR, and one in management and development. In addition to these bankers, two academics undertaking KM work at the University of Salford were involved in the validation of the CKIA questionnaires. The participants suggested slight explanation to some questions that were unclear.

The reliability and validity tests were carried out following the sequence and approach taken by Bagozzi and Yin (1989), Saraph *et al.* (1989), Yusof and Aspinwall (2000), and Antony *et al.* (2002). Checking for the reliability of a scale (factor or construct) requires the examination of its internal consistency by calculating Cronbach's alpha. This method indicates the extent to which

items (elements) within a scale are homogenous or correlated (Saraph *et al.*, 1989; Badri *et al.*, 1995). It is also reflective of the consistency between different items in a scale, in measuring the same attribute. Generally, alpha values greater than 0.7 are regarded as sufficient (Nunnally, 1994; Cuieford, 1965), although a cut-off value of 0.6 was used by researchers such as Black and Porter (1996), Rungasamy *et al.* (2002), and Antony *et al.* (2002). Finally, according to the procedure compiled in Anderson and Gerbing (1988), the discriminatory validity between each pair of dimensions was guaranteed, as the reliability interval of its correlation did not include value (1) in any of the cases. Table 8-2 summarises the results of the reliability analysis for each factor. The original alpha values for the factors ranged from 0.7141 to 0.7701.

No	Items	Reliability	Results
1	Organisation Commitment	Alpha=.7701	Acceptable
2	Change Management	Alpha=.7659	Acceptable
3	IT	Alpha=.7141	Acceptable
4	Knowledge processes	Alpha=.7528	Acceptable

**Table 8-2: Validation of the Critical Knowledge Implementation Areas**

#### 8.2.4 Secondary Research Findings

The SPSS (Statistical Package for Social Science) was used as the main statistical analysis tool in this stage; all responses were analysed by this tool. Various analyses (in addition to the instrument reliability and validity), were made, producing a descriptive analysis of each respondent's etc. (see Chapter 7). Tables 8-3, 8-4, 8-5, and 8-6 show descriptive measures for the effectiveness of the CKIAs in all three banks. Most of the mean scores (or measures of strength) of the CKIAs were in the lower half of the MS Scale (i.e. less than 2.93 or 48.25%).

No	CKIAs	Mean	Std. Deviation	MS %
1	Does the senior management currently have a clear vision and goals about KM?	2.73	1.033	43.25
2	Does the senior management in your bank provide adequate support to the core knowledge management programmes?	2.47	0.834	36.75
3	Does the senior management commitment in your bank involve the whole of KM processes?	2.87	0.990	46.75
4	Do the senior managers have the motivation to invest in organisational resources and personal reputation to create favourable conditions for KM?	2.80	0.676	45.00
5	The senior management has a primary focus on establishing a culture that respects KM processes?	2.87	1.125	46.75
6	How would you describe the relationship between your bank's strategies and KM strategy?	2.40	1.056	35.00
7	Is your bank committed to see KM at the strategic level, and does it deliver all KM strategies to all its employees?	2.47	1.356	36.75
8	How does your bank intend to manage KM in future?	2.33	0.816	33.25
9	Does your bank consider risks associated with the implementation of knowledge management?	2.93	1.100	48.25
10	Is your bank committed to meeting employees' requirements in terms of KM?	2.00	1.000	25.00
11	Does your bank provide adequate help to the employees to win work?	2.07	0.884	26.75
12	How much does your bank encourage employees to create and share their knowledge?	2.53	1.187	38.25
13	What is the level of the compensation system regarding to knowledge management implementation in your bank?	2.53	0.990	38.25
14	Do you think your bank motivates the employees according to their knowledge?	2.13	0.834	28.25
15	Alliances and partnerships are used as a part of your KM strategy	2.13	1.246	28.25
16	How can you describe the involvement of employees in external relationships in terms of knowledge management?	2.07	0.799	26.75
17	Considering your bank's commitment, what is the level of budget and resources for KM programmes?	1.73	0.704	18.25
18	How much time and resources does your bank provide to take part in the learning and sharing exercises?	2.67	1.113	41.75
19	Does your bank provide enough technologies, policies and procedures for generating, sharing and storing knowledge?	2.53	0.915	38.25
20	Does your bank eliminate any existing and future rules that are likely to obstruct the continuous provision of resources?	2.33	0.900	33.25
21	The bank reviews the organisation resources regarding to KM	2.27	0.799	31.75

Table 8-3: Descriptive Statistics of Organisational Culture

No	CKIAs	Mean	Std. Deviation	MS %
1	Does your bank have currently polices, and procedures that are clearly articulated for the implementation of KMS?	2.00	0.93	25.00
2	What is the impact of these polices and procedures on your corporate KM goals and objectives?	1.87	0.83	21.75
3	Do the current polices and procedures minimise hierarchical and bureaucratic procedures that may obstruct KM processes?	2.60	0.51	40.00
4	What is the nature of your knowledge management department?	1.67	0.98	16.75
5	Is the current KM structure in your bank flexible enough to deliver the KM strategies?	1.87	0.92	21.75
6	Who is the champion for KM activities in your bank?	2.73	1.10	43.25
7	Is everyone within the bank, held responsible for KM initiatives?	2.07	0.80	26.75
8	Are the employees' skills and abilities in your bank known and considered in terms of KM?	1.87	0.99	21.75
9	Is your bank re-skilling its employees to implement successful KM initiatives?	2.40	1.06	35.00
10	The level of importance for skills development for KM implementation?	1.93	0.80	23.25
11	Are employees given adequate training to use ICT (software, networks, and databases) to perform KM?	2.33	0.82	33.25
12	Is your bank promoting continuous learning on all levels?	1.33	0.62	8.25
13	How would you describe the relationship between knowledge management and teamwork?	2.33	0.72	33.25
14	How would you describe the exchange of knowledge between teams in your bank?	2.13	1.06	28.25
15	Do the members of knowledge work teams have access to different knowledge-bases in your bank?	2.07	1.03	26.75
16	Is your bank encouraging the employees to create a friendly culture?	1.93	0.96	23.25
17	Is the culture in your bank supportive of innovation, learning, and knowledge sharing?	2.20	0.94	30.00
18	Does the culture in your bank provide a work environment in which employees are engaged, challenged, motivated, and rewarded?	2.67	0.90	41.75
19	Does the bank encourage workers to participate in the establishment of their goals and performance objectives?	1.27	0.46	6.75
20	Are the workers and co-workers encouraged to openly discuss what they need of one another.	2.13	0.83	28.25

**Table 8-4: Descriptive Statistics of Change Management and Human Resource Management**

No	CKIAs	Mean	Std. Deviation	MS %
1	Does IT support your core KM initiatives?	2.93	0.80	43.25
2	What is the impact of IT on providing and collecting knowledge from your clients?	2.00	0.76	25.00
3	How is IT used as a part of strategic KM implementation alliances?	1.80	0.86	20.00
4	Effectiveness of website	2.13	1.19	28.25
5	Effectiveness of corporative intranet	2.20	1.01	30.00
6	Effectiveness of Extranet	2.20	1.15	30.00
7	Effectiveness of non-computerised knowledge support	2.00	1.13	25.00
8	Effectiveness of explicit workflows	2.33	0.90	33.25
9	Effectiveness of document management system	2.67	1.05	41.75
10	Effectiveness of internal network where knowledge is diffused (databases....)	2.13	0.83	28.25
11	Effectiveness of electronic tools to seek information	2.20	1.26	30.00
12	Effectiveness of web server sharing information with customers, suppliers, universities, etc	1.93	1.03	23.25
13	Effectiveness of computerised organisation area	2.40	0.83	35.00
14	How do you currently involve IT users in your KM processes in your bank?	2.13	1.06	28.25
15	How would you describe the diversity of IT staff in your organisation?	2.20	1.21	30.00
16	What is the level of participation of your IT function in the formulation of your over all knowledge strategy?	2.27	1.10	31.75
17	Is there in your organisation a champion for IT project in term of KMS implementation	2.13	0.92	28.25
18	How would you describe the developments of IT skills in terms of KMS	2.80	1.01	45.00
19	How do you measure your IT performance in terms of KM?	2.07	0.70	26.75

**Table 8-5: Descriptive Statistics of Information Technology**

No	CKIAs	Mean	Std. Deviation	MS %
1	Do business strategies in your bank have any influence on the capturing of information/knowledge?	1.87	.64	21.75
2	Is knowledge accessible to everyone in your bank?	2.00	.93	25.00
3	Does your bank gain knowledge about customers, clients, vendors and others?	1.87	.83	21.75
4	Do you think knowledge can be created and stored in paper or electronic documentation in your bank?	2.27	.96	31.75
5	Is you organisation creating new knowledge from peoples' interactions could be accurate and effective knowledge?	2.37	.87	34.25
6	How do you intend to up-date Knowledge processes projects and innovations?	2.47	.99	36.75
7	What is the impact of Knowledge sharing on your clients?	2.53	.74	38.25
8	Do you think sharing knowledge among employees will help you to win work?	2.73	.88	43.25
9	Does your bank have enough information technologies to enable knowledge sharing strategy?	2.27	1.16	31.75
10	How does your bank work to transfer knowledge between functions?	1.93	.88	23.25
11	At what level do individuals share knowledge in your bank?	2.60	1.12	40.00
12	How does your bank use knowledge in decision making activities?	1.73	.70	18.25
13	How does your bank integrate KM in its business activities?	2.27	.96	31.75
14	What is the level of participation of your IT tools in storage and formulation of your overall knowledge?	1.60	.63	15.00
15	What are the objectives of your KM protection?	1.80	.86	20.00
16	At what level does your bank get feedback from the customer regarding its services?	1.60	.63	15.00
17	Is it easy to get the knowledge needed in your bank on time and in a sufficient amount?	1.67	1.05	16.75

**Table 8-6: Descriptive Statistics of Knowledge Management Processes**

Table 8-7 shows the descriptive measures for the overall effectiveness of the CKIAs in all the three banks. The mean scores are between 1.57 for training and learning, and 2.75 for SMC.



No	Item	Mean	Rank	MS%
1	Senior management commitment	2.75	1	43.75
2	KM strategy	2.53	2	38.25
3	Employees' requirements	2.25	7	31.25
4	Alliance and partnership	2.10	13	27.50
5	KM Resources	2.31	6	32.75
6	Organisational policy and procedures	2.16	11	29.00
7	Organisation structure	2.09	14	27.25
8	Training and learning	1.57	19	14.25
9	Teamwork	2.18	10	29.50
10	Organisational culture	2.04	15	26.00
11	IT strategy	2.24	8	31.00
12	IT staff	2.13	12	28.25
13	IT skills	2.50	3	37.50
14	Existence and usage of IT	2.23	9	30.75
15	Knowledge acquisition	1.91	17	22.75
16	Knowledge creation	2.37	5	34.25
17	Knowledge transfer	2.41	4	35.25
18	Knowledge application	2.00	16	25.00
19	Knowledge documentation	1.67	18	16.75

**Table 8-7: Descriptive analysis Overall Effectiveness Areas**

The CKIAs with the highest effectiveness and MS scores are: SMCs; KM strategy; IT skills; and KT. While, the CKIAs with the lowest effectiveness and MS scoring are: KAP; KA; KD; and training and learning.

From the analysis, it can be seen that SMC and KM strategies seem to have the greatest effect on KMS implementation. These two CKIAs fundamentally address the issue related to organisational commitment. Training and learning, however, have the lowest rank among the CKIAs. KM processes are the second lowest rank, which is understandable, as KM has not yet been implemented in the banks.

### **8.3 Secondary Research Summary**

Drawing upon the preliminary findings, the measures of the CKIAs were identified by examining their contribution to the LPUBs business mission and value proposition. The findings and conclusions align with Sullivan (1999) and Muzumdar (1998) who noted that the purpose for measurement dictated the selection of measures. The desired precision for any measures of critical knowledge areas may require consultation with other people in the organisation who have first-hand familiarity with the application of this unique knowledge, and this was undertaken to validate the questionnaire.

The CKIAs and their elements were assessed to determine their contribution to the enhancement of KMS implementation (see Tables 8-3, 8-4, 8-5, 8-6). As it may be observed, all the indicators of weakness of fit are within the most conservative limits recommended for each of them. According to these results, there is not a reasonable fit between what is important and what actually exists; a gap analysis was conducted between the importance and the effectiveness of the CKIAs in the following sections.

### **8.4 Gap Analysis**

Strategic knowledge gap analysis can be used to examine what the organisation should have in terms of being able to meet the industry's key success factors in a superior manner to competitors (see interpretation work in Appendix C). From the CKIA analysis (importance and effectiveness), it is possible to determine the level of gap and then assess what enablers and barriers exist within the LPUB environment to establish what supports or interferes with the implementation of KMS (see Table 8-8). The results of both the preliminary and the secondary case studies were scrutinised for the purposes of gap analysis Chapter 6.

No	Item	Importance Mean	Effectiveness Mean	Gap Mean
1	Senior management commitment	4.63	2.75	1.88
2	KM strategy	4.54	2.53	2.01
3	Employees' requirements	4.30	2.25	2.05
4	Alliance and partnership	4.35	2.10	2.25
5	KM Resources	4.27	2.31	1.96
6	Organisational policy and procedures	3.35	2.16	1.19
7	Organisation structure	3.49	2.09	1.40
8	Training and learning	4.32	1.57	2.75
9	Teamwork	4.15	2.18	1.97
10	Organisational culture	4.51	2.04	2.47
11	IT strategy	3.77	2.24	1.53
12	IT staff	3.36	2.13	1.23
13	IT skills	4.25	2.50	1.75
14	Existence and usage of IT	4.48	2.23	2.25
15	Knowledge acquisition	4.19	1.91	2.28
16	Knowledge creation	3.39	2.37	1.02
17	Knowledge transfer	4.38	2.41	1.97
18	Knowledge application	3.92	2.00	1.92
19	Knowledge documentation	4.09	1.67	2.42

**Table 8-8: Gap Analysis: Descriptive Measures**

To identify the gap between the relative importance and implementation effectiveness for each of the CKIAs in Table 7-20 and 8-7, a gap variable for each CKIA was created by subtracting the rated score for importance from the effectiveness score, using the raw data collected from the three LBs, represented by gaps 1 to 19.

Table 8-8 shows the descriptive measures of the gap variables. The CKIAs with the highest gaps between importance and effectiveness are: Training and learning (2.75); organisational culture (2.47); KD (2.42); knowledge acquisition (2.28). Nevertheless, the CKIAs exhibiting the lowest gap are: KC (1.02); organisation policy and procedures (1.19); and IT staff (1.23).

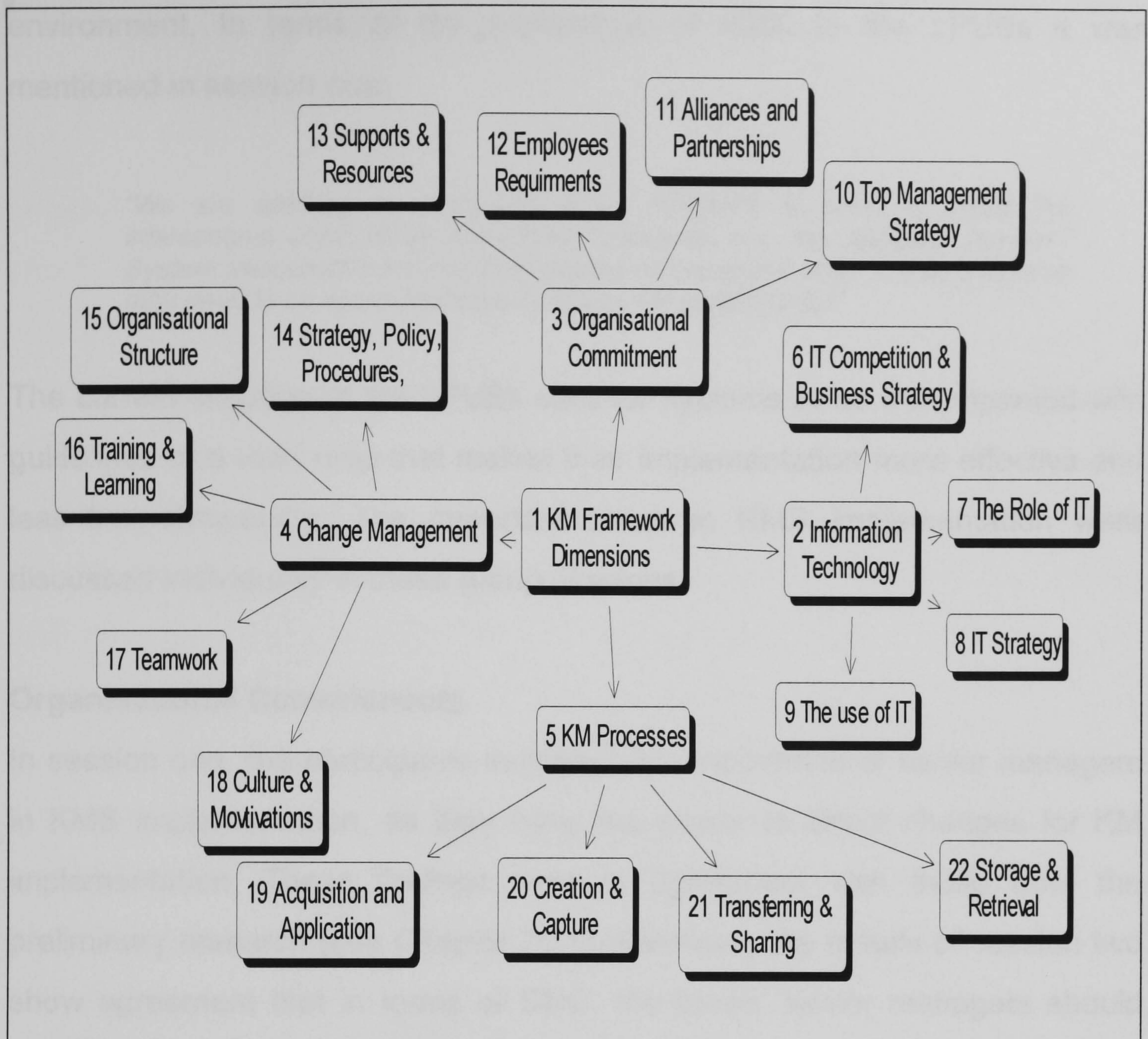
## 8.5 Group Sessions Analysis

This section summarises the results obtained from the three group sessions conducted with a number of bankers at the LBs. The aim of these focus groups was to obtain a more accurate picture of the processes involved in determining KMS effectiveness. The group sessions were launched after the secondary research. Session one discussed the results obtained from the preliminary research; session two considered the results obtained from the secondary research; and session three entailed a comprehensive discussion research findings. The categories of the participants can be seen in table 8-9 below.

Session	Bank	Position in the Bank	Total No. of Participants
Session one (five people)	Real state and investment	Senior Manger (Head of the bank or deputy)	1
	Central bank	IT background	1
	Real state and investment	Banking Operations	1
	Commercial bank	Accountancy and Administration	1
	Real state and investment	Human Resources	1
Session two (seven people)	Central bank	Banking Operations	1
	Commercial bank	Accountancy and Administration	1
	Real state and investment	Planning and Development	2
	Commercial bank	Human Resources	1
	Commercial bank	Technical Projects	2
Session three (five people)	Real state and investment	Senior Manger(Head of the bank or deputy)	1
	Real state and investment	IT background	1
	Central bank	Banking Operations	1
	Real state and investment	Technical	1
	Commercial bank	Employee	1

**Table 8-9: Number and details of the Sessions' Participants**

The group sessions focused in depth on how a KMS can be implemented. All the issues discussed during the group sessions are indicated in Figure 8-1.



**Figure 8-1: Rich Picture of the Discussion Issues**

The group sessions indicated that a KMS could allow LBs to meet the national and international requirements; however, they also recognised that LBs are still at the beginning of the long journey towards implementation; and would therefore require a long time before fully benefiting from a KMS. Implementation of KM mechanisms can result in services and process improvement, and the creation of a centralised communication system for the banking industry. The significant role that a KMS may play in all LBs was acknowledged by most of the group sessions, it was also appreciated that the present environment and circumstances at the LPUBs are not ready to engage in any KM initiatives since more support is required in terms of structure, people, technology, goals and objectives, and internal and external

environment. In terms of the importance of KMS to the LPUBs it was mentioned in session one:

*“We are seeking to implement other initiatives in order to meet the international commercial association demands e.g. the National Payment System (responsible for providing payments clearance etc). These initiatives may need to be accommodated by future KM programmes”.*

The current situation at the LPUBs calls for systems to be accompanied with guidelines or a road map that makes their implementation more effective and less time-consuming. The important areas in KMS implementation were discussed individually in these group sessions:

### **Organisational Commitments**

In session one, the participants indicated the importance of senior managers in KMS implementation, as they have the power to effect changes for KM implementation. These findings were in agreement with those from the preliminary research (see Chapter 7). Furthermore, the results of session two show agreement that in terms of SMC, the banks' senior managers should identify their needs, objectives, and future vision in order to contribute to the development of the KMS implementation within the banks, and in this respect, it was mentioned that:

*“Senior management, which, alone, has overall responsibility for any new or big projects and systems at the Libyan public banks, must lead the banks to a more global approach to KMS”.*

These results are in full agreement with the secondary research findings, which indicated that the LPUBs need much more support from their senior management in terms of KMS implementation, and by this they meant the Libyan government (General Public Committee and the General Public Financial Committee - Minister of Finance). Moreover, the discussion session explicitly expressed the view that senior management should offer more support and motivation to all employees, customers, and suppliers, in a bid to

help build a common and solid policy to lead the way for adequate KM infrastructures.

In terms of KM strategy, it was indicated in session one that any KMS plans should identify strategic KM areas that can achieve the KMS goals and objectives. Moreover, it was mentioned in session two that KMS should be seen strategically, and it was reasonably clear to the participants that the LPUBs will face difficulties in implementing and communicating the KM initiatives as they have no clear KMS strategy to date. In the discussion session it was noted that the purpose of viewing KMS strategically was to determine how the effective use of knowledge can support or enhance the LPUBs' abilities to collaborate with international organisations.

The participants in session one also indicated the importance of meeting employees' requirements and needs in terms of KMS implementation, and the possibility to positively link the success of KMS implementation with motivation and rewards systems (see Chapter 7). In session two the participants indicated that the LPUBs are characterised by low salaries and low related incentives. This comes about because the LPUBs are working under the Law number 15 issued in 1981, which regulates all the salaries and wages in all Libyan SOOs.

In session three, it was argued that the motivation and incentives systems at the LBs need to be reviewed and changed to meet the current financial environment and to support the LPUBs in their new systems.

Considering the importance of the alliances and partnerships, a participant in session one mentioned that:

*"The financial market is very closely linked in the today globalisation and the alliances and partnerships are the most important element in the work of the banking sector as all the transactions, information and knowledge go through international financial institutions".*

In session two, it was pointed out that there are not enough relationships with the international community and financial organisations; and in session three, the participants expressed the belief that the main reason for this situation was the imposition of sanctions on Libya by the UN and USA over the last 15 years. However, as indicated in Chapter 2, with the removal of the sanctions, Libya is now being welcomed by international financial organisations wanting to deal in Libyan shares and investments, and this is occurring both in the Arabic exchange market and the European Market. This positive message makes it very important for LPBs to forge alliances and partnerships with the international financial organisations in order to acquire the knowledge they need to re-enter the international community.

With regard to KM resources, it was indicated that having adequate resources for KMS implementation is also very important in KMS implementation, and this statement is in harmony with the preliminary research findings (see Chapter 7). However, in session two, it was pointed out that the LBs had a long history, which might suggest that LPBs could have a large volume of resources that would be valuable for the development of a KMS.

### **Change Management**

Session one participants stated that it was important to have organisational policy and procedures relating to any new system or programme in order to support the initiative and ensure that its processes are running smoothly and in the intended direction. Moreover, in session two it was noted that LPUBs did not have clear policies or and procedures on how to create, transfer, and share information and knowledge, although the banks have plenty of business resources. These systems and clear rules could have been built to construct a strong process at the LPUBs. In addition, these results emphasise the need for the CM programmes that have been suggested by the participants in the discussion session, especially by those with HR and management backgrounds, as being an important and urgent step forward in the breaking



down of any obstacles that could stand in the way of effective KMS implementation.

### **Organisational Structure**

Considering organisational structure, most of the participants in session one noted that it was very important to have a KM department in the CBL; in each bank, and a division in each branch for KM activities. Moreover, they believed that all these departments, and divisions must be connected by a database sponsored and managed by the CBL. This outcome coincides with the preliminary research findings (see Chapter 7). In session two, the participants explained that no KM department had been established, nor KM responsibilities allocated at the banks so far. In the discussion session, agreement emerged about the need for a KM department in addition to the appointment of dedicated KM staff headed by a CKO at the CBL, who should be responsible for KMS implementation in all the banks, as well as a high-profile executive to be assigned in each bank. Moreover, it was mentioned that employees should be aware of their knowledge responsibilities and educated accordingly.

## **Training and Learning**

In terms of training and learning, all the participants in session one indicated that the majority of departments at the LPUBs needed highly skilled workers and continuing support from their senior management; these statements are in line with the sentiments found in the literature review and the preliminary research. In this context, one of participants from the CBL stated that:

*“the training department at the central bank has developed and organised a large number of training affairs internally (inside Libya) and externally (outside Libya), also some of the courses also provided by the international bank, Arab banking association, international monetary fund, foreign banks that Libya participate in them (some of the Libyan bankers have the opportunities to work outside of Libya which is a type of training for the bankers,) however we are still suffering from the lack of high skills such as language, communication and some innovation skills”.*

This statement from this experienced banker supports the secondary research findings that indicate that LPUBs have to pay more attention to training and learning activities. In session three the importance of training and learning activities to effective KMS implementation was emphasised together with the associated difficulties.

## **Teamwork**

Considering TW in KM, the participants in session one highlighted that KM teams in the LPUBs could contribute to knowledge improvement and better performance levels. These echoes those expressed in the preliminary research. Nevertheless, the results from the secondary research revealed several weaknesses in relation to TW in the LPUBs, which was said to barely exist. Furthermore, and as a result of the discussion in session three, it is indicated that KM teams have to be created and managed as soon as possible to support the banking processes between the LPUBs and foreign banks which support KM initiatives.

### **Organisational Culture**

In relation to OCL, the participants in session one expressed the view that a 'positive' culture was necessary to ensure the success of KMS implementation, as was also indicated by the preliminary findings. In session two the participants expressed the opinion that the OCL was 'negative', that they perceived a lack of organisational trust. Session three, however, emphasised that an improved OCL could enable the LPUBs to be successful in KMS implementation, and that improvements have to be seen in three directions namely, personal, group and organisational directions.

### **Information Technology**

In terms of IT, all participants in session one indicated that LPUBs have to have a clear strategy for IT investment. This supports the results obtained in the preliminary research. Nevertheless, in the second session, many participants were not sure whether the banks had a clear IT strategy. In session three, it was stated that the IT base has an impact on KMS as knowledge should be accessible to all bankers by implementing new, flexible technologies and systems such as IT and other related software, databases, networks, communication tools that support and enable CoP, informal and semi-informal networks of internal employees who are closer to the action, and external employees (foreign banks) who are close to the knowledge resources, at the same time ensuring that they have the skills and authority to perform crucial activities to change attitudes based on shared knowledge and interests.

Session two discussed the assessment of CKIAs, most of the participants agreed upon the situation of IT at the LPUBs, believing that this has not matured in branches in distant geographical locations, and that there are real knowledge and information exchange problems at the banks because basic communication tools are not available (see Chapter 2). As a result there are difficulties, and the creation of trust-based relationships is harder at the

LPUBs. The challenge is intensified further if future KM teams need to be formed and functional areas are then located in different regions. It is also mentioned that IT systems such as groupware applications can enhance the convenience and effectiveness of the management of knowledge. Furthermore, most of the participants in session three agreed that IT can achieve much more than the mere storage and retrieval of data. The new technology and other information processing techniques lead to the verification and filtration of information, as well as the discovery of new actionable knowledge. The key issue, however, is to choose and implement a suitable technology that provides a close fit between people and organisations.

The results of the group sessions concluded that technology that works effectively in some organisations may fail in others. Technology now is a main driver in most companies and particularly in the financial sector, where most day-to-day activities depend on it significantly. Therefore, more complex technology is called upon to play a greater role in the LPUBs, in enhancing banking processes whilst maximising KMS outputs. This outcome is closely and positively linked with the results obtained from both preliminary and secondary research.

### **Knowledge Management Processes**

The importance of KM emerged as one of the most important issues in session one; although the debate about the classification of these initiatives mentioned that KMS implementation should depend on sharing, transferring, and using knowledge in order to cope with the cultural change in the new working environment. KA and creation are also important to deal with the new idea and innovation activities over all the LPUBs. Furthermore, knowledge has to be applied in different circumstances to effectively enable senior bankers to deal with new and emergent events that are most likely to happen in the financial sector. According to the participants, such processes are

necessary in order to pay serious attention to storing and documenting data, information and knowledge, as it was felt that the banking sector was suffering from an overload in this respect.

It is important to note that the group sessions recorded the concern that there is no formal process of KM at LPUBs that can help to create, transfer and share information or knowledge, and that where such sharing and transferring of information does occur, it is weak and informal. The participants noted that their current situation regarding KM processes may have the potential of resources and expertise to allow for development, but that a common infrastructure and strategy is needed to clear the path for implementation and exploitation and management of such knowledge. These issues are linked with the preliminary and secondary research findings.

## **8.6 Summary**

There are several conclusions to be derived from the analysis of the findings from the preliminary research, the secondary research, and the group sessions. The preceding results have mapped out the key implementation areas of KMS, which have to be addressed in order for the LPUBs to develop the full range of their knowledge capabilities. These capabilities should be seen as strategic capabilities. Since these banks may not be able to manage all aspects of KMS implementation at the same time, an ordered list of CKIAs is provided for LPUBs to prioritise and adjust their KM practices accordingly. The instrument developed in this study provides a realistic checklist to, for example, assess the perceptions of KMS implementation areas within the LPUBs, or measure the level of understanding among the workforce. Furthermore, the instrument used in the secondary research could also be used as an assessment tool to evaluate the status of KM implementation areas and thus, help to identify areas for improvement at the LPUBs. The secondary results highlighted that the banks can not fully exploit the benefits

generated by KMS because of the difficulties that the LPUBs face in building and exploiting KM systems, procedures, structures etc. However, this perception may improve with operational improvements following the implementation of regulatory KM programmes. These results are fully supported by the three group sessions regarding the preliminary and secondary research findings. Also, the results of both the preliminary and secondary research could be used to better understand KM practices and to build a framework that would further expand the domain.

# **CHAPTER 9**

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## **DISCUSSION**

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### **9.1 Introduction**

KM implementation is considered an important area for business competitive advantage. Hence, LBs are strongly advised to consider exploiting the KM concept in order to survive (international) competition. Experience gained from studying banking development environments suggested that the industry would benefit from KM. However, it was found that few banks have fully embraced KM. The present chapter provides a comprehensive discussion on the analysis of the results and the findings of the preliminary, secondary and the group sessions together with the examination of the relevant literature; as well as answering the research questions.

### **9.2 Research Questions and Design Suggestions**

The literature on KM and KMS implementation offers assumptions and questions about KM and suggests a number of design principles for its implementation (Stebbins and Shani, 1995; Ware, 1997). These questions

about KMS implementation from several streams of research, and pilot study are as follows:

### **Question -A- regarding the importance of KMS to the LPUBs**

How is KMS important to the LPUBs and what benefits can be obtained from implementing it?

### **Questions –B- regarding the identification of CKIAs**

What are the key typologies (CKIAs) that could be used for implementing appropriate KMS within the LPUBs?

### **Questions –C- regarding the assessment of the CKIAs**

**Question C-1:** Do the LPUBs promote and support the implementation of KMS? This question has sub questions (see Table 9-1):

<b>Q. No</b>	<b>Activities</b>	<b>Sub-question</b>
C-1-1	Senior management commitment	Do the senior managers at the LPUBs have a clear vision and support for the KMS implementation?
C-1-2	KM strategy	Do the LPUBs have enough strategies for KMS implementation?
C-1-3	Employees' requirements	Do the LPBs promote and motivate their employees for KMS implementation?
C-1-4	Alliance and partnerships	Do the LPUBs have enough alliances and partnerships with the international banks to enable the implementation of KMS?
C-1-5	KM resources	Do the LPUBs have enough resources for successful KMS implementation ?

**Table 9-1: Research sub-questions for Organisational change**



**Question C-2:** Do the Libyan banks have the abilities to change and effectively manage their CKIAs related to CM and HRM in order to direct them towards a successful KMS?

This question has sub-questions which can be seen in Table 9-2:

Q. No	Activities	Sub-question
C-2-1	Organisation's policy and procedures	Do the LPUBs' policy and procedures support KMS implementation?
C-2-2	Organisation structure	Do the LPUBs' structures promote the implementation of KMS?
C-2-3	Training and Learning	Do the LPUBs link their training and learning activities to the implantation of KMS?
C-2-4	Teamwork	Do the LPUBs have the concept of the teamwork for KMS implementation?
C-2-5	Culture	Do the LPUBs have the friendly culture to promote the implementation of KMS?

**Table 9-2: Research Sub-Questions for Change Management**

**Question C-3:** Do the LPUBs have the IT systems that can effectively enable the implementation of KMS?

This question has sub-questions which can be seen in Table 9-3:

Q. No	Activities	Sub-question
C-3-1	IT strategies	Do the LPUBs have IT strategies that enable the implementation of KMS?
C-3-2	Existence and usage of IT	Do the LPUBs have enough IT systems that exist and in-use for KMS implementation?
C-3-3	IT staff	Do the LPUBs have skilled IT staff that promotes the KMS implementation?
C-3-4	IT skills	Do the LPUBs employees have sufficient IT skills for KM implementation?

**Table 9-3: Research Sub-question for Information Technology**

**Question C-4:** Do the LPUBs effectively process knowledge that can provide full benefits to the banks and employees?

This question has sub questions which can be seen in Table 9-4:

Q. No	Activities	Sub-question
C-4-1	Knowledge Acquisition	Do the LPBs have the knowledge acquisition methods?
C-4-2	Knowledge creation	Do the LPBs have the knowledge creation methods?
C4-3	Knowledge Transfer	Do the LPBs have the concept of knowledge transfer?
C-4-4	Knowledge application	Do the LPBs have the knowledge applied in all the banks' themes?
C-4-5	Knowledge documentation	Do the LPBs have the knowledge documentation methods?

**Table 9-4: Research Sub-Questions for Knowledge Management Practice**

The literature review, preliminary, secondary research and the group sessions were designed to find answers to these questions that related to the implementation of KMS within Libyan public banking industry.

### 9.3 Research General Findings

As KM is relatively maturing phenomenon in the literature, there exist many challenges for KMS implementation within empirical practice. Although the literature review findings show a worldwide spread of implementation of KM. The literature reveals that KM is being adopted in organisation ranging from small to multinational organisations. In this course, APQC (2000) argue that KM is at the heart of organisation's business and it supports the ability of every organisation to prosper. LPUBs are still unaware of the importance of KMS. Hence, no KMS has been implemented so far. The next section highlights the importance and benefits of KMS to the LPUBs.

### **9.3.1 The Importance and Benefits of Knowledge Management System to the Libyan Public Banks (Question A)**

Knowledge management is becoming an extremely critical platform for sustaining core business capabilities and harnessing the capacity for innovation. Within the framework of knowledge-based theory, it is claimed that the only resource that provides an organisation with sustainable competitive advantages is knowledge (Martensson, 2000).

Libyan public banks are facing the challenge of knowledge erosion and fear the loss of basic or even niche business knowledge. KM adoption within LPUBs is still in its infancy despite the growing awareness.

The findings of this research explicably indicate that LPUBs are missing out on the benefits that KMS can provide. This is attributed to the LPUBs inability to develop systems capable of exploiting KMS. Nevertheless, LPUBs are urged to exploit KMS in order to survive the competition emerging with globalisation.

There is a great deal of overlap between regulatory and governance changes, such as IT systems, culture change and the overall budget to facilitate/ enable a revolutionary change in LPUBs. Hence, it is deemed necessary for LPUBs to embark on exploiting IT for an improved and automated workflow.

The improved workflow resulting from innovative KM solutions is expected to enable LPUBs to meet WTO requirements. Also keeping up with technology innovations is important if businesses are to remain agile. Although, rapid economic growth – thanks to a wealth of oil and gas – has turned Libya into one of the world's richest countries in terms of per capital of the General Domestic Product (GDP), providing opportunities that banks have been quick to take up.

The data analysis carried out in this research demonstrates that LPUBs are not planning to build strategic regulatory KMS (see Chapter 8). This means that multiple projects have been initiated based on separate data collection, storage and analysis environments. In the long term, this could mean that LPUBs are more likely to lose flexibility for dealing with future regulatory changes. The necessary awareness for the management of knowledge can be still considered to be relatively low among the responding banks. No bank had an explicit KMST in place. The analysis also indicated that employees often look for quick fixes, and therefore fight the symptoms of a problem and not its cause. This is argued to reduce time and cost related efforts.

There are several benefits that LPUBs can witness from the successful implementation of KMS. These benefits can be divided into two categories:

- Intangible benefits; and
- Tangible benefits.

This study reveals that the intangible benefits appreciated more than the tangible benefits. The results show that the top five benefits of KMS as perceived by the LPUBs are as follows:

- KMS could be a base to many other banking programmes (such as National Payment System);
- Enabling better decision making;
- Help banks to become more competitive;
- Enable best practice; and
- Increasing workers productivity and performance.

In order to maximise the potential of KM, LPUBs need to utilise existing resources and implement effective KMS (objective two) in order to obtain the benefits mentioned previously in a cost effective and rapid way. Since a pure KM point of view does seemingly not exist at the banks, this has caused the banks to lose benefits from continuing to improve its banking processes and their coordination to the information systems. Hence, LPUBs are expected to exploit available technology to efficiently locate and access required information in a timely manner. So, for the LPUBs to begin with that they should have the goal of providing the resources of information and materials needed for the KMS. The next section is providing the set of the critical areas in KMS implementation.

### **9.3.2 Identification of Critical Knowledge Implementation Areas (Question B)**

Most literature is introducing KMS from a western perspective. Therefore, this research was concerned with identifying relevant CKIAs within LPUBs (objective three) - see preliminary case study. Very little previously published research has either developed or empirically investigated a comprehensive list of CKIAs for implementing KMS (Oltra, 2005). One of the main contributions of this study is a prioritised set of CKIAs for implementing KMS in the banking sector, arranged in order of importance (question B).

Based on qualitative observations and preliminary research findings, this study revealed that OCL, employees' requirements, and existence of IT were shown to be extremely important. In addition, transferring knowledge, meeting employees' requirements, training and learning, and alliance and partnership, which have received little attention as CKIAs in previous studies in large organisations in particular, were also shown to be imperative in LPUBs. Davenport *et al.* (1998) hypothesised that the most important factors were culture, organisational infrastructure, motivational aids, and management

support. This suggests that there are differences in the perceived importance of factors for adopting KM, between different environments.

Based on the discussions process and flow of idea generation and refinement in the findings, the identity of the CKIAs can be determined for the Libyan public banks. The identification of CKIAs has been accomplished by examining the banks' business mission, value proposition, points of competitive differentiation, and the essential bodies of knowledge that contribute to the carrying out of these key elements. A critical knowledge area can be used as a benchmarking measure for the comparison of practices (the secondary research). These examples demonstrate ways in which the identification and measurement of critical knowledge areas can impact the preparation of the LPUBs to implement a successful KMS.

The analysis of LPUBs revealed the following critical success areas to be most important: SMCs to stimulate a strong relationship between KM activities and the banks' competitiveness, CM and HRM to enable the consistent management of core knowledge, IT systems and rules to satisfy researchers' individual aspiration for self development; and various knowledge process activities to generate meaningful new ideas.

It is also crucial not to overlook those factors which were ranked to be less important such as organisation policy and procedures, IT staff and KC. It is quite surprising to find that KAP was not rated among the more important CKIAs by the respondents, especially when knowledge is needed to support the decision making activities.

It was deemed necessary to determine the current status of CKIAs within the organisations under study. Subsequently, the relationship and the gaps between the importance of CKIAs and their effectiveness were identified in a real life context of LPUBs. The success of KMS implementation effectiveness

is dependent upon CKIAs, the accurate measurement of which is crucial for successful KMS implementation.

### 9.3.3 Status of Critical Knowledge Implementation Areas at the Libyan Public Banks (Sub-Questions of Question C)

The answer to question C are combined with the interpretation work (conceptual framework) constructed from the literature review to help identifying the exact status of each CKIAs (objective four), five outcomes are presented, and categorised as, 'A', 'B', 'C', 'D', and 'E'. The precise interpretation of each of these categories can be seen in appendix (C) (similar to the Construct IT Health Check Questionnaire). Each CKIAs' result (mean) has been intimated to the relevant category in the interpretation work (objective five) as illustrated in Table 9-5.

Relevant Category	E	D	C	B	A
If the Mean	0-0.99	1-1.99	2-2.99	3-3.99	4-5
If the MS	0	0-25%	25-50%	50-75%	75-100%

**Table 9-5: A Guide for the Comparison between Secondary Results and Interpretation Work**

#### Senior Management Commitment (Question C-1-1)

The preliminary research indicates the importance of the area of senior management commitment (see Chapter 7), the secondary research, however, reveals a weakness of the senior manager's commitment to KMS implementation with a mean of 2.75 and MS of 43.75%. Comparing these results with the interpretation work (see Appendix C), these results are in adaptation with the category C (a mean between 2 and 3). The interpretation of these results indicates that there is still confusion at the LPUBs in terms of KM vision, interest and responsibility. Furthermore, the relation between SMC

and KMST is indirectly addressed through its supportive role. Some overlap in the roles and responsibilities among managers also exists. As a result, the corporate goals and objectives of KMS are not well linked to the banks' business strategy.

### **Knowledge Management Strategy (Question C-1-2)**

The mean and MS of KMST area in the secondary research show very low rank level of KMST (a mean of 2.53, and MS of 38.25%). Comparing these results with the interpretation work (see Appendix C), these results are relevant to category (C), which indicate that no clear KMST exist at the LPUBs. The relationships between KMST and organisation's goals and objectives are indirectly addressed through its supportive role. Furthermore, these results indicate a very low level of the participation of KMST in the formulation of overall KMS. In terms of reviewing the risks that might face the LPUBs when implementing KMS, the banks may be misguided and confusion for achieving KMS and may prevail if they don't have a clear and effective KMST in place.

### **Employees' Requirements (Question C-1-3)**

The secondary research shows a very low level of employees' support and encouragement by the banks and the senior management in terms of KMS implementation with a mean of 2.25 and MS of 31.25%. In comparison with the interpretation work (see Appendix C). This result indicates no formal mechanisms from the senior management to manage their relationships with their employees, or to measure the extent of communication benefits between them. Only some arrangements for surveying employees' encouragements and satisfactions exist across the banks. Furthermore, these results mean that there is indirect linkage between KMS and employees' incentives and rewards, limited monitoring, measurements, and analysis to the results of the level of the knowledge accumulation by the banks' employees.



**Alliances and Partnerships (Question C-1-4)**

The analysis of this area in the secondary research shows weakness to the alliances and partnerships that have been made at the LPUBs so far with a mean of 2.25 and MS of 31.25%. Furthermore, these results (see Appendix C), indicate that short-term partnerships and collaboration with national and international organisations have just started recently. The LPBs just began to prepare for partnership within the industry (public and private banks) for KM interaction. Therefore, only some benefits are gained at the LPUBs by partnering with international organisations.

**Knowledge Management Resources (Question C-1-5)**

In the secondary research the results show very weak KMR for KMS implementation with a mean of 2.31 and MS of 32.75%. In comparison with the interpretation work (see Appendix C), no systematic/formal approach or process to resource allocation, budgeting or forecasting to resource allocation for KM activities exist. In addition, the roles and responsibilities of senior managers at the LPUBs as they pertain to identifying and providing strategy resources for KM are generally not well understood. Notwithstanding these issues, no mechanisms exist for the LPUBs to manage its resources for KMS implementation, and the information on the KM resources is mainly anecdotal.

**Organisation's Policy and Procedures (Question C-2-1)**

During the secondary research, the results indicated a weakness of the banks' policies and procedures supporting KMS adoption with a mean of 2.16 and MS of 29%. These results are relevant to category C: requiring more attention. In the interpretation work (see Appendix C), it can be said that some of KM policies exist but are not well understood or applied in a consistent manner. Furthermore, knowledge standards and cycles could be in its way of establishment but the KMS guidelines are needed for specific operational areas.

**Organisation Structure (Question C-2-2)**

The results of the secondary research, in the area of organisation structure, show a mean of 2.09 and MS 27.25% which indicate the poor structure of the banks regarding to KM department or KMS staff. In comparison, of these results to the interpretation work (see Appendix C). The category C shows that the structure of KM department could be only a small technical unit providing group technical service. The technical staff could also be the champion for any future KM processes. As the organisation' structure is vital for how it harnesses the knowledge, and strategically directs it towards agility and competitiveness in the LPUBs, this area is not matured for any KMS implementation plan.

**Organisational Training and Learning (Question C-2-3)**

Considering organisational training and learning (OTL) activities, the secondary research findings indicate that OTL activities are still very weak in comparison to their importance within LPUBs with a mean of 1.57 and MS of 14.25%. These results are relevant to category D in the interpretation work (see Appendix C). These results mean that little or no information exists on training and learning requirements for either functional employees or managers to support KM practices. Furthermore, limited tools and techniques are available within the organisation to assist managers in conducting KM analysis.

**Teamwork (Question C-2-4)**

In terms of the effectiveness of teamwork (TW) area (see secondary research) TW with a mean of 2.18 and MS of 29.50% reflects that TW has not been built effectively within LPUBs (see Appendix C). However, some recognition and incentive programmes are in place for TW building which could support KM initiatives.

### **Organisational Culture (Question C-2-5)**

The secondary research indicates low levels of organisational culture (OCL) within the LPUBs with a mean of 2.04 and MS of 26%. These results reflect LPUBs moving from category D to category C in terms of OCL (see Appendix C). This can be interpreted that people are encouraged to increase their interaction and are allowed to make suggestions for change. In terms of the availability of information; information is only available for monitoring purposes and is shared amongst functions where inter-relationships exist.

### **IT Strategy (Question C-3-1)**

In terms of the IT Strategy (ITST) area effectiveness, LPUBs have no strategic regulatory control mechanisms for KM environments based on common data and information technologies. This is reflected in the secondary research by a mean of 2.24 and MS of 31%. In comparison with the interpretation work (see Appendix C Table ITST) the ITST results are relevant to categories (C), which mean that the LPUBs are aware of some of the strategic opportunities provided by IT, but the bottom-up approach has formed a barrier for IT progress in terms of KMS. Furthermore, the results indicate that LPUBs are starting to create an IT infrastructure and culture that would support KM activities and corporate goals.

### **The Existence and Usage of IT Systems (Question C-3-2)**

The secondary research indicates a mean of 2.23 and MS of 30.75% for IT investment and usage within the LPUBs. These results are equal to category C in the interpretation work (see Appendix C). Hence, these results reflect an increase in the number of IT application systems being developed or purchased by the LPUBs; however, it is still on the operational level within the financial area. Nevertheless, a small number of other core business-oriented systems are being developed. Moreover, IS is independent and unconnected organisation-wide or even within the same group within the LPUBs, which makes IT portfolios of each bank differ from the rest of the Libyan banking

industry. The results also indicate that LPUBs have started to network their divisions and employees as the means for a better internal as well as external information sharing. In addition, IT systems rely only on gathering and processing internal data with a little focus on the internet that exist to facilitate business-to-business or business-to-customer transactions such as ordering, invoicing, and payments during the banking operations.

### **IT Staff (Question C-3-3)**

The effectiveness of IT staff within the LPUBs is reflected by the secondary research findings with a mean of 2.13 and MS of 28.25%. Comparing these results with the interpretation work (see Appendix C). These results indicate that core hybrid IT staff is sought and developed within LPUBs. The small number of IT staff within these banks consists, in addition to programmers and low-level technicians, of some systems analysts. In terms of the IT responsibility, IT staff has been assigned with the responsibility of adequately understanding the users requirements that may be needed for KM systems' development. Furthermore, a technically-oriented IT manager has been appointed as being responsible for IT functions.

### **IT Skills (Question C-3-4)**

In respect of the importance of IT skills in terms of KMS implementation, the secondary research addresses the current status of this area within the LPUBs. The results reflect a mean of 2.50 and MS of 37.50%. In comparison with the interpretation work (see Appendix C); IT staff within LPUBs possess the skills needed to develop and maintain complete systems such as programming and analysis. In addition IT staff is able to install off-the-shelf ready-made packages that might be used in terms of KMS implementation. However, the levels of IT skills in some departments within the LPUBs need some attention. The current partial commitment to R&D initiatives may slow down the rate of progress of IT in the LPUBs. The results also indicate low technical competence within the LPUBs because of the low-developed IT

related skills (programming, analysis, security, networking etc.). These needs should be addressed by the LPUBs in order to meet the requirement of the successful implementation of KMS.

#### **Knowledge Acquisition (Question C-4-1)**

The assessment of Knowledge Acquisition (KA) area in the secondary research shows that KA is still very weak within the LPUBs with a mean of 1.91 and MS of 22.75%. In comparison with the interpretation work (see Appendix C), these results are relevant to category (D) which means that KA methods including buying or acquiring the critical knowledge capabilities are missing within the LPUBs. Moreover, these banks are hiring new staff members who possess the missing knowledge when needed. These results also indicate that only the chairman of the bank and deputies have access to the information related to clients needs.

#### **Knowledge Creation (Question C-4-2)**

In terms of Knowledge Creation (KC), the effectiveness analysis (secondary research) show more effectiveness than KA with a mean of 2.37 and MS of 34.25%. However, KC process within the LPUBs is still very weak and could be informal and insufficient in comparison to the size of the LBs and its revenue (see Chapter 7). Comparing these results with the interpretation work (see Appendix C); changes are always under consideration by the senior management within the LPUBs. However, there is a weak link between new projects and the validity of available knowledge. Moreover, the information is not well managed.

#### **Knowledge Transfer (Question C-4-3)**

Considering the Knowledge Transfer (KT) in the secondary research, the findings indicate that there is a shortage in KT amongst the LPUBs with a mean of 2.41 and MS of 35.25%. In comparison with the interpretation work (see Appendix C); the employees within the LPUBs have limited time for KT

and sharing. Moreover, the lack of tools used for KT together with the lack of trust among colleagues, makes it difficult to embed knowledge within routine business processes. Knowledge transfer is, therefore, only limited to the classical face-to-face method.

#### **Knowledge Application (Question C-4-4)**

In terms of Knowledge Application (KAP); the secondary research shows a mean of 2.00 and MS of 25%. These results in comparison with interpretation work (see Appendix C) mean that decision making processes within the LPUBs is dependent on senior managers' ability to understand the environment or the current situation. These results show that knowledge utilisation and application within the LPUBs is low. This result is understandable as there is no KMS in place.

#### **Knowledge Documentation (Question C-4-5)**

Considering Knowledge Documentation (KD), the result is opposite to that of the preliminary research (see Chapter 7) with a mean of 1.67 and MS of 16.75%. These results in comparison with the interpretation work (see Appendix C) indicate that only manual archives exist within the LPUBs for storing data and information. Furthermore, knowledge is not protected. Moreover, these results reveal that all feedbacks from customers, agents, and stakeholders are not recorded within LPUBs. Notwithstanding these issues, the lack of knowledge filtration systems and knowledge retrieving system makes it difficult to have a successful KMS in place.

### **9.4 Results Triangulation**

The findings of the preliminary and secondary research are compared to extract the gap between the importance of these areas and their effectiveness within the LPUBs (objective four). These results are combined later with the three group sessions and the literature review to answer the research questions.

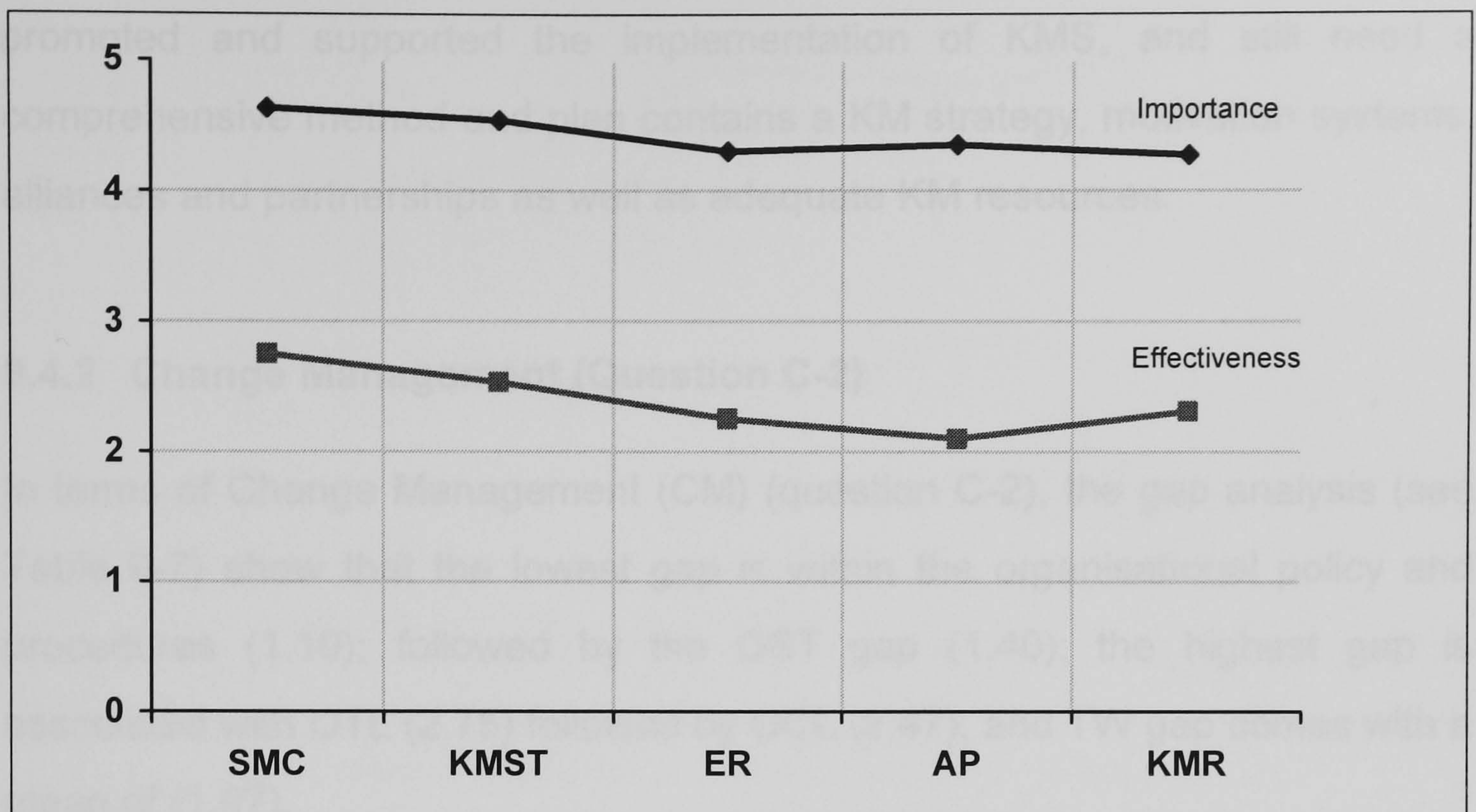
### 9.4.1 Organisational Commitment (Question C-1)

In terms of organisational commitment (OC) (question C-1), the gap analysis (see Table 9-6) shows that there are wide gaps between the importance and effectiveness of CKIAs related to OC. The lowest gap is between the importance and the effectiveness of SMC (1.88), on the other hand the highest gap is associated with the alliances and partnerships (2.25) followed by meeting employees' requirement (2.05) and KM strategy (2.01); and KM resources with a gap of (1.96).

No	CKIAs	Importance	Effectiveness	Gap
1	Senior management commitments	4.63	2.75	1.88
2	KM strategy	4.54	2.53	2.01
3	Employees' requirements	4.30	2.25	2.05
4	Alliances and partnerships	4.35	2.10	2.25
5	KM Resources	4.27	2.31	1.96

**Table 9-6: Gap Analysis of Organisational Commitments**

To answer the question "Do the Libyan banks promote and support the implementation of KMS", the analysis to the results obtained from the secondary research, the interpretation work, group sessions, in addition to the gap analysis which is presented in Figure 9-1.



**Figure 9-1: Importance versus Implementation Effectiveness of Organisational Commitment**

The analysis indicates that senior managers within the LPUBs have the potential to support the implementation of KMS. It might be also that the importance and the potential benefits of a KMS may not have been fully realised by the SMC at the LPUBs (see group session analysis in Chapter 8) since the KMS is quite a new concept (Grover and Goslar, 1993; Sarvary, 1999). However, the KM strategy is not well developed within the LPUBs and its readiness has not been assessed against the reform needed.

The results also indicate that KM resources are not available within the LPUBs to manage knowledge strategically, these resources include but are not limited to internal and external information, budget etc. Furthermore, the alliances and partnerships between the LPUBs and the national and international banking community are still predominately low. In terms of meeting employees' requirements, it can be said that there is a low level of motivation and reward systems within the LPUBs (see Chapter 8).



Overall, the answer to question C-1 comes like that: the LPBs are not fully promoted and supported the implementation of KMS, and still need a comprehensive method and plan contains a KM strategy, motivation systems, alliances and partnerships as well as adequate KM resources.

#### 9.4.2 Change Management (Question C-2)

In terms of Change Management (CM) (question C-2), the gap analysis (see Table 9-7) show that the lowest gap is within the organisational policy and procedures (1.19); followed by the OST gap (1.40); the highest gap is associated with OTL (2.75) followed by OCL (2.47), and TW gap comes with a mean of (1.97).

No	CKIAs	Importance	Effectiveness	Gap
1	Organisation policy and procedures	3.35	2.16	1.19
2	Organisation structure	3.49	2.09	1.40
3	Training and learning	4.32	1.57	2.75
4	Teamwork	4.15	2.18	1.97
5	Organisational culture	4.51	2.04	2.47

**Table 9-7: Change Management Gap Analysis**

To answer question C-2 “Do the Libyan banks have the abilities to change and effectively manage their Critical “Knowledge Implementation Areas” in relation to CM and HRM in order to direct them towards a successful KMS”, the analysis to the results obtained from the secondary research, the interpretation work, group sessions, in addition to the gap analysis which is presented in Figure 9-2.

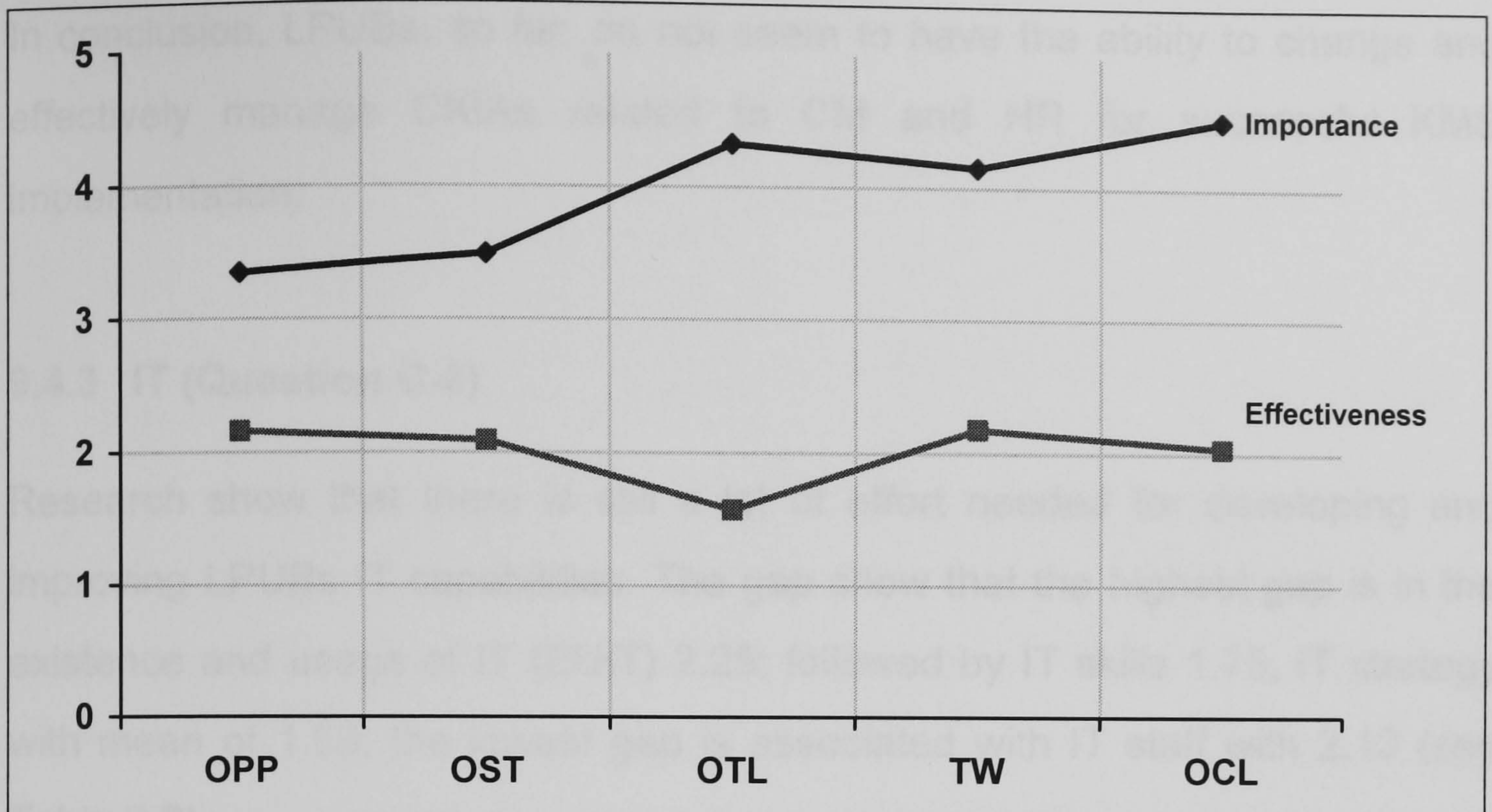


Figure 9-2: The Importance versus the Effectiveness of Change Management

Training and learning activities as well as OCL show a wide gap indicating that LPUBs have not employed strategies for recruiting, training and learning activities in terms of KMS implementation (see Chapter 8). Furthermore, it can be argued that the success of KMS implementation is highly dependent upon OCL (APQC, 1999; Davenport *et al.*, 1998; Hasanali, 2002; Liebowitz, 1999; McDermott and O'Dell, 2001; Skyrme and Amidon, 1997) and in this context, these results indicate that LPUBs are still suffering from poor OCL in terms of KMS.

The results also show that LPUBs do not have effective KM teams. Teamwork building is necessary for KM implementation due to its inherent complexity and demanding effort. In terms of organisational policy and procedures the results show that policy, and procedures within the LPUBs are not viewed and understood by either senior managers or employees. Furthermore, it is expressed that no formal policy, procedures, and measures are in place for KMS implementation (see Chapter 8).

In conclusion, LPUBs, so far, do not seem to have the ability to change and effectively manage CKIAs related to CM and HR for successful KMS implementation.

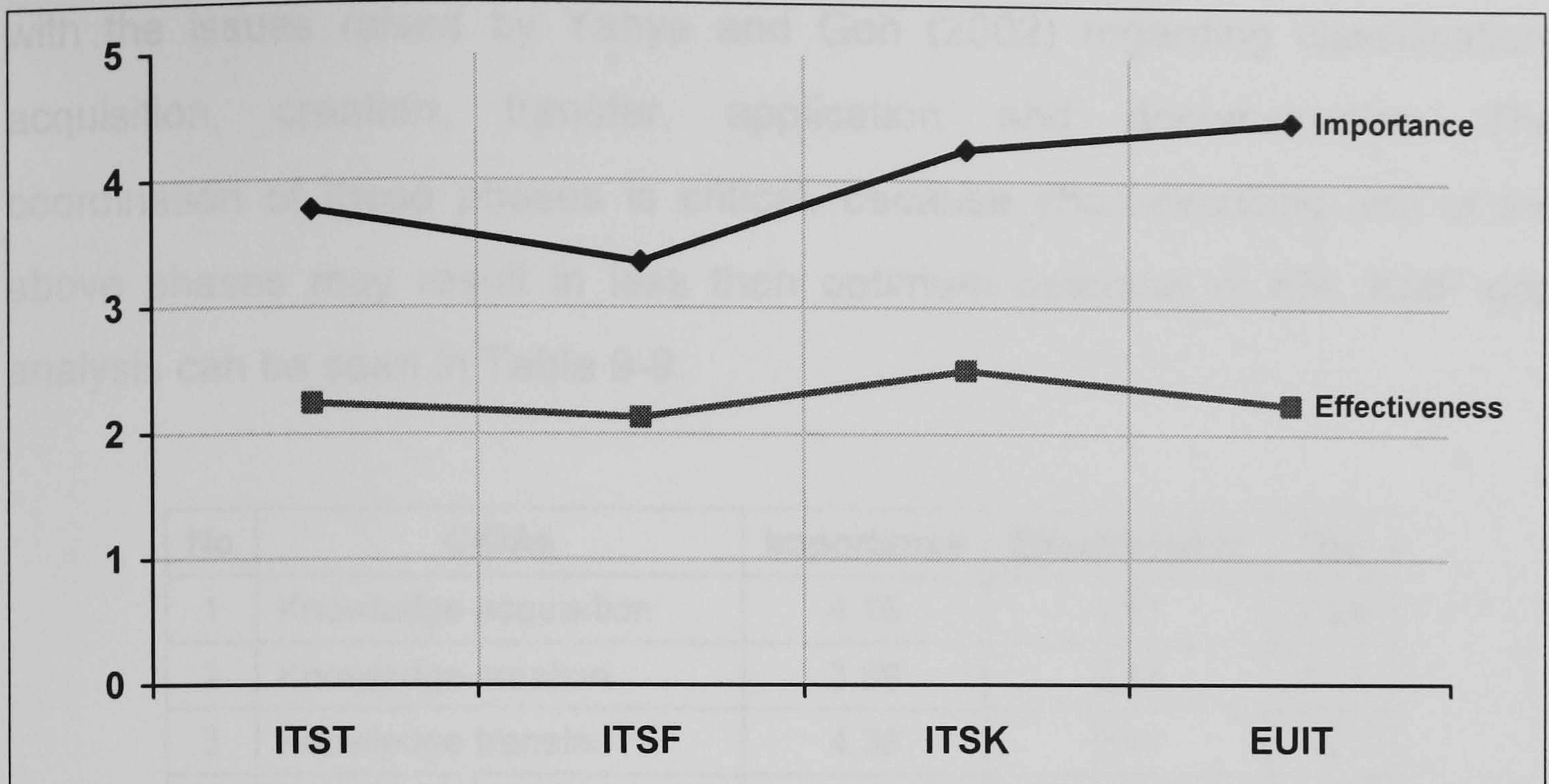
### 9.4.3 IT (Question C-3)

Research show that there is still a lot of effort needed for developing and improving LPUBs IT capabilities. The gap show that the highest gap is in the existence and usage of IT (EUIT) 2.25; followed by IT skills 1.75, IT strategy with mean of 1.53; the lowest gap is associated with IT staff with 2.13 (see Table 9-8).

No	CKIAs	Importance	Effectiveness	Gap
1	IT strategy	3.77	2.24	1.53
2	IT staff	3.36	2.13	1.23
3	IT skills	4.25	2.50	1.75
4	Existence and usage of IT	4.48	2.23	2.25

**Table 9-8: IT Gap Analysis**

To answer question C-3 “Do the Libyan banks have the IT systems that can effectively enable the implementation of KMS” the analysis to the results obtained from the secondary research, the interpretation work, group sessions, in addition to the gap analysis which is presented in Figure 9-3.



**Figure 9-3: The Importance versus the Implementation Effectiveness of Change Management**

The results show that IT systems and strategy are weak within LPUBs (See Chapter 8. LPUBs have not applied practical IT systems for KMS to sustain long-term competitive advantage. Also the results in terms of IT staff show some weakness, and their IT skills are not deemed adequate for successful KMS implementation.

In conclusion, LPUBs do not have matured IT systems that are underpinned by a coherent IT strategy. This is a significant barrier which can impede the implementation of the KMS.

#### 9.4.4 Knowledge Management Process (Question C-4)

Examples of KM processes (KMP) are: generate, propagate, transfer, locate and access, maintain and modify knowledge (Anumba *et al*, 2001). Others have used different classifications of the KMP e.g. generate, codify and transfer (Ruggles, 1997); creation, location, capture, share and use of knowledge (Tiwana, 2000); discovery and capturing; organisation and storage; distribution and sharing; creation and leverage, retirement and archiving (Robinson *et al*, 2001). The KMP within LPUBs goes more inline

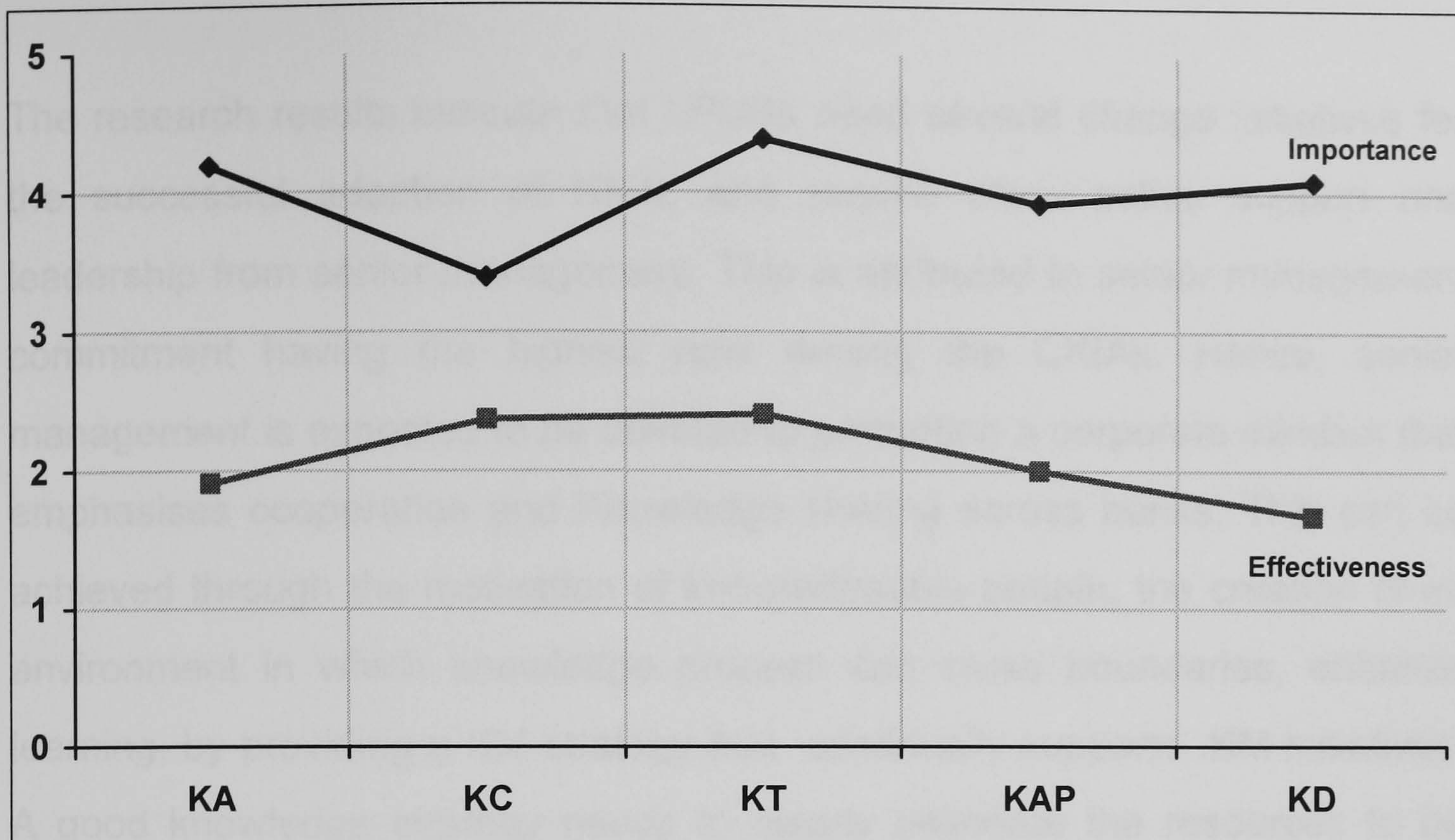
with the issues raised by Yahya and Goh (2002) regarding classification: acquisition, creation, transfer, application and documentation. The coordination of these phases is critical, because short-circuiting any of the above phases may result in less than optimum outcome of KM. KMP gap analysis can be seen in Table 9-9.

No	CKIAs	Importance	Effectiveness	Gap
1	Knowledge acquisition	4.19	1.91	2.28
2	Knowledge creation	3.39	2.37	1.02
3	Knowledge transfer	4.38	2.41	1.97
4	Knowledge application	3.92	2.00	1.92
5	Knowledge documentation	4.09	1.67	2.42

**Table 9-9: Knowledge Management Process Gap Analysis**

The gaps of KMP are understandable as there are no formal KMS in place within LPUBs. Hence, appropriate mechanisms and interventions should be in place to ensure that these processes are properly addressed.

Therefore, to answer question C-4 “Do the Libyan banks effectively process knowledge that can provide full benefits to the banks and employees”, the gap analysis in the Figure 9-4 shows many areas have to be filled in terms of KMP for KMS implementation.



**Figure 9-4: The Importance versus the Implementation Effectiveness of Organisational Change**

As can be seen in Figure 9-4 wide gaps exist within KA and KD. This is understandable, as knowledge documentation enables knowledge acquisition (see Chapter 8). As indicated in the literature it is important to store and document knowledge to be easily retrieved and re-used in the future. In conclusion, KM processes are weak within LPUBs.

## 9.5 Summary

Based on the information gathered through the different research activities, it can be understood that the LPUBs pay little attention to KMS implementation. However, there is a potential for shaping an effective KMS in the future. The reluctance of LPUBs to embark on KMS is mainly attributed to the lack of awareness of the importance of KMS as well as the ambiguity of the term KM. Nevertheless, the successful KMS implementation is dependent on several CKIAs such as organisational commitment, CM, IT and KM processes. These CKIAs can be regarded as a valuable reference point subsequent inclusion within the LPUB's environment.

The research results indicate that LPUBs need several change initiatives for the successful adoption of KMS; and require more active support and leadership from senior management. This is attributed to senior management commitment having the highest rank among the CKIAs. Hence, senior management is expected to be devoted to promoting a corporate mindset that emphasises cooperation and Knowledge sharing across banks. This can be achieved through the motivation of knowledgeable people, the creation of an environment in which knowledge process can cross boundaries, enhance learning, by providing a KM strategy that continually supports KM initiatives. A good knowledge strategy needs to clearly delineate the resources to be dedicated internally inside the banks and among them; and externally with international banks and financial organisations (alliances and partnerships) (Hung *et al.*, 2005).

In terms of HRM, it should be noted that most change takes place relatively slow (Gratton *et al.*, 1999). Therefore, LPUBs have to schedule their new procedures (Diakoulakis *et al.*, 2004) and appoint a CKO (Liebowitz, 1999) as a pre-requisite for KMS infra-structure. LPUBs are also required to review their organisation's structure (Egbu and Struges, 2001); organisational culture which needs to be supported through training and learning activities, as well as effective teamwork.

Consideration of the existence of IT systems as well as communication tools and networks are of prime importance to LPUBs for adopting KMS, especially that senior management appreciates IT potential for successful implementation of KMS. Hence, IT investment is required to take place within LPUBs, together with IT staff recruitment. This should be underpinned by IT training inline with a supportive IT strategy.

The different CKIAs identified in the research, are expected to enable an effective KMS for knowledge transfer and sharing in order to achieve LPUBs goals. However, appropriate robust mechanisms are required to leverage this. In this context therefore, it must be noted that inadequate senior management commitment, inappropriate CM, insufficient IT systems and Lack of KM processes are challenges facing the successful implementation of KM within LPUBs.

The activities with the lowest implementation rate are OC, CM, IT and KMP. As these are key issues (and inputs for KMS) to develop knowledge capabilities, these deficiencies are considered core implementation barriers. For successful KMS implementation, LPUBs should reconsider and integrate OC, CM, IT and KMP. More emphasis on people and technologies/ techniques are also required and supported by senior management.

## **9.6 Conclusion**

LPUBs are required to address and investigate certain issues prior embarking on KMS implementation. These issues include (but are not limited to) goals, culture, structure, etc. It is easy to start recommending approaches such as CoP and content management systems etc. without considering the 'bigger picture'. Whilst these approaches may have widespread success stories in different countries, the relevance of these to the LPUBs may not be applicable. Therefore, consistent deployment of critical knowledge implementation areas that have been developed in this research are expected to produce a positive impact on the success of a KMS implementation within LPUBs.

The findings and conclusions support the literature review findings and preliminary and secondary research and group sessions. The results and conclusions of the study are therefore aligned with the theoretical proposition



that the identification and measurement of CKIAs (see Appendix C) in the LPUBs can serve as an important and practical base for building a theoretical framework for KMS implementation within a banking sector.

Many organisations have benefited from implementing KMS (Arora, 2002). In this context, LPUBs have to follow the KMS programme with a clear vision, objectives, and approaches to be successful in implementing KMS. In this understanding Arora (2002) state that “If the organisations formulate a well laid down KM strategy and follow it closely there will be many successes, which will popularise KM and will make it a necessary process for the success of organisations”. Developing a KM methodology or framework is a critical step for both academia and organisations that are serious about conducting KMS implementation. The methodology should originate from a strategic perspective and be integrated within the strategic mission and vision of the organisation (Rubenstein-Montano *et al.*, 2001<sup>b</sup>).

The findings from the preliminary and secondary research present comprehensive ideas and methods consistent with 'systems thinking'. The primary finding is that current KMS implementation methodologies are neither typically linked to a more general framework for the discipline nor consistent with systems thinking. There are a number of offshoots from this concept: integration of people and technology; pre-planning, thinking and conceptualising to get the whole picture; and double-loop learning to emphasise relationships and linkages within the system.

As noted in the findings, the identification of critical knowledge areas can create new perspective regarding KMS implementation. By examining the connections between the importance of critical knowledge areas and the points of effectiveness within the business mission and value proposition, specific actions can be identified to leverage those points and find the gap between what should exist and what actually exists in real life. Such a

business framework is designed to create a managerial mindset that is given to focus upon certain factors. As the findings indicate, the participants found this predisposition as a source of difficulty in reframing their perspective of the organisation.

The theoretical framework resulted from the literature review, pilot study, preliminary research, secondary research, and group sessions. In order to create a KMS that encourages the flow of knowledge within LPUBs. This framework to include:

- A holistic conceptual framework that can be used by managers as a roadmap for ensuring integrity of the KM effort;
- A KM methodology that helps organisations define and document their KMST, audit and design business processes that enhance and facilitate corporate learning, establish related organisational roles, facilitate knowledge sharing between employees in the organisation, and explicitly measure and evaluate the quality and business value of the organisation's IC;
- An IT system that supports the collection and categorisation of internal and external information, the re-use of stored knowledge using flexible and customisable knowledge navigators and advanced search mechanisms that include keyword-based as well as concept-based searching (the latter supported by a graphical visualisation of the concepts organising the information space), and the collaboration via on-line workspaces that allow employees to work together from different locations.
- With a proven set of best practices, LBs can successfully integrate a KMS into their workplace and ensure its continued viability and growth for years to come.

The following steps in this research are based on the preliminary, secondary and focusing group results and analysis. The banks seem to appreciate the

potential and value of KMS but need to be educated on the principles and specific methodologies, techniques, and tools as to how best to leverage the knowledge in their organisation to evolve into a "learning organisation". A gap analysis and specific recommendations for how best to implement KM system, as well as providing recommendations on how to transform the LPUBs into a "knowledge intensive organisations" is presented in the framework in the next chapter. These results are used in building the framework (objective six).

# **CHAPTER 10**

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## **THE CONCEPTUAL FRAMEWORK**

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### **10.1 Introduction**

Knowledge must be applied 'to have value' within a specific business context. This may have to be done differently depending on the industry. Most of the studies that from the basis of existing frameworks have been carried out in organisations in western countries where there can be similarities in some of the assumptions about the components of a conceptual framework. In order to add a new perspective, this study has been conducted in a developing country (Libya), investigating the differences in the culture and infrastructure provision at the local levels, thus providing a non-western, and developing-country perspective.

This chapter addresses the development of this conceptual framework, providing a review of theory, research, and practices on KM that have contributed towards building the framework. The framework explains how to bridge the gap between the desired situation for successful KMS implementation in the LBs, and the current situation.

Titled the KMI Framework for the Banking Industry (KMIFBI), this model is useful in helping the LPUBs to identify their deficiencies and subsequently remedy these. Two versions of this framework were investigated: The first version – ‘pre-field investigations framework’ was based on a number of theories and assumptions derived from the literature and the preliminary, secondary research and group sessions. The second version – ‘post-field investigations framework’ is a modified framework based on the results from workshops and empirical investigations (interviews) that were conducted to develop the final draft of the framework. The development of the KMIFBI framework is described in detail in this chapter.

The KMIFBI is organised in the following order: Sections One and Six present the introduction and conclusion respectively. Section Two provides the requirements for the framework. Section Three describes the KMIFBI. Section Four explains how to read the KMIFBI, and Section Five discusses in detail the KMIFBI development.

## 10.2 Requirements

If organisational knowledge is regarded as a strategic asset, then the method selected to implement a KMS is critical (Bollinger and Smith, 2001). In this understanding Rubenstein-Montano et al. (2001<sup>a</sup>) make some recommendations which are:

- Methods should be based on frameworks; for instance Wiig *et al.*, (1997) in their methodology, explicitly discussed the idea of an overseeing framework: review, conceptualise, reflect and act.
- A framework provides a set of guiding principles for a discipline; and a methodology can be thought of as a specific, detailed description of how to carry out the ideas and objectives set forth by a framework.

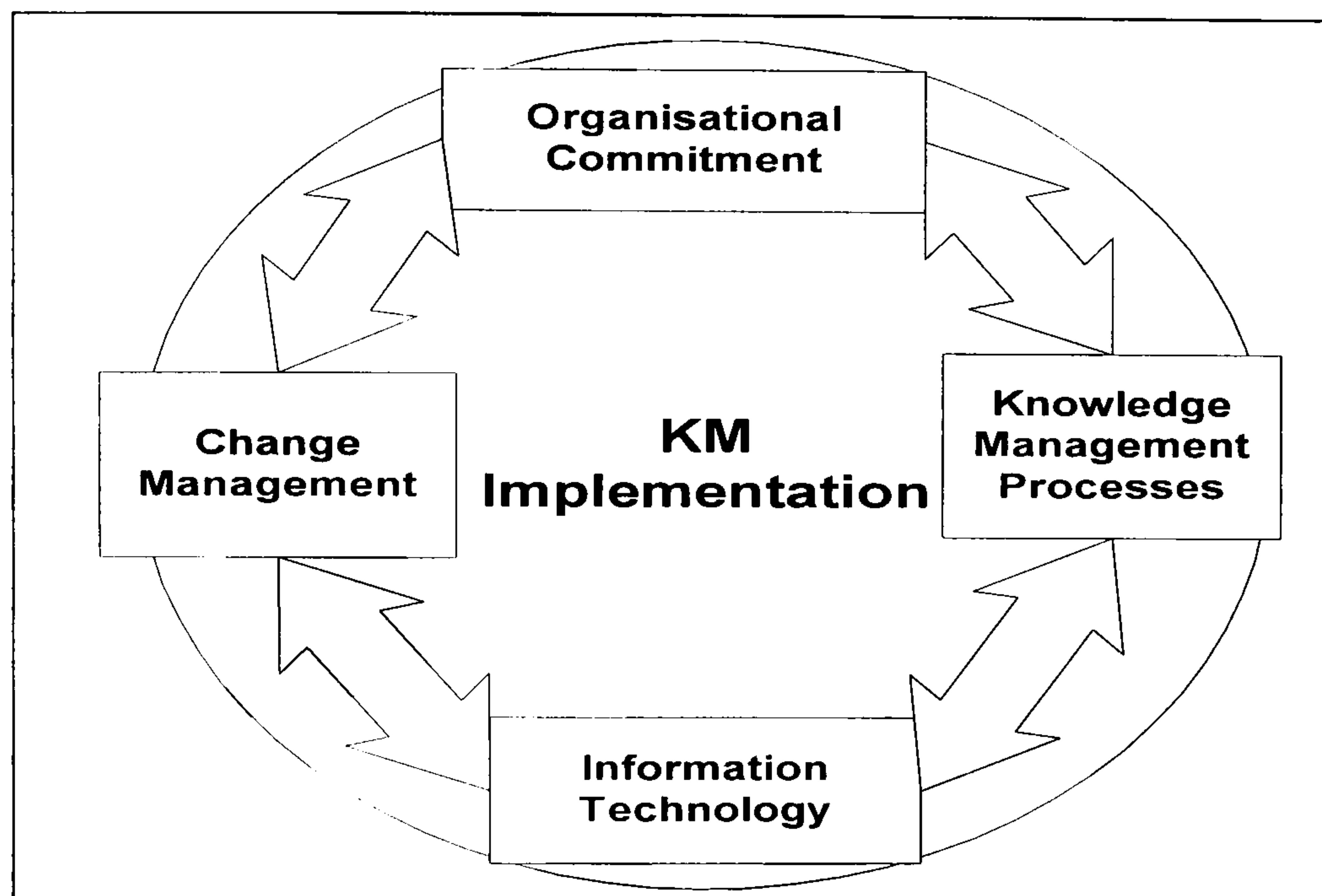
- The method contains sufficient detail to be implementable. Thus, the framework should be presented and described in more detail.

In the following section, this study will introduce the requirements of a framework that would increase the likelihood of the success of the KMS implementation within the Libyan public banking industry, and will give the banks in general and the LPUBs in particular, the ability to determine the level of organisational readiness for the implementation of a KMS. This approach should also provide management with effective guidance that would contribute to meeting their business objectives and achieving the specified CKIAs. The requirements should set up the foundation for developing a balanced measurement approach, which aims at presenting the current organisational status and the expected status for the successful implementation of a KMS. By identifying a suitable framework for a KM initiative, Robertson (2002) argues that it is possible to build credibility and provide an appropriate context for meaningful dialogue with leadership. In this context, this framework builds an approach to KMS that is specifically tailored to the organisation's environment, processes, and goals.

This research first derives generic elements for effective KMS implementation areas through a comprehensive literature review. Then, considering the elements within the LPUBs during the preliminary research, this research analyses the status of the LPUBs through secondary research, and finally it discusses the lessons and implications for KM initiatives using the framework presented in this chapter.

In order to produce such a framework, a suitable structure is established, built upon the activities that have been conducted so far in this study that identify the key KMS components to achieve successful implementation within the LBs. These areas have to be extracted, combined and/or modified accordingly; its generic characteristics should be considered essential in

designing KM activities and presenting a refined framework of KMS implementation. The structure embraces the main components of KMS implementation (see Figure 10-1). This structure led to the development of a measurement model that is able to measure the organisational status of readiness for a KMS implementation in terms of CKIAs.



**Figure 10-1: Domains of Readiness**

Depending upon the nature and characteristics of the tasks that different organisations pursue, the main focus of KMS implementation may be different, and accordingly, the core characteristics of the banks must be considered to recognise the main points on which KMS implementation should focus. Thus, a sound KMIFBI specifically developed for the LUPBs is expected to help to fulfil this need by providing important guiding principles and directions. However, developing such a framework can be a challenging task for managers and practitioners as they may lack the knowledge of what characteristics, areas and constructs should be included in it. Implementation frameworks that do not consider all the necessary areas can paint an incomplete picture of KM and its implementation process, thus providing sub-optimal guidance.

The KMIFBI, having been developed specifically to assist LBs in understanding the range of KM options, applications and technologies available to them, provides a view of the totality and complexity of the various KM theories, tools and techniques presented in the literature. Also, it provides a framework within which management can balance its KM focus and establish and communicate its strategic KM direction.

Thus, general KMS phases are given, along with detailed steps of how to carry out KMS expected outputs. The general stages are: initiate, diagnose, establish, act, and learn.

### **10.3 A Description of the Framework**

The objectives of this research work were focused on providing the banking industry with a practical methodology which could be used to translate the conceptual ideas of KMS into a working programme with defined objectives, or deliverables, using terminology that the industry could readily understand. The research highlighted the requirement to develop a supporting analytical methodology to examine employee actions and behaviour in regard to how they can effectively process knowledge and information. This would have the benefit of identifying the main areas in existing KM initiatives as KM is still a developing field, and there exist a number of distinctive KM frameworks, each of which is different in focus, scope, components, and approaches from another.

Knowledge Management plans should identify the strategic KMS areas that can achieve the knowledge implied goals. It is argued that KM has to be seen strategically. Nevertheless, according to the research findings, LPUBs are expected to encounter difficulties in implementing and communicating the KM initiatives if KM is not of strategic importance within the banks. The case analysis of the LPUBs has investigated/ addressed the CKIAs and the readiness of the banks for KMS implementation. These can be depicted by



the use of a model that explains particular requirements in terms of four domains, each of which is classified into four or five CKIA areas (see Figure 10-2).

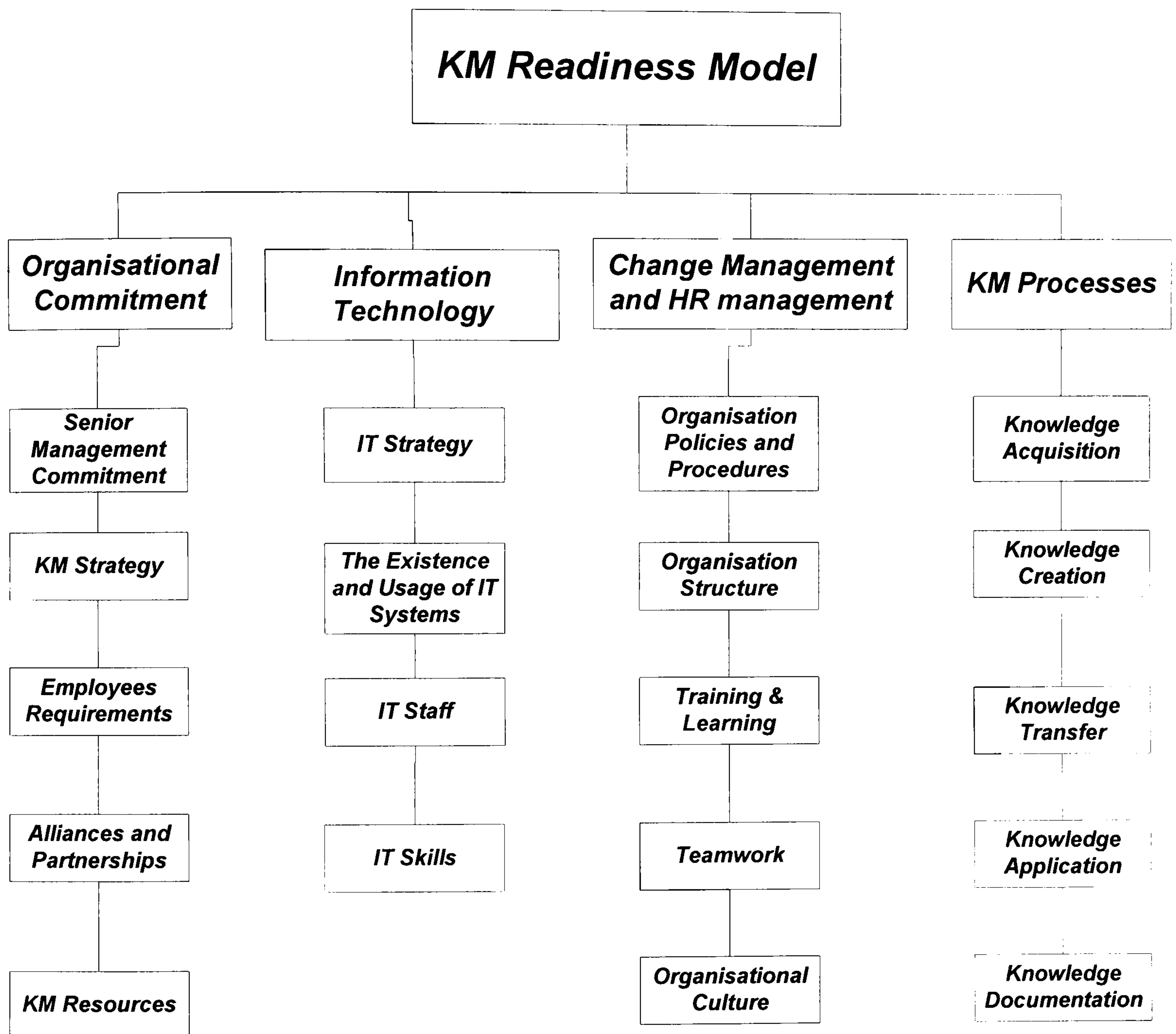
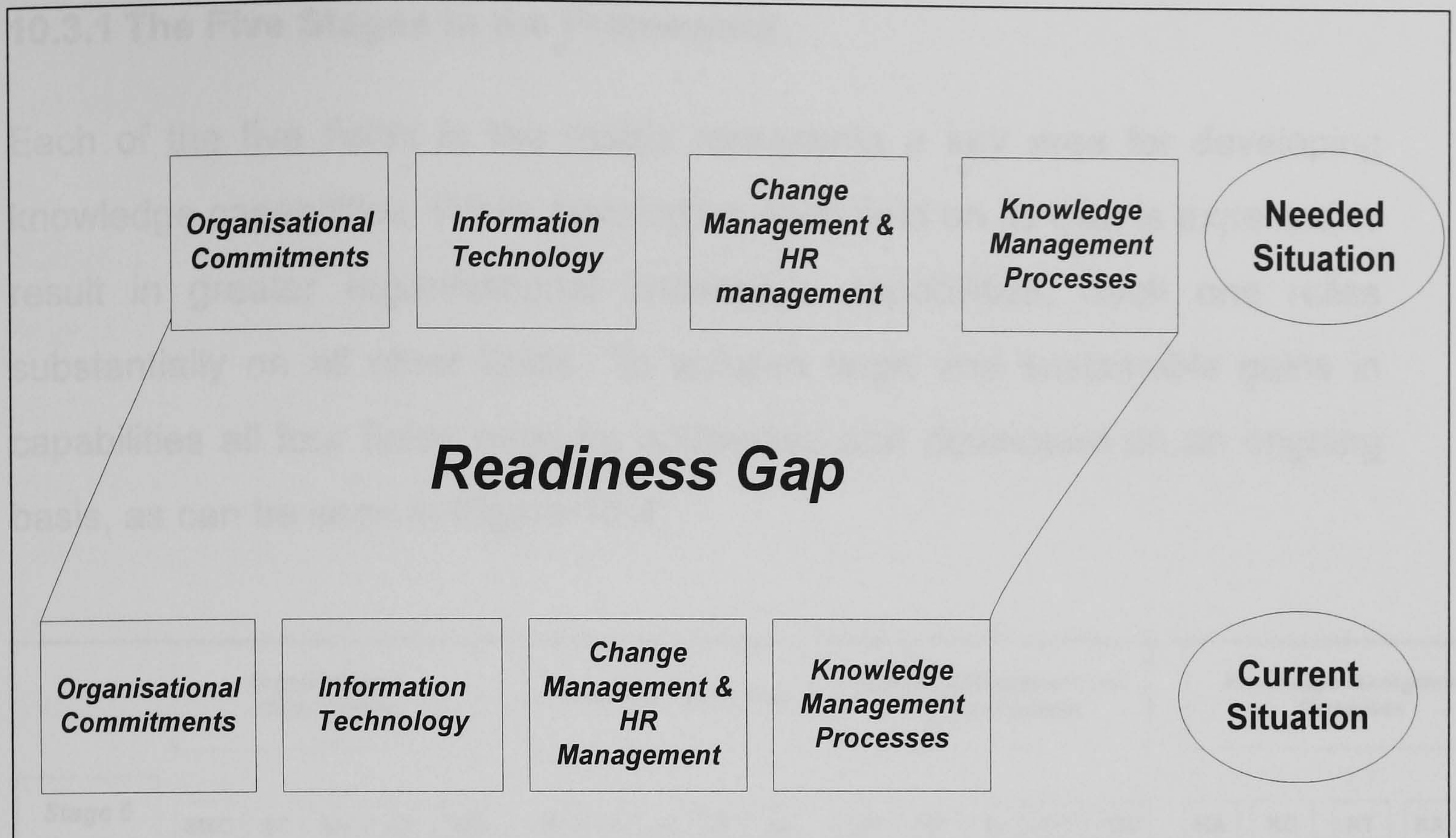


Figure 10-2: Structure of Readiness Model

Applying the four domains in the KMIFBI to the individual and the organisation, and the four means of developing knowledge within the banks, the gaps between the importance of the CKIAs and their state of readiness (see Chapter 8), can be established, as depicted in Figure 10-3.



**Figure 10-3: Readiness Gap**

The following section describes the domains (OC, CM, IT and KMP) in detail using the description of the attributes associated with each of them as they might occur in each of the five maturity levels. Each of the CKIAs describing an attribute comprises an aspect of how the status of the particular attributes should be at different organisational KMS maturity levels. The levels described in the framework do not intend to make a judgmental statement of the status of the organisational maturity. Some of the descriptions of the attributes at the early levels might be understood to have a negative connotation, but this is not necessarily the case. The framework is merely trying to describe, depending on accumulated experiences and previous frameworks introduced in the literature which are reviewed earlier (Chapters 4), the status of an organisation's KMS implementation maturity at each of those levels.

### 10.3.1 The Five Stages in the Framework

Each of the five fields in the matrix represents a key area for developing knowledge capabilities. While developing each field on its own is expected to result in greater organisational knowledge capabilities, each one relies substantially on all other fields. To achieve large and sustainable gains in capabilities all four fields must be addressed and developed on an ongoing basis, as can be seen in Figure 10-4.

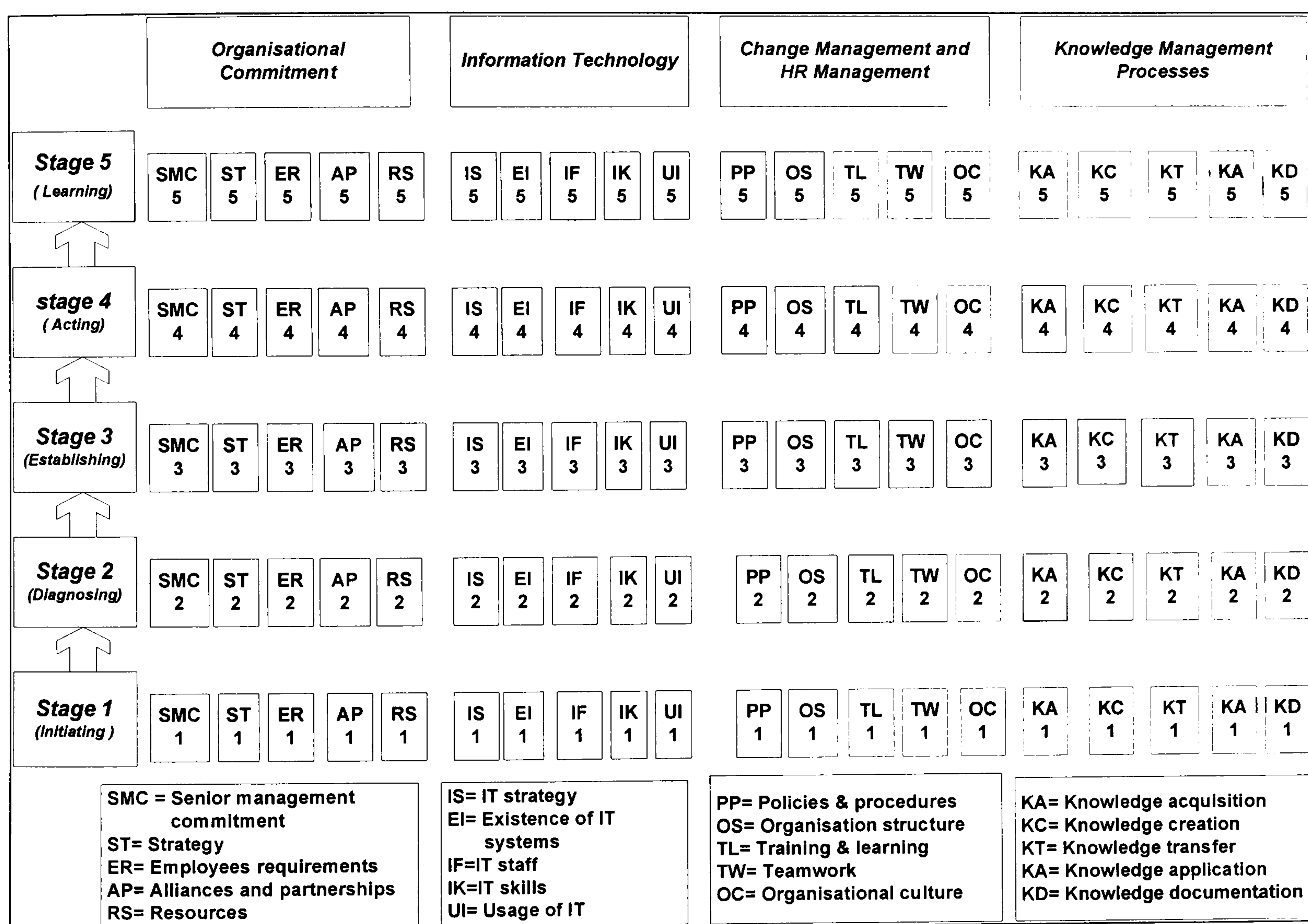


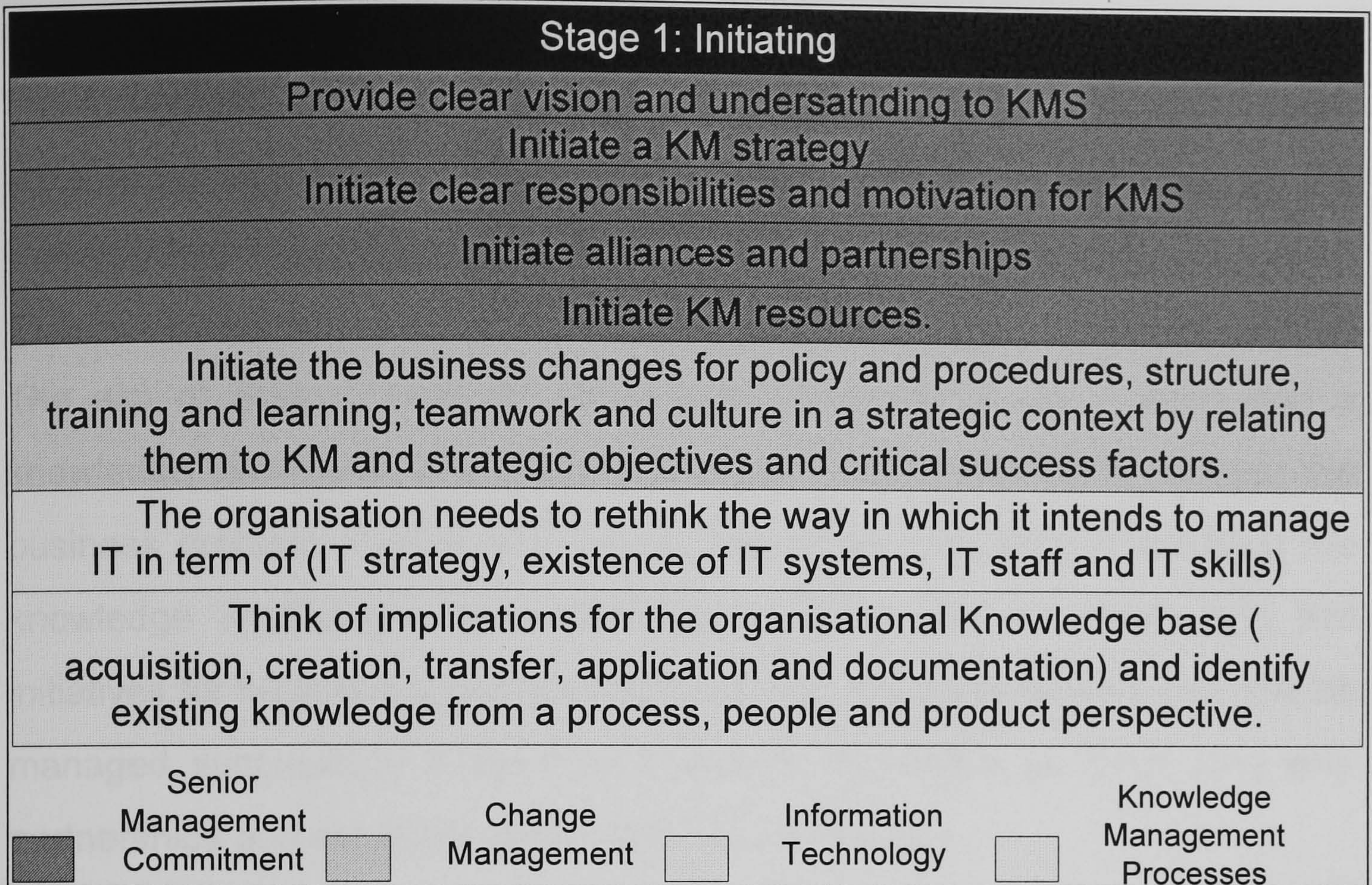
Figure 10-4: Five Stages for Developing Knowledge Management Capabilities

Some of the specific tools and initiatives which can be used to develop each field are briefly described, as shown in Figure 10-4. The proposed requirements for a KMS constitute crucial areas for the design of a KMS, and provide the building blocks for integrating organisation commitment, CM, IT and KM processes. In doing so, a number of issues arise that need to be

addressed in implementing a KMS that are explained in detail in the following five stages:

### **Stage 1: Initiating a Knowledge Management System Plan**

The aim of Stage 1 is to provide support by the overall organisation as well as by the senior management to ensure that an interest in KM exists, and that the effort will be pushed forwards. Senior management, which alone, has overall responsibility for different stages of the process, must lead the banks to a more global approach to KM. A KM strategy is also needed to facilitate the transformation of the various types of knowledge within an organisation and to provide an evaluation mechanism to measure the effectiveness and efficiency of any strategy. Users' support (employees) is also needed. This can be accomplished by involving users in the development process of KM. Furthermore, the aim of Stage 1 is to provide a structure for formulating a strategic business plan for the KMS by identifying the external (business) drivers, defining strategic objectives or goals, identifying critical success factors, and developing measures to analyse the knowledge dimension of the problem. Figure 10-5 presents a version of the template for developing a KMS plan.



**Figure 10-5: Stage 1 Initiating a KMS Plan**

These CKIAs are the key issues for KMS implementation that influence the banks' ability to achieve or cope with radical future changes. The outcome of Stage 1 is a business improvement plan for KMS implementation with performance targets.



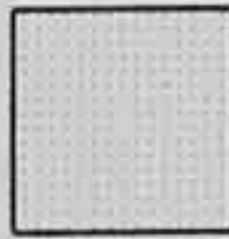
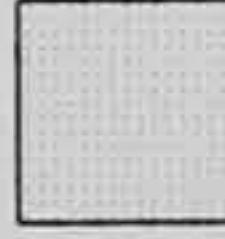
### Stage 2 Diagnosing KMS Infrastructures

The diagnosing stage builds upon the initiating stage to develop a more complete understanding of the improvement work. During the diagnosing phase, two characterisations of the organisation are developed: the current state of the organisation and the desired future state. These organisational states are used to develop an approach for improving business practice. The goal of the banks' scanning initiative is to provide an integrated and organisation-wide capability to develop a successful KMS implementation.

The primary goal was to collect, analyse and interpret information from various sources. While directed at the needs of senior management, the results from the environmental scanning initiative were of importance to other

steps. As this scanning function developed, it was important to ensure that the processes and systems for implementing KM were considered holistically. Moreover, links between these findings and others in the literature had to be encapsulated.

The aim of Stage 2 was to clarify whether the business problem had a knowledge dimension, and to develop specific KM initiatives to address the business problem. Figure 10-6 shows the steps involved in identifying the knowledge implications of a business strategy and for developing KM initiatives for business improvement. Moreover, KM mechanisms can only be managed successfully if there is a mutual consensus to forge long-term partnerships and establish centralised KM processes.

Stage 2: Diagnosing							
Monitoring and reviewing the state of the KMS vision and interest.							
Monitoring KM strategy.							
Reviewing the motivation systems to meet the employees' requirements as well as providing regulatory and legal requirements to promote knowledge process.							
Identifying the opportunities provided by partnering for improving the performance of KM processes and within such a framework in the organisation.							
Adjusting the resource levels for new activities/priorities of KM, and how they could be managed independently by each organisational unit (e.g. branch, region).							
Reviewing organisation's strategy, policy, procedure, and structure to meet knowledge process requirements in a reliable and timely manner.							
Scanning the organisation's structure for a KM department.							
Analysis of training and learning requirement is done using integrated information; managers' skills gaps in KM practices are being analysed.							
Reviewing the work distribution in line with individual competencies and preferences of the teamwork.							
Scanning the culture barriers that might prevent efficient delivery of KM.							
Determining the type of information technology systems required by the organisation to perform KM successfully.							
Scanning for the strategic opportunities provided by IT; that the organisation benefit from some of the conditional commitment							
Reviewing the levels of IT skills in all departments, and partial commitment to R&D initiatives may slow down the rate of progress of IT.							
Reviewing the existence of IT staff.							
Clarify the knowledge dimension of the business problem by identifying the KM processes (acquisition, creation, transfer, application and documentation) involved and determine knowledge gap from a process, people and product perspective.							
	Senior Management Commitment		Change Management		Information Technology		Knowledge Management Process

**Figure 10-6: Stage 2 Diagnosing a Knowledge Management System Infrastructure**

The outcome of Stage 2 is a KM strategic plan with a set of initiatives and implementation tools to support business improvement.

### Stage 3 - Establishing KMS Infrastructures

The aim of Stage 3 was to provide a structured approach for implementing the KM initiatives. Figure 10-7 illustrates the main activities in this stage.




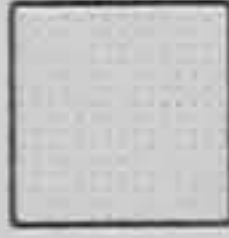
Stage 3: Establishing	
	A long term KM plan is established, and is closely aligned with the organisation strategic and business plans and organisation's corporate strategy and shapes the organisation's knowledge culture.
	Appointing a Knowledge chief executive to be the champion for the KM project.
	New programmes are introduced as appropriate to improve employee satisfaction and assessing members and reward them for developing new knowledge and testing new ideas.
	Starting partnerships and collaboration which would help the organisation to learn from others, and transfer knowledge to their organisation knowledge base.
	Re-allocating all resources needed for KM programmes based on priorities that reflect results achieved.
	Establishing the KM policy and procedures and knowledge standards and cycles, also building KM guidelines for specific operational areas.
	Developing the structure of KM department with full KM responsibility for strategy and business.
	Developing a wide range of training and learning and provide support tools and techniques to be fully understood and used by all staff in terms of KM. Learning plans have been developed.
	Initiating a strong sense of teamwork across the organisation and linking incentives, rewards, and recognition with teams' contribution.
	Initiating a KMS which supports cultural shift, knowledge -smart workforce and environment. The organisation is truly planning to exploit co-operation culture for improving its position, capabilities and expertise.
	Establishing IT strategy for the whole of the organisation.
	Establishing strategic IT applications services and networks with internal and external entities to provide communication services for all individuals and groups in the organisation, and putting plans for providing diverse hardware architecture according to each unit's needs.
	Appointing a high level manager for IT services area, with middle management status.
	Initiating core technical skills and some expertise outsourced to plan the strategic exploitation of IT for individual units and the organisation as whole.
	Initiating KM acquisition activities such as collecting information needed and clients requirements, active in an external professional network or association, conducting research (i.e. with universities) to explore future chances/possibilities
	Initiating KM creation activities such as openly discussing problems, failure, and doubts in the banks. New ideas and insights lead, if necessary, to redesign of business processes and work methods, providing learning groups.
	Initiating KM transferring activities such as starting knowledge sharing methods (KMS/ Knowledge Portal), a people-oriented method (storytelling) and a combination method (Micro articles), informs its members systematically of changes in procedures; colleagues inform each other regularly about positive experiences and successful projects, members change jobs regularly, thus distributing their know-how and so on.
	Initiating KM application activities such as decision making depend on sufficient knowledge, selling knowledge, products, or services gets explicit attention, experience of clients are used to improve products and services, using existing know-how in a creative manner of new applications, frequently make use of brainstorming sessions to find solutions for problems, failures and successes are evaluated and "lessons learned" are set down.
	Initiating KM documentation activities such as having up-to-date handbooks, which are frequently used, having documented all specific knowledge and skills of individual members, having up-to-date knowledge documentation systems.
	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">             Senior Management Commitment         </div> <div style="text-align: center;">             Change Management         </div> <div style="text-align: center;">             Information Technology         </div> <div style="text-align: center;">             Knowledge Management Process         </div> </div>

Figure 10-7: Stage 3 Establishing Knowledge Management System Infrastructures



In terms of KMS implementation, Pan and Scarbrough (1998) report that management and leadership play a critical role in establishing the multi-level context needed for the effective assimilation of KM practices. There is a need to have the necessary infrastructure in place together with adequate resources. For instance implementing IT infrastructure in terms of establishing physical connectivity between people is a very important task. The infrastructure issue is affecting all businesses; today's environment is forcing organisations to obtain all or part of their overall infrastructures such as IT, training and learning, TW, culture etc.

The outcome of stage 3 is a KM strategy and an implementation plan with priorities and an appreciation of the likely impact of various KM initiatives. This stage is the most challenging, as the justification of KM initiatives depends on the expected establishment of KM infrastructures. The outcome of Stages 1, 2 and 3 of the KMIFBI is a business improvement strategy underpinned by KM.

#### **Stage 4: Acting in KM Infrastructures**

The activities of the acting stage help the banks implement the work that has been conceptualised and planned in the previous three stages. These activities will typically consume more time and more resources than all of the other stages combined. As the adoption of the KMS grows organically, the management should promote the KMS to people to try to persuade them to use the KM systems and tools. Management should ensure that prospective users are educated and trained to use the KMS effectively, and people are given plenty of opportunities and encouraged to learn and use the KM system.

By applying these 'actionable' activities in each of the knowledge domains of the managerial knowledge portfolio, it can be ensured that KM activities are perceived to be dealing with important managerial concerns and organisational issues.

Managers should be focusing their attention on ensuring that there are processes, practices, and people with the appropriate capabilities in place to ensure that knowledge is being managed in each of these critical domains. In applying these KM activities to organisational work; managers are able to appreciate the value and limitations of certain KM initiatives and tools.

The outcome of this step is a specific business context that creates values, and draws on people with diverse expertise and knowledge both to enhance existing value chains as well as to creating new ones. The pace of change in the business environment in the acting stage means that strategic plans can no longer be set for a fixed term and then implemented, but must continually evolve in response to management's growing understanding of the organisation in the context of its environment (see Figure 10-8).


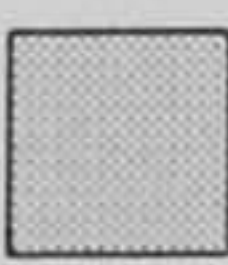
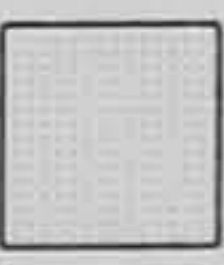

Stage 4: Acting				
	Involving senior management in the whole KM processes and implementation through business efficiency to support KM objectives and goals.			
	Reviewing KM strategies are commonly used by senior managers to ensure the input into strategic and business planning.			
	Formal mechanisms are in place to survey employees' encouragement and satisfaction regarding to KM on a regular basis, and results are tracked over time; KM initiatives are linked to employees' satisfaction, hence employees are rewarded according to their knowledge.			
	The organisation as individual becomes within the industry to prepare themselves for KM at their own discretion.			
	External and internal resources are provided to all managers and employees; resource planning models are used to estimate resource requirements for KM.			
	Integrating organisational policies and procedures in practices with KM activities.			
	Prepare an Action Plan and identify changes required in organisation's structure.			
	Managers are applying training and learning in their day-to-day operations of KM and seeking and up-grading the quality of training, also seeking to provide all key training and learning in terms of KM.			
	The organisation starts to create a number of teamwork and culture that would support KM initiatives and corporate goals.			
	Organisations start fostering the culture of continuous learning and participation. Pro-active effort is acting to share new ideas and approaches across the organisation.			
	Start using and exploiting IT for the banks' strategic opportunities to successfully perform KM, as well as starting of full involvement of IT users in KM initiatives; IT reviews are carried out as issues arise.			
	Select possible tools to support the KM processes identified in the context of the business problem; general communication tools are provided to link senior management with employees.			
	Existence of organisation-wide network, where all groups are connected, and the central IT staff provides communication services for all individuals and groups in the organisation.			
	Combining the roles of IT and business to plan the strategic IT for individual groups and the organisation as a whole, where the business IT planners have experience from working in/with both users and the IT function which makes them cross-disciplinary; some of IT users are involved in KM initiatives.			
	Producing (creating) mode where the new knowledge is produced by interacting with the things in cognitive domains of the enterprise.			
	Acquiring mode where the new knowledge is acquired from internal and external sources; externalising mode where the convertible tacit knowledge of the members of the organisation is conceptualised, articulated and externalised; discovering mode where the knowledge hidden in the data sources of the organisation (e.g. databases, data warehouses) is discovered; synthesising mode where the new knowledge is generated either by integrating the newly generated and validated knowledge with the existing knowledge or by combing the existing knowledge;			
	People are encouraged to increase interactions inside and outside and transfer for efficiencies by providing input and are allowed to make suggestions when changes occur; and are consulted and given opportunity to participate in major change initiatives.			
	Knowledge is used in functions, reviewing and monitoring purposes and shared amongst functions where interrelationships exist.			
	Knowledge is documented by technology and non-technology tools.			
	 Senior Management Commitment	 Change Management	 Information Technology	 Knowledge Management Process

Figure 10-8: Stage 4 Acting in Knowledge Management System Infrastructures

### **Stage 5: Learning Knowledge Management Activities**

The learning phase completes the improvement cycle. One of the goals of the KMIFBI is to continuously improve the ability to implement change. In the learning step, the entire KMIFBI experience is reviewed to determine what was accomplished, whether the effort achieved the intended goals, and how the organisation can implement change more effectively and/or efficiently in the future.

The outcome of this phase is a strong OL climate; and senior management needs to take the initiative for sponsorship and support of the efforts in this direction. However, due to the diverse background of the employees, senior management should not assume that cross-functional thinking happens overnight, especially in organisations traditionally characterised by functional isolation, domain dissimilarities and centralised management. One thing managers can do to facilitate learning and the acquisition of new knowledge is to offer continued training to individuals in areas where knowledge is needed or desired.

Learning in organisations takes place when the experiential awareness traverses across departmental boundaries and results in leveraging the strategically valuable knowledge to improve goods and services. In this understanding, Francis and Mazany (1996) concluded that to become a learning organisation, an organisation must develop a wide range of knowledge, skills and characteristics. However, the first step is to develop the necessary structures to assist those within the organisation, as well as the organisation itself, to learn and to change (see Figure 10-9).

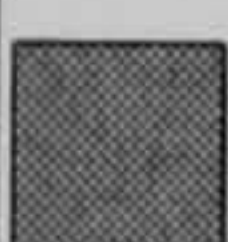

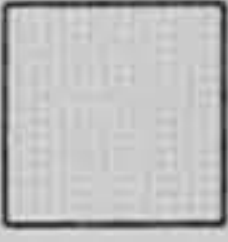

Stage 5: Learning							
	Value of KMS in the organisation is measured and tracked over time.						
	Improvements are created to develop strategic plans to address high priority issues related to KMS. A strong link exists between incentives, rewards, recognition, and teams' contribution.						
	Incentive, rewards, and recognition systems are constantly being improved, and customised to the needs of the organisation.						
	The organisation essentially benefits from partnering in supporting its resources to support KM processes, and therefore require its larger partners in international organisations to show flexibility and adopt formats to accommodate their needs.						
	The resources allocation culture supports openness and flexibility.						
	The results of KMS are integrated in organisational policies, procedures, and practices.						
	The structure of KM department is a fully developed KM responsibility for strategy and business.						
	Organisation is truly exploiting training and learning for its KM activities.						
	Strong sense of teamwork exists across the organisation.						
	The organisation embraces innovation and responsible knowledge -taking; further, results of KM are used to support innovation, learning and continuous improvement.						
	The organisation is in a position to benefit from the IT culture that has been developed and maintain IT on the urgent agenda of concern of top management.						
	The organisation appears to be using and exploiting IT for its strategic opportunities and can successfully apply KM. Also, IT systems rely heavily on gathering and processing external data in addition to internal data through the use of EDI systems with external entities such as customers, government and suppliers, which introduce problems of compatibility between external and internal data.						
	Existence of organisation-wide network, where all groups are connected, and the central IT staff provides communication "Full involvement of IT users in KM initiatives, communication is very smooth, with management controlling and not limiting information to employees/ services for all individuals and groups in the organisation.						
	High levels of IT skills in all departments and partial commitment to R&D initiatives may slow down the rate of progress of IT in the organisation.						
	Teams at the organisation are regularly exchanging knowledge and reach conclusive decisions related to major change.						
	Information flows freely within functional areas, and is shared between functional areas internally and externally; and people are able to speak out and participate in discussions.						
	Organisation fosters a culture of continuous learning and participation. Pro-active effort is made to share new ideas and approaches across the organisation.						
	People are empowered to take responsibility for KM, and are encouraged to be innovative by using knowledge when needed.						
	The organisation is regularly documenting knowledge and retrieves it when needed.						
	Senior Management Commitment		Change Management		Information Technology		Knowledge Management Process

Figure 10-9: Stage 5 Learning KMS Activities

Any KM approach is always an ongoing communicative learning process that enables the periodic revision of corporate strategies in the light of the current business environment (Masini and Vasquez, 2003; Millett and Randles, 1986; Schwartz, 1996; van der Heijden *et al.*, 2002). Therefore organisations

adopting KMS have to carry on all KM activities and increase interaction between their infrastructures as well as having a long-term understanding of KM planning in order to plan for new concepts.

## **10.4 How to Read the Framework**

The success or failure of an organisation's KMS implementation rests more heavily on the organisation's ability to manage and combine between organisational commitment, CM, IT and KM processes. An organisation and its managers have to use a variety of approaches to combine, sort, and process the knowledge to produce timely and relevant knowledge for forming, monitoring, evaluating, and modifying organisational goals and objectives. This should reach a high integration level in order for a strategic KMS to be obtained. The banks are required to follow the five stages in the Capability Maturity Model format, whereby they can not move to the next stage unless the first one is completed. Each step and its components are interconnected and build upon each other as shown in Figure 10-4. A balance of these elements must be achieved in order to fit the business strategy and to adapt to a turbulent and ever-changing environment.

The outcomes of the first stage are securing SMC and support; and the development of a business strategy for KMS implementation with a clear organisational vision and understanding of KM. In the second stage the outcome is a model of the current knowledge infrastructure, through reflection involving an analysis of strong and weak points, and determining where opportunities for improvement to the knowledge infrastructure lie, so a record of the current status CKIAs will be available.

The outcomes of third stage are that the organisation and senior management establish and implement a knowledge infrastructure and support system that enhances and facilitates the knowledge processes

(acquisition, creation, transfer, application and documentation) at the appropriate levels.

The acting stage consists of the actual consolidation, integration, development, and distribution of knowledge. The outcome for the acting stage is the actual implementation of a new knowledge infrastructure. The fourth step of the KM process cycle is the review of the results of actions taken, using assessment criteria. These criteria should consider whether the infrastructure contains the right knowledge, whether the knowledge infrastructure is stable or susceptible to change, whether it is in a form that permits easy use, and whether the people who need the knowledge can easily access it.

In stage five (learning), the organisation is expected to have gained experience before conceptualisation can occur. It can be suggested that the KM process cycle is actually a reflection of the cycle of OL. Kolb's (1976) experiential learning model, whereby knowledge is created through the transformation of experience, can also be applied to organisations.

## **10.5 Evaluation and Justification of the Framework**

The most appropriate approach that could have been used to test and validate the KMIFBI would have been provided through its implementation in a Libyan public banking context in order to gather further tangible evidence to support its variables. In this regard, a case study strategy (Yin, 1994) aiming at such implementation was initially explored during the field investigations. However, due to the fact that none of the investigated LBs have started to implement or use a KMS, the use of a case study strategy in this given situation became unfeasible.

Although, this situation did not permit the implementation of the framework in a real life context as mentioned earlier, other initiatives which could be

relevant and necessary to the validation is considered. This approach to validation consisted of introducing the framework at a specific workshop (used in terms of KM also by McAdam and Reid, 2001) and to banks that have already implemented a KMS. In order to tackle the different elements of the preliminary conceptual framework, an agenda for the workshop with a selection of members from the studied organisations was developed as a pre-field investigation. This workshop was conducted to assess and refine the initial concept and to provide ideas for the detailed development of the KMIFBI. The conceptual framework was developed through the literature review, pilot study, preliminary and secondary research, and through the three group sessions.

### **10.5.1 Pre-Field Investigation**

The first process of the framework validation was made in the LBs as the future adopters. Copies of the framework were first submitted to specialist bankers in Libya in order to tackle the different elements of the preliminary conceptual framework. Most of the participants were familiar with KM and business improvement issues, and were invited to the workshop. There were six participants including two directors of IT, one senior R&D, one accountant manager, one HR manager, and one banking operations manager. Over three-quarters of the participants have a high level of awareness on KM 83.3% and business improvement 66.7% issues. This was an evaluation workshop aimed at assessing the robustness of the framework that has evolved in order to check its appropriateness, readability, and comprehensiveness.

The workshop was divided into two sessions. In session one (discussion session) the participants were organised into three teams of two people (senior manager's team, IT manager's team, and HR manager's team), with research team members acting as workshop facilitators (researcher and assistant). Each team already had a copy of the framework with supporting



diagrams and guidelines (figures), a discussion was opened individually, and each team had to discuss issues related to areas of expertise.

In session two a presentation highlighting the importance of the KMS was given to all teams, and a set of questions (see Appendix D) was distributed to the participants related to each KMIFBI step, and how they could effect the implementation of the KMS within the LPUBs. The results of both the preliminary and secondary research were presented, and then the framework was introduced. Thereafter, a debate took place among the participants, and points raised by participants were reordered. The answers to the set of questions were also collected.

The information from the two sessions was then analysed. Specific questions from the participants emerged around the concept of KMS and the possibilities of its implementation within the banking industry. The questions noted were classified into six categories related to the five stages in the framework and overall stages (the logic of the stages and components), in order to analyse their relevance to the KMIFBI at a later stage.

The six categories of questions are presented as follows:

- Overall stages;
- Stage 1 initiating;
- Stage 2 diagnosing;
- Stage 3 establishing;
- Stage 4 acting; and
- Stage 5 learning.

### 10.5.1.1 Findings and Feedback

The results based on the analysis of the evaluation questions answered by the workshop participants are shown in Figures 10-10 to 10-15. The questions used a rating scale from 1 (strongly disagree) to 5 (strongly agree). The detailed evaluation of each stage is explained in the next sections.

#### Overall stages

The overall approaches of the KMIFBI had a high rating in terms of the framework's capabilities to implement a KMS within the Libyan banking industry (see Figure 10-10).

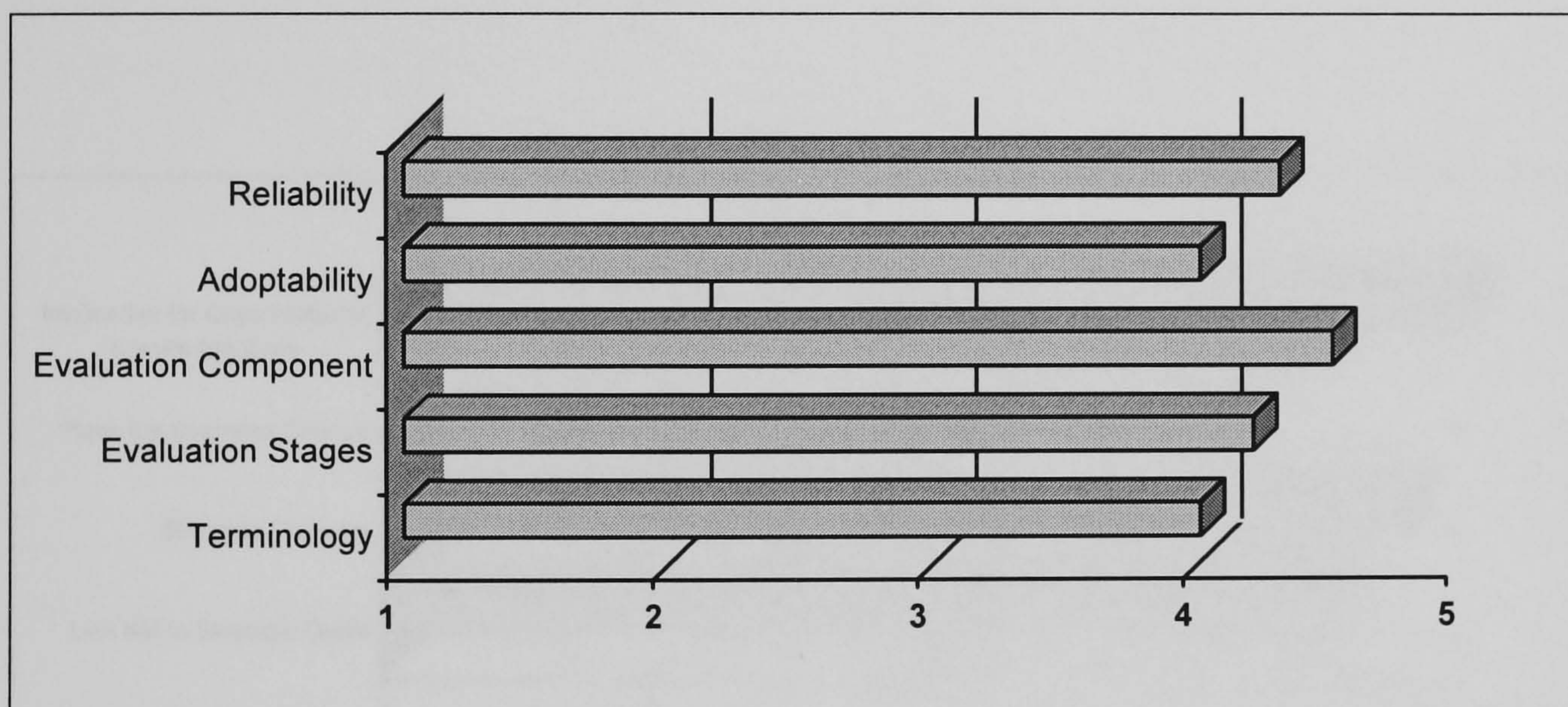


Figure 10-10: Average Ratings of the Key Components of Overall Framework

The elements in this stage consist of: Terminology, evaluation stages, evaluation component, adoptability and reliability. The terminology accompanying the framework was considered helpful in the evaluation process, but there were some concerns in this respect, and it was suggested that simplifying or refining some definitions could help as some of the terms used could mean different things to different people or organisations. The adoptability of the KMIFBI framework had a high rating, as were the stages and the components used within it (see Figure 10-10).

The framework's reliability was also found to be useful, although it was rated slightly lower than others. It was noted that the development of the framework represents a significant attempt to conduct a structured approach to implement a KMS and to be able to convince senior managers to adopt such a system.

### Stage One - Initiating

Figure 10-11 presents the areas considered to be effective in this stage, which explores the linking of KM to strategic goals and objectives, the strategic context, and the business changes and implications for the organisational knowledge base. Figure 10-11 provides a summary of the average ratings for stage one of the framework.

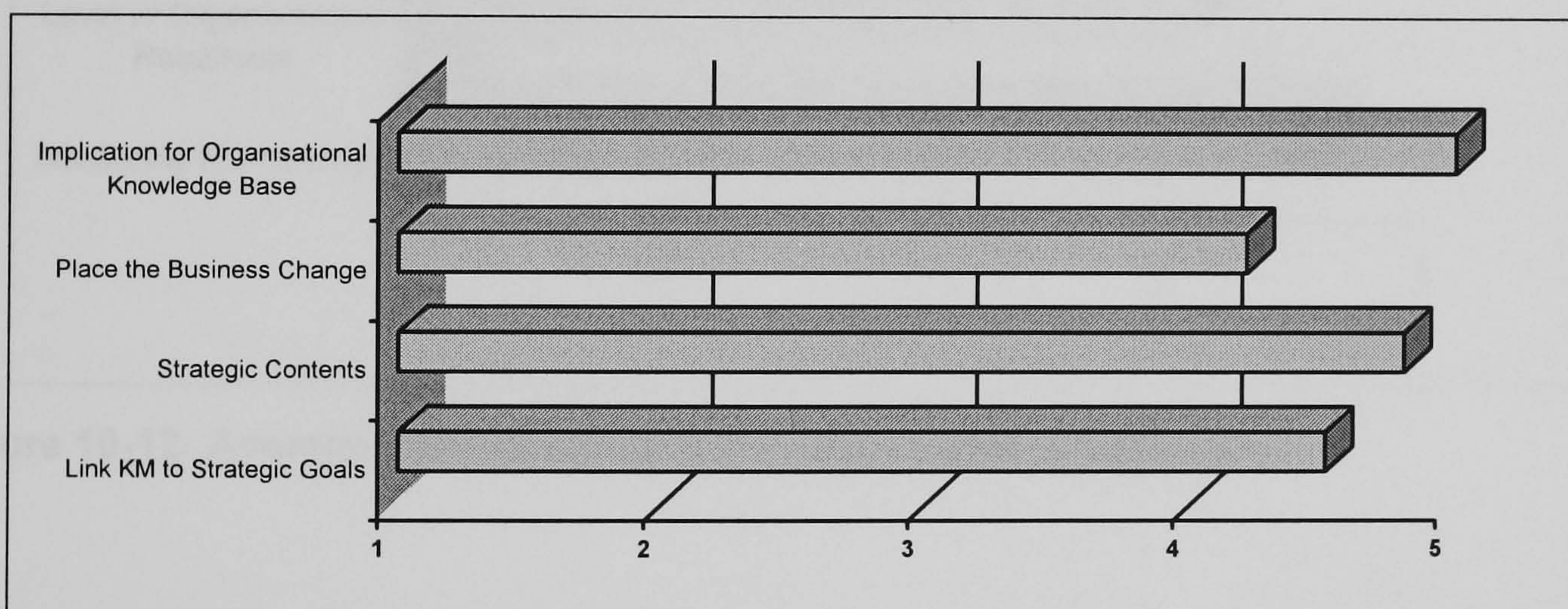


Figure 10-11: Average Ratings of the Key Components in Stage 1

All of the participants strongly agreed that the framework allows an organisation to be able to implement its KM activities (acquisition, creation, transfer, application, and documentation); also they strongly agree that a KMS should occupy a strategic context within the banks. The need to align the strategic objectives of an organisation to KMS implementation, and to be able to relate CKIAs to the KM strategy, were also found to be useful aspects of the framework, as the ratings for both are high. The place of the business

changes aspect encapsulating the different types of KM activities was also considered to be important, although the average rating of 4.2 is not as high.

### Stage Two – Diagnosing

Figure 10-12 presents the average ratings for key aspects of stage two of the framework. Four areas are assessed in this stage which are: Monitoring KM strategy, Level of organisational readiness, Determination of KM tools, and KM clarification process.

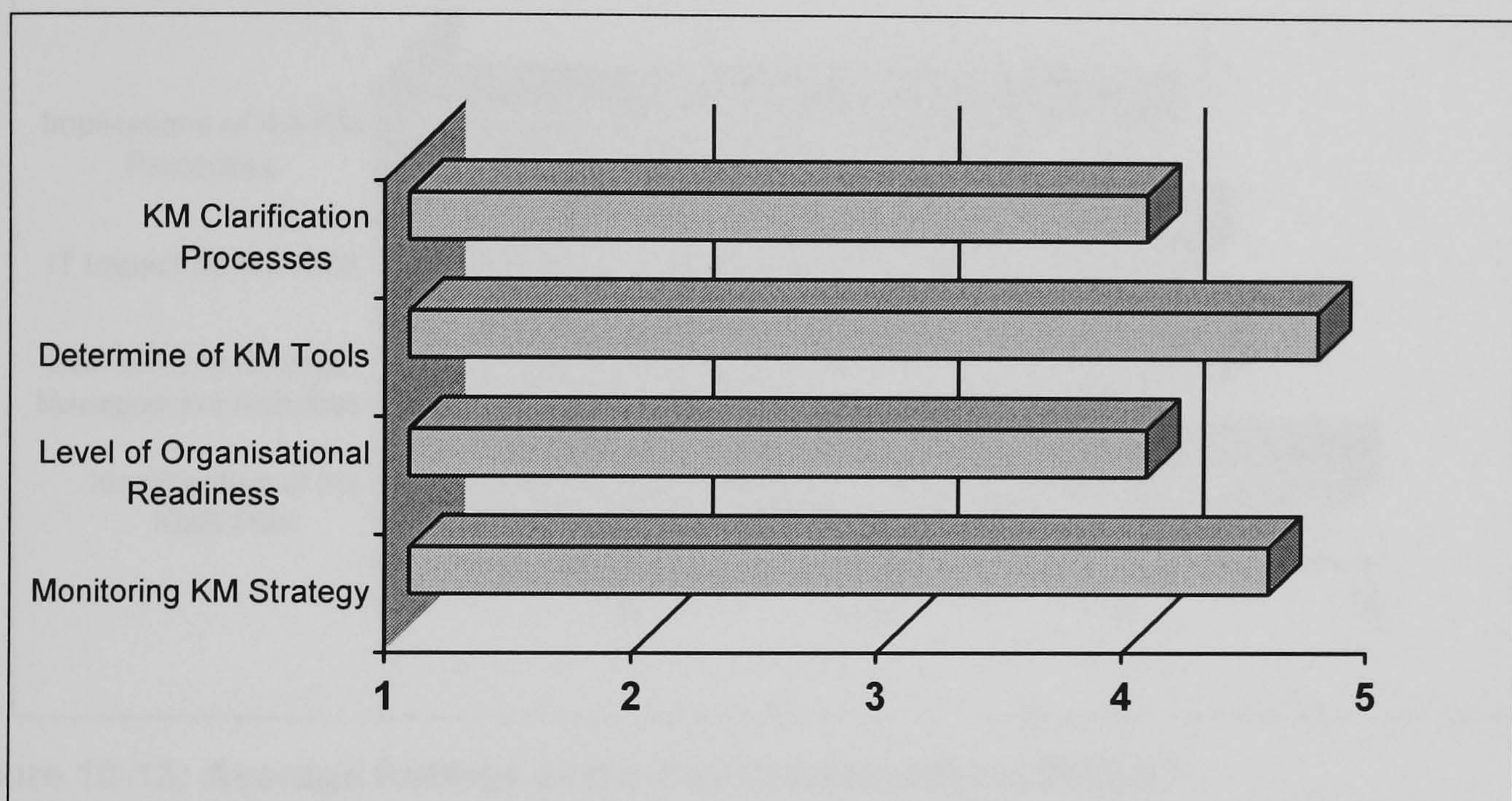


Figure 10-12: Average Ratings of the Key Components in Stage 2

An appropriate KM context should be developed and its readiness assessed against the reform needed; and the resources required and results monitoring mechanism should be in place prior to the implementation of KM, as agreed by almost all the participants. Another key issue on which they agreed is the level of organisational readiness to implement KMS. This is relevant since, regardless of the enthusiasm and resources directed towards improving KM activities. The participants also agreed that the accompanying CKIAs checklist was useful in identifying the barriers and facilitators to KMS. One participant commented that it was a "useful thought process to go through, well focused and easy to use" Other participants noted that the framework also provides a link with the external environment (alliances and

partnerships) of an organisation and is a good framework for a general KMS implementation. The KMS clarification process was found to be useful.

### Stage Three – Establishing

Figure 10-13 presents the ratings for key aspects of stage three of the framework. The main areas of this stage are: Identification of the KMS plan, links KM and CM, IT impact on KMS, and implications of KM processes.

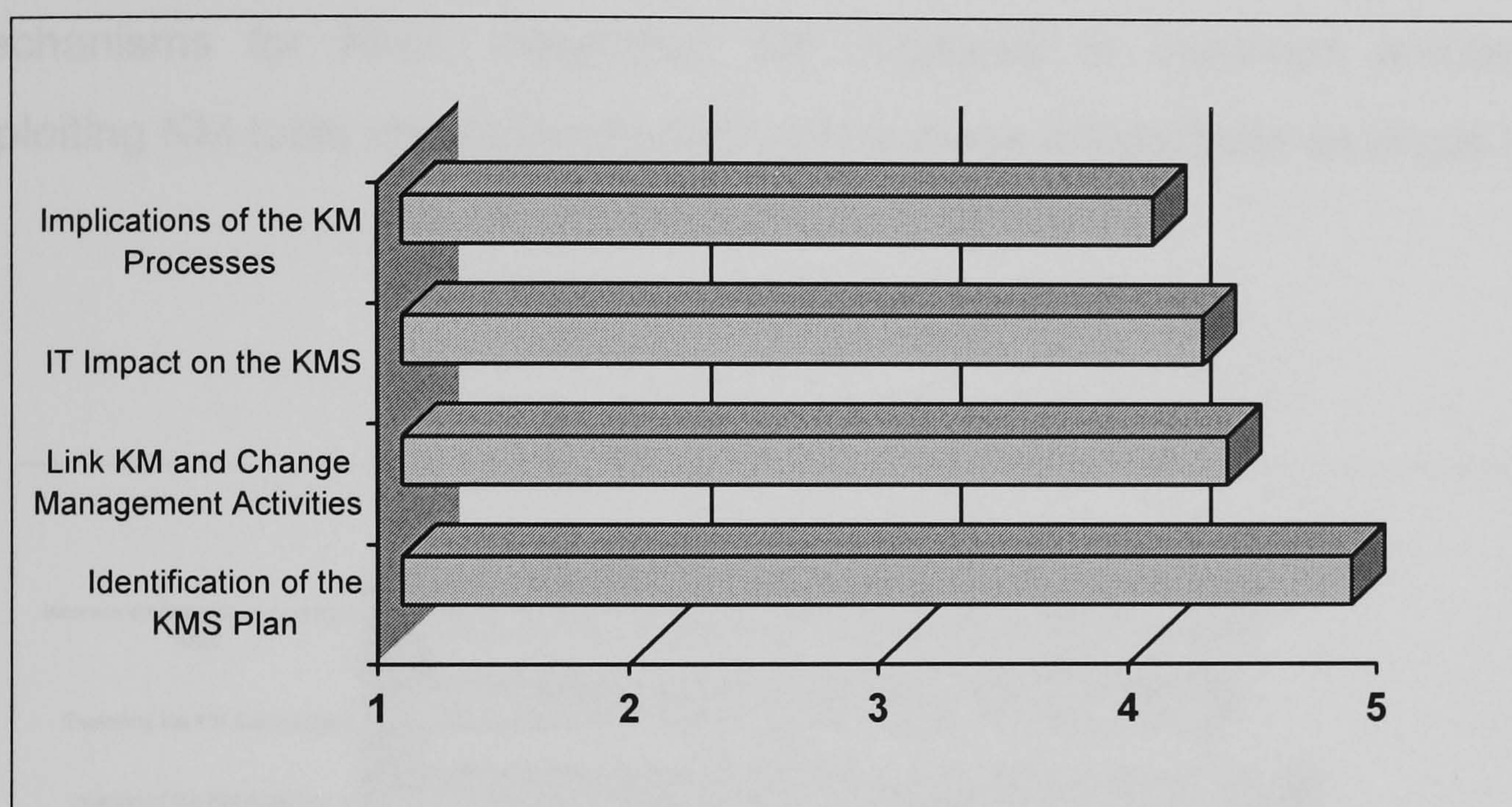


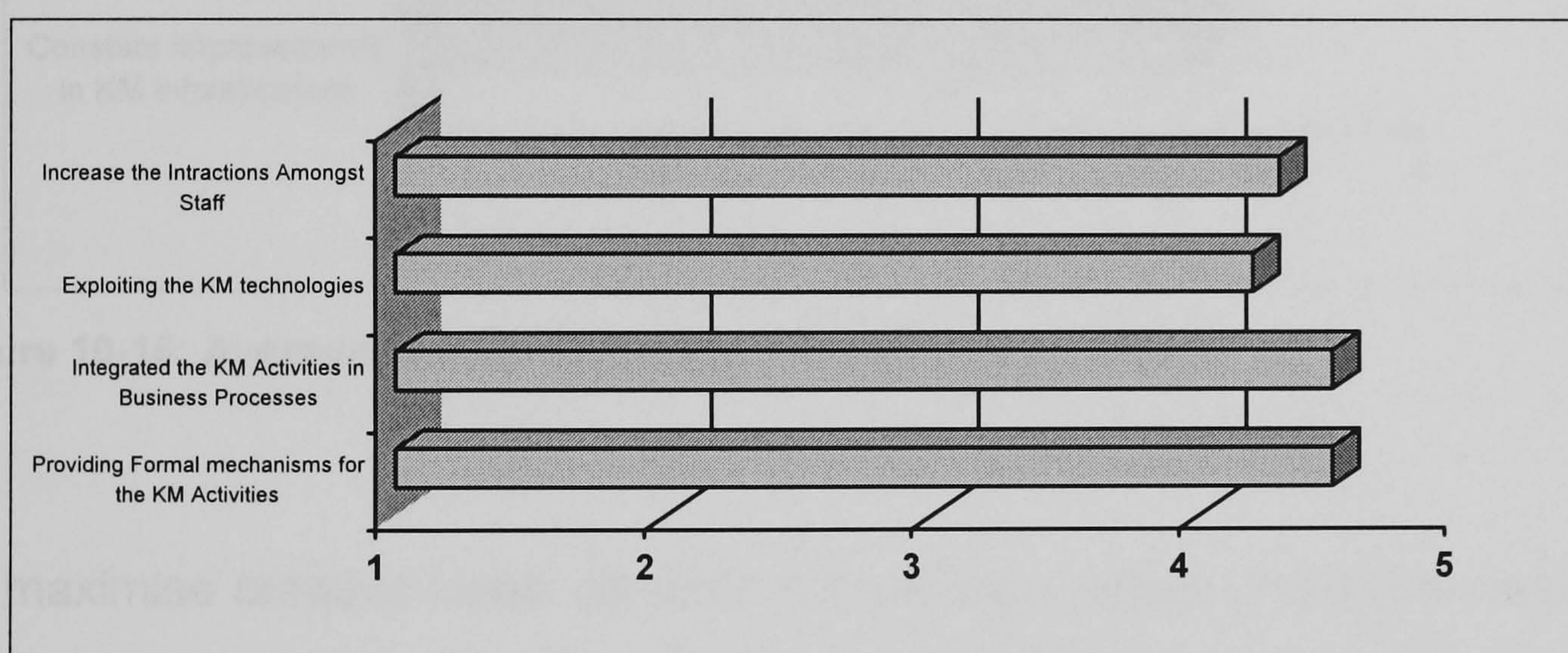
Figure 10-13: Average Ratings of the Key Components in Stage 3

All participants agreed that establishing a KM plan is necessary in order to develop specific KM initiatives to address the CKIAs. The outcome of this stage is a KM strategic plan with a set of initiatives and implementation tools to support business improvement. Also, the CM drivers (organisational policy, procedures, structure, training and learning, TW and culture forces) are the key issues influencing the implementation of KMS. KM technologies are required for the implementation of initiatives, and a range of IT systems can be selected including hardware and software. The hardware tools comprise the platform required to support an organisation's KM strategy, while the software tools vary from simple databases and groupware to intelligent decision support systems such as expert systems and business intelligence tools. Also, it is important to develop KM initiatives that can improve the

speed of knowledge reliability and adoptability in organisations. However, the participants indicate that as we move away from simple tasks to organisation-wide systemic problems, KM initiatives should become more and more complex and effective.

### Stage Four – Acting

Figure 10-14 presents the ratings for the key aspects of stage four of the framework. The activities expected from this stage are: providing formal mechanisms for KMS, integrated KM initiatives in business processes, exploiting KM tools and technologies and Increase interactions amongst staff.



**Figure 10-14: Average Ratings of the Key Components in Stage 4**

The participants recommended that KM also needed to be actionable by managers. The KM framework of reference needs to provide guidance for managers to act on. Implementation of IT infrastructure in terms of establishing physical connectivity between people requires funding which makes it expensive. Therefore, if the IT infrastructure is not conducive to KM implementation, another step manager can take it to create an environment, systems, and internal processes that facilitate the creation and transfer of knowledge.

### Stage Five – Learning

Figure 10-15 presents the average ratings for key aspects of stage five of the framework. Four areas are evaluated in this stage which are: Constant improvements in KM infrastructure, Embraces innovations through KMS results, Benefiting from KM technology, and Constant learning.

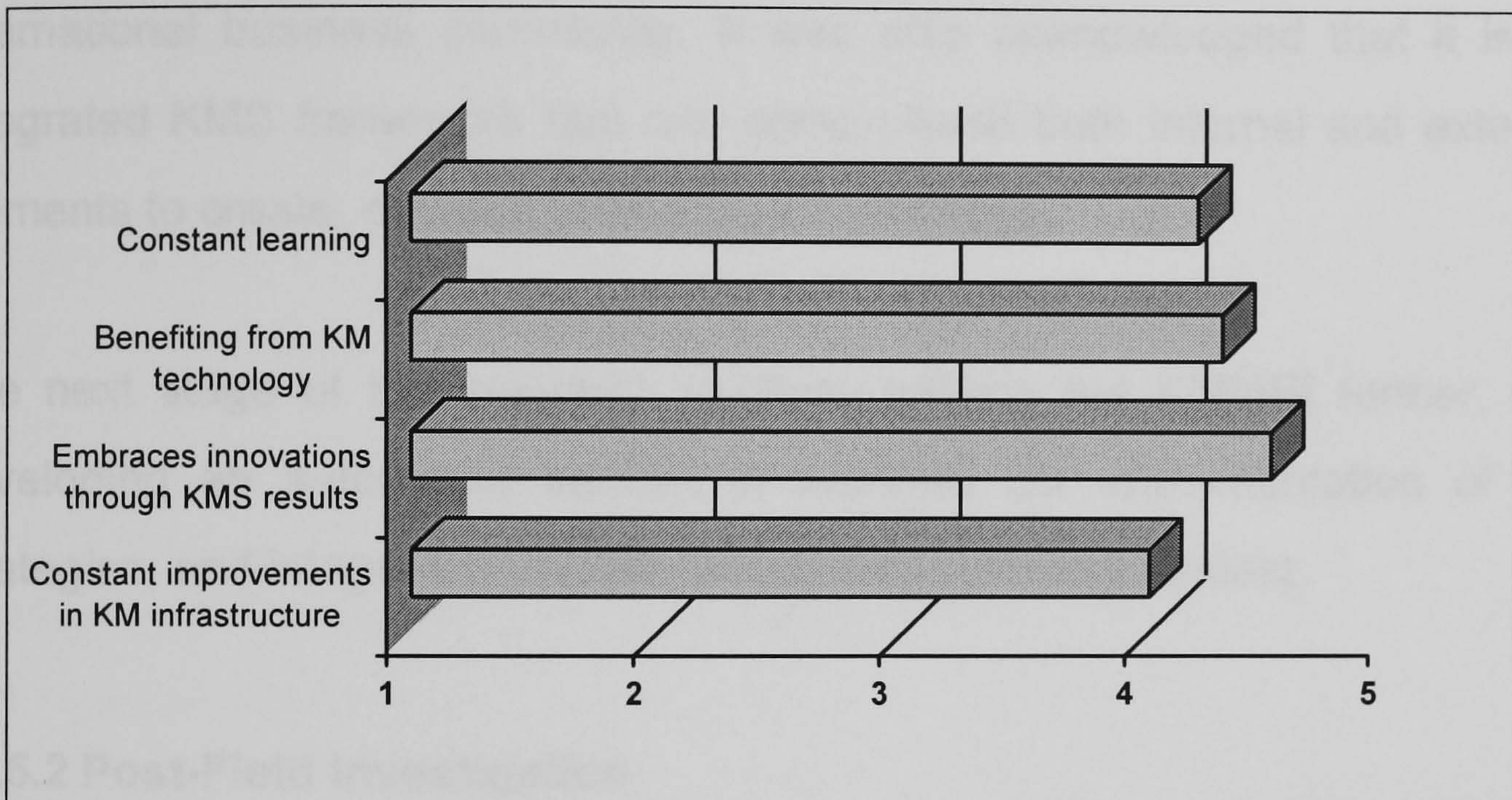


Figure 10-15: Average Ratings of the Key Components in Stage 5

To maximise creative ideas, an open knowledge creation process is required through which various methods are voluntarily experimented and their results are actively exchanged. Interaction is the key in managing knowledge. Innovation, co-operation, and teamwork thrive in a strong, positive, supportive culture.

#### 10.5.1.2 Pre-Field Investigation Summary

Average ratings of slightly over four (4.34) show that participants agreed that the framework does facilitate the implementation of KMS, and also provide a road map that leads to an ability to realise the benefits of KMS. However, the ratings for the evaluation guide to help identify the most suitable techniques to perform KM initiatives, received some criticism, and the participants felt

there should be an evaluation point after each stage to monitor progress towards achieving the strategic objectives, and identify the KM processes that relate to each stage.

Although the workshop was here on small number of participants, it was acknowledged that the framework could be more easily implemented in organisations set up with immature processes and low interaction with the international business community. It was also acknowledged that it is an integrated KMS framework that can comprehend both internal and external elements to create, develop, and exploit knowledge.

The next stage of this research involves refining the KMIFBI further, and developing an automated version to facilitate the implementation of KM strategies, and integrating this into an existing business context.

### **10.5.2 Post-Field Investigation**

All the recommendations made at the evaluation workshop have been addressed for presentation in the next stage (interviews). The framework, therefore, provides a solid basis for developing KM strategies that are not only coherent but also consistent with the overall strategic objectives of the KMS. The second step in the validation process was relatively more difficult than the first one, because it involves a comparison method to establish what the KMIFBI suggests and the current status. The aims of this stage were to:

- Assess the validity of the CKIAs;
- Verify the relevance of the KMIFBI stages;
- Adjust the KMIFBI Framework.

The interviews with the banks that had already experienced KMS implementation were limited to two, one with an IT manager, and the other



with an accountant. It was assumed that these organisations were very strongly committed to managing knowledge and that they had achieved valuable benefits from it. A large bank operating in the UK, and working intensively in the city (financial hub of London), was chosen as an experienced organisation in KMS implementation. The next section explains the findings and feedback obtained from the interviews.

#### **10.5.2.1 Critical Knowledge Implementation Areas Verification**

Most of the frameworks and methodologies mentioned in the literature review (Chapter 4) contained items which are categorised as CKIAs associated with KMS implementation. The literature review identified variables that might be important for developing a robust conceptual framework.

In addition to the literature review other ideas obtained from the preliminary and secondary research exercises, and the focus groups, can be conceptualised, to form the basis for the conceptual framework (Sekaran, 2000). In order to gather further tangible evidence (Yin, 1994) to support these CKIAs (variables) and as a solution to the problem encountered in the literature review regarding the adoption of KMS, it was necessary at this stage to verify what are the CKIAs within organisations that have already experienced KMS implementation as a validation step in the KMIFBI.

The main question to be asked at this stage was:

*Are the critical knowledge implementation areas that are indicated in the KMIFBI able to contribute to the successful implementation of KM initiatives within the banking industry?*

The answers to this question are obtained and further combined with previous results in this research to obtain a full verification of the CKIAs, as follows:

## Verification of Organisational Commitments

All the interviewees in the UK bank stated that in order to establish a business strategy, a clear vision and achievable goals, senior managers have to be the main drivers for KMS implementation, since they are the only force that can persuade a diverse group of employees to focus their collective effort on the process of KM, and they are the only people who can provide employees with a clear picture and guidelines. In this respect, it was said that:

*“It is the main task of senior management to communicate the organisation’s goals and strategies of KMS to all employees in a clear vision to obtain full support and generosity from them for the success of KM activities”.*

In these interviews, the importance of KM strategy in term of KMS implementation, was stressed, with one person saying that:

*“Critical knowledge to be managed here is to do with obtaining a clear picture of strategically relevant CKIAs requirements and establishing and maintaining an operational KM strategy”.*

Rules and motivating activities for KMS stimulation were also confirmed as important by the interviewees, who indicated that motivation systems must be designed and operated considering employees’ requirements to get the full benefit and to enhance the process of knowledge across the organisations. The interviewees all agreed that knowledge resources include internal and external knowledge, internal and external HR, data and documents of various forms, customers, and partners (having partnerships with international banks and financial institutions). In this respect the IT manager said that:

*“Knowledge resources must be designed based upon knowledge management systems requirements, and must allow easy and flexible reconstruction of KM progress. Also, knowledge resources should be fully exploited for KM activities throughout human, technology, and related tasks (process)”.*

Therefore, to verify the importance of organisational commitment, all the results obtained from these investigations - in the preliminary research (see Chapter 7), in group sessions (see Chapter 8) indicate the importance of SMC, KM strategy, motivation systems, alliances and partnerships; as well as KM resources. In terms of SMC, top managers are expected take hold of the value of the organisation's knowledge base and then direct this knowledge base towards corporate goals and objectives; these results are in an agreement with previous studies (see Chapter 5).

Considering KMST, these results are inline with the literature review (see Chapter 5). As supported by the previous studies in terms of KM implementation, all the results of this study confirmed the importance of meeting employees' requirements (satisfaction) to encourage them to process knowledge. Furthermore, the study results emphasise that alliances and partnerships are very helpful in terms of KMS implementation, as indicated by previous research (see Chapter 5). Finally, the results reveal that KM resources are an effective element in KMS implementation, as is also widely acknowledged in the literature (see Chapter 5).

### **Verification of Change Management**

In terms of CM, it was clearly expressed by participants that the successful implementation of KM requires changes in the organisational policy, procedures, structure, and the way in which training and learning tasks are carried out; that new types of staff skills should be deployed (e.g. CKO); and that the relationship between top management and employees has to be improved. It was said that:

*"If the organisational policy and procedures are not supportive, if there is no KM department or the training and learning system favours only individual effort, it may be difficult to get people to work together and process the knowledge required".*

Reviewing the relevant organisational experiences it can be concluded that CM programmes were one of the main primary concerns in terms of KMS implementation. These statements together with others in the preliminary research (see Chapter 7), and in group sessions (see Chapter 8), are inline with previous studies. For example, the importance of organisational policy and procedures is stressed in the literature review (see Chapter 5), the same applies to organisational structure, the importance of training and learning activities, TW, and OCL.

### **Verification of Information Technology**

From the perspective of IT in KMS implementation, most of the interviewees expressed that the relationship between IT and KMS implementation was very strong, particularly where the organisation worked globally with wide geographical coverage. It was also said that:

*“IT is important because it can help to transfer information and knowledge documented in the knowledge bases to wider knowledge requests in the bank, and even across national boundaries. IT is essential to a KMS as much as HR”.*

A KMS should be connected with IT systems. A variety of IT systems could be considered, depending on the characteristics of the organisation, and diverse IT staff should be appointed to fully exploit the IT systems that have been installed, and to keep these systems well maintained. Also it is indicated that the skills of IT staff and behaviours of employees provide the bulk of the added value in knowledge processes. Technology has little value unless it is complemented by effective skills and behaviours on the part of those using it.

The results of the quantitative research findings (questionnaires) and qualitative (interviews and group sessions) revealed that including IT in KMS implementation was indispensable for success (see Chapter 7; and Chapter

8). These statements were echoed in the workshop regarding the positive correlation between successful KMS implementation and the effective use of IT. The literature also widely acknowledges the positive role of IT in KMS, and the importance of IT strategy, IT staff, and IT skills (see Chapter 5).

### **Verification of Knowledge Management Processes**

In terms of processing and managing knowledge, it was noted that identifying the KM processes associated with the business problem was an important step in codifying a KMS implementation. The interviewees expressed that the KM process is a major tool in the leveraging of organisational knowledge. Furthermore, from the participants' point of view, the KM process requires the full and continuous support of senior managers as well as of employees.

All the study stages confirmed the importance of the KM process (see Chapter 7 for results from the preliminary research, and Chapter 8 for the results of the group sessions). This was also acknowledged at the workshop conducted to validate the framework at the LPUBs. In this respect, KM processes and other CKIAs are complementary issues and have to be linked. These results are in harmony with most previous studies that can be seen in Chapter 5.

### **Summary of Critical Knowledge Implementation Areas Verification**

In addition to the evidence given already regarding the CKIAs, other initiatives deemed relevant and necessary for validation were considered. The approach to validation consisted of introducing the results at two conferences (Kridan and Goulding, 2005<sup>a</sup>, Kridan and Goulding, 2005<sup>b</sup>; Kridan and Goulding, 2005<sup>c</sup>).

At these events, a large number of practitioners, IT professionals, universities, and other academic institutions were present. During the presentations, specific questions emerged regarding SMC, and the

importance of the OCL in the integration of KMS into routine work. These issues were distilled for reflection and subsequent incorporation.

### **10.5.2.2 Verification of the Framework's Stages**

The main question at this point related to the verification of the stages of the KMIFBI, was:

*Can the KMIFBI stages facilitate the successful implementation of KM initiatives within the banking industry?*

The answers to this question were collated; and the views and ideas of the interviewees were incorporated to verify each of the KMIFBI stages as follows.

#### **Verification of Initiating Stage**

It was commented during the interviews with the practitioners at the bank that the outcome of stage one should form the base for a clear vision and acceptance by all senior management, as well as the employees to perform KM activities. These activities can be measured by the full involvement of the senior management in implementing KMS for the whole processes; as well as by the motivation provided by the top management, since top management has the power to effect changes. In stage one, the organisation should get engaged in gathering/ acquiring knowledge based on the experiences of its employees. In this stage also, the bank should embark on developing a business plan for KMS implementation.

### **Verification of Diagnosing Stage**

The interviewees showed interest in the outcome of stage two, as it would provide a strategic plan for KM implementation with a set of initiatives and implementation tools to support business improvement. It was said that:

*“Step 2 involves reflective observation, in which the organisation analyses the current infrastructure from a socio-technical viewpoint to ensure systems are sufficient to meet the needs of the organisation and KMS implementation”.*

At this stage KM initiatives should be planned as systematic goal-directed efforts for addressing a KM problem in order to achieve business improvement. The interviewees stated that at the evaluation point, the reliability of the strategic plan for the KMS infrastructure can be assessed, because it is also vital to assess an organisation's readiness before a KM strategy is implemented. At this point either an internal or external assessor can be involved.

### **Verification of Establishing Stage**

A KM strategy and an implementation plan for the establishing of KMS infrastructures are very important in terms of KM activities. The set of KM initiatives identified in step 1 and 2 should be aligned with the KM strategy. However, KM tools are required in this stage for implementing suitable KM initiatives. A range of tools can be selected including both IT-based (hardware and software) and non-IT-based systems (Human activities: face-to-face meeting, training). It was expressed that:

*“In the establishing stage, the framework should be engaged in establishments to determine appropriate KMS infrastructures”.*

In this stage an appropriate KM context should be developed and established to reduce the readiness gap, and furthermore to conduct any reform needed, and provide any resources required. In terms of the evaluation stage it could

be that measuring the interaction between the KMS infrastructures and the people is very important in this stage in order to monitor the effectiveness of each CKIA as they should be in place prior to the implementation of KMS.

### **Verification of the Acting Stage**

The outcome of this stage is a specific business context that creates values, and draws on people with diverse expertise and knowledge both to enhance the existing benefits of KM, and to create new ones. In this stage also, employees must filter the information they hold, so they do not become overloaded, and put what they know on the KM systems and tools. Moreover, in this stage, there should be a combination of the two different perspectives of KMS: knowledge and process. Furthermore, the social aspects of most KM processes are captured by including the involved actors and their roles. In this understanding, and regarding this stage it has been said that:

*“Stage 4 involves active experimentation, where Critical Knowledge Implementation Areas plans are implemented for the knowledge infrastructure”.*

The senior managers' primary focus in this stage should be acting within a culture that respects knowledge, reinforces its sharing, retains its people, and builds loyalty to the organisation. People performance measurements can be used to evaluate the outcome of this stage as people will start acting and exchange knowledge and they should have clear experiences in this stage.

### **Verification of the Learning Stage**

The interviewees agreed that in the fifth stage, the process of KM activities should be cycled, since learning occurs as a continual loop. Moreover, they indicated that in this last step, KMS tools for each of the knowledge requirement should be supported, and interaction should be evident since this is the key in managing knowledge. Furthermore, they felt that innovation, co-operation, and TW grow in a strong, positive, supportive



culture. It is often necessary to build organisation-wide infrastructures (IT) to support KM solutions.

The outcome of this step is expected to be a strong OL climate; and senior management needs to take the initiative for sponsorship and support of the efforts in this direction. However, due to the diverse background of the employees, senior management should not assume that cross-functional thinking happens without mentoring and review, especially in organisations such as LPUBs that are characterised by functional isolation, domain dissimilarities and centralised management.

### **10.5.2.3 Summary of the Verification Stage**

Face-to-face interviews with representatives of banks that already have a KMS in place were believed to provide more valuable information on which to base a complete KMS framework. In this exercise, the interviewees did express their opinions regarding the framework, agreeing with the proposed stages and indicating that the responsibility for the various activities identified with the framework should be determined, in respect of senior management, IT managers, HR managers, etc. Furthermore, they indicated that the framework provided a good starting point and a roadmap for implementing a KMS especially in banks such as those in Libya, which suffer from dominant tribal links, isolation, and lack of performance-related incentives.

## **10.6 Framework Summary**

It is still generally unclear how organisations initiate and implement KM projects and exactly how KM initiatives can be applied or contribute to business growth and developments. The current lack of both a well-defined view of the subject and empirical insights have motivated this study to investigate KM-related issues in the LBs in general and in the Libyan public banks in particular. This study focuses on how some of the most critical KM areas can facilitate the implementation of KM initiatives, and helps the LPUBs to mobilise their resources, create a business case, measure, and evolve their KM programmes. The outcome of this study is to enable the LPUBs to realise the importance of KM initiatives and identify any performance gaps and/ or opportunities for its implementation. The key facets of competitive advantage in the banking industry lie in the continual improvement in services innovation and the ability to bring new services to the market quickly and at low cost to the customer. This empirical study also presents an opportunity to gain a better understanding of challenges to overcome in implementing successful KM initiatives.

Although Gupta and Lyer (2001) state that organisations must apply KM-related processes and concepts to capture, transfer, archive and retrieve knowledge, many organisations simply did not know how to apply KM because the theory covers a broad range of concepts that describe how organisations should create, share and store valuable knowledge in its numerous formats. This research covered some of the gaps in academic research between the conceptual frameworks of processes that must be undertaken for KM and their practical implementation within the banking industry.

This chapter has described the process and analysis which have been employed in the development of the KMIFBI (objective six), which is intended to improve the LPUBs' strategic capabilities relative to KM processes and

implementation. Since the dynamic aspect of KM processes depends largely on individual and organisational commitment, IT systems, skills and behaviours, these areas have been included specifically in order to build a high degree of responsiveness, and a willingness to continually re-examine the knowledge processes.

The chapter further described the approach through which the KMIFBI was validated (objective seven). This validation was based on two phases, a workshop followed by discussion with the potential adopters and professionals who already have a KMS in place. The following and final chapter - "Conclusion" - provides a summary of the research. It focuses on showing how the results of the study relate to the original research questions and the objectives set out in this thesis. In this regard, the chapter discusses two main points including 1) the contribution of the research in terms of setting CKIAs within the banking sector and a strategy for implementing KMS, and 2) the recommendations for future work in this area.

# **CHAPTER 11**

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## **CONCLUSION**

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### **11.1 Introduction**

The field of KM has motivated researchers to find out and explore the essence of knowledge.

This chapter provides a summary of the activities carried out to achieve the aim and objectives of the research. The main focus is on demonstrating how the results of the study fulfil and answer the original research questions and the objectives set out in this study. In this regard, this chapter discusses two main aspects including 1) the contribution of the research in terms of KM implementation, and 2) the recommendations for future work.

## 11.2 Main Conclusion and Findings

The main conclusions from this research are as follows:

- The application of KM is expected to create a positive value to the organisation;
- The field of KM is still inconclusive, especially in guiding the implementation of KMS in organisations;
- It was found that many of the existing frameworks and methodologies do not adequately address all of the requirements for effective KM implementation or do not provide sufficient details;
- There is no agreement about the CKIAs or critical success factors that have to be considered when implementing a KMS; and
- Libyan public banks are willing to implement a KMS as soon as possible, to reach the world leading banks.
- The following areas were found to be effective for the successful implementation of KMS:
  - SMC and support;
  - KM strategy;
  - Organisational culture;
  - Existence and usage of IT;
  - Knowledge transfer;
  - Employees' requirements;
  - Alliance and partnership;
  - Training and learning;
  - KM resources;
  - IT skills;

- Knowledge acquisition;
  - Teamwork;
  - Knowledge documentation;
  - Knowledge application;
  - IT strategy;
  - Organisation structure;
  - Knowledge creation;
  - IT staff; and
  - Organisation policy and procedures.
- 
- The results highlighted that the banks can not fully exploit the benefits generated by KMS because of the difficulties that the LPUBs face in building and exploiting KM systems, procedures, structures etc.
  - There is a need for a tool that can assist senior managers in the LPBS in implementing a successful KMS; and this research provides a viable KM framework for implementation within the Libyan banking industry.
  - This research used a mixed methodology (hard and soft) to develop the conceptual framework. The 'hard' methodology was used to develop data and information processing capacity by information technologies, and the 'soft' methodology was used for developing human and social capabilities. The proposed KMIFBI consists of the following five stages:
    - Stage one, is the initiating stage, the outcomes of which are used to SMC and support; and the development of a business strategy for KMS implementation with a clear organisational vision and understanding of KM.
    - Stage two, is the diagnosing stage, in this second stage the outcome is a model of the current knowledge infrastructure, involving an analysis of strong and weak points, and determining where opportunities for

improvement to the knowledge infrastructure lie, so that a record of the current status CKIAs would be available.

- Stage three, is the establishing stage, the outcomes of which are that the organisation and senior management establish and implement a knowledge infrastructure and support system that enhances and facilitates the knowledge processes (acquisition, creation, transfer, application and documentation) at the appropriate levels.
- Stage four, is the acting stage, it consists of the actual consolidation, integration, development, and distribution of knowledge. The outcome for the act stage is the actual implementation of a new knowledge infrastructure. The fourth step of the KM process cycle is the review of the results of actions taken, using assessment criteria. These criteria should consider whether the infrastructure contains the right knowledge, whether the knowledge infrastructure is stable or susceptible to change; whether it is in a form that permits easy use, and whether the people who need the knowledge can easily access it.
- Stage five, is the learning stage, the organisation should gain experience, before conceptualisation can occur. It can be suggested that the KM process cycle is actually a reflection of the cycle of OL.

### **11.3 Meeting Research Objectives**

Achievement of the research objectives are listed as follow:

- The research has carried out an extensive literature review on KM, KMS; and KMST (objective one), this led to:
- Understanding, critically evaluating and synthesising the causal relationships between KM, KMS; and KMST (Chapter Three);
- Identifying the effectiveness of the different KM frameworks and methodologies suggested in the literature review (Chapter Four)

- Identifying CKIAs that effect the successful implementation of KMS (Chapter Five)
- The research has investigated the core issues and pressures facing the LPBS from a KM, KMS; and KMST perspective (objective two), this has been done through the preliminary research part one (see Chapter Seven);
- The research has evaluated the strategic fit and relevance of ‘Western’ literature on: KM, KMS; and KMST, to the LPBS (objective three); this relevance has been reached through the preliminary research part two (see Chapter Seven)
- The research has determined the importance, potential impact, and level of maturity of the LPBS (objective four), this has been achieved through secondary research (see Chapter Eight);
- The research has investigated the tools, techniques, and concepts associated with conceptual framework/model development, with specific emphasis on applicability and degree of fit (to meet the needs of the LPBS); this has been done in chapter nine (discussion) and through the comparison between the interpretation work and the secondary research.
- The research has developed a KM conceptual framework/model to meet the needs of the LPBS (objective six and seven); this has been achieved through literature review, preliminary and secondary research as well as the group sessions. This framework was tested and validated by potential users and domain experts from banks already have a KMS in place (see Chapter Ten).

#### **11.4 Methodology of Implementation**

The following methodology is proposed as a guide for the implementation of the “KMIFBI” five stages KM framework in Libyan banking sector with a main duties for each management level:



## Duties of Senior Management:

### Stage one:

- Provide clear vision and understanding to KMS;
- Initiate a KM strategy;
- Initiate clear responsibilities and motivation for KMS;
- Initiate alliances and partnerships; and
- Initiate KMS resources.

### Stage two:

- Monitoring and reviewing the state of KMS;
- Monitoring KM strategy;
- Monitoring motivation systems;
- Identifying the opportunities provided by partnering; and
- Adjusting the resource levels for new KM activities.

### Stage three:

- Established a long term KM plan;
- Appointing a Knowledge chief executive;
- New incentives, rewards and motivation systems are introduced;
- Starting partnerships and collaboration; and
- Re-allocating all resources needed for KM programs.

### Stage four

- Involving the senior management in the whole KM processes and implementation;

- Reviewing KM strategies are commonly carried out by senior managers;
- Formal mechanisms are in place to survey employees' motivation and satisfaction;
- Securing the alignment of the organisation to the industry; and
- Provided external and internal resources.

#### Stage five

- Value of KMS in the organisation is measured and tracked over time;
- Improvements are created to develop strategic plans of KMS;
- Incentive, rewards, and recognition systems are constantly being improved;
- Continuous essentially beneficial from partnering in supporting its resources; and
- The resources allocation culture supports openness and flexibility.

#### **Duties of Human Resources Management:**

##### Stage one:

- Initiate the business changes for (organisation policy and procedures, organisation structure, OTL, TW, and OCL).

##### Stage two:

- Reviewing organisation's strategy in terms of organisation policy and procedures, organisation structure, OTL, TW, OCL;
- Scanning the organisation's structure for KM department;
- Analysis of training and learning requirement;

- Reviewing TW; and
- Scanning culture barriers that might prevent efficient delivery of KM.

Stage three:

- Establishing KM policy and procedures;
- Developing the structure of KM department;
- Developing well and a wide range of training and learning;
- Initiating a strong sense of TW across the organisation; and
- Initiating a KM that supports cultural nuances.

Stage four:

- Integrating OPP in practices with KM activities;
- Prepare an action plan and identify changes required in organisation's structure;
- Managers are applying training and learning in their day-to-day operations of KM;
- Starting to create a number of TW; and
- Starting fostering the culture of continuous learning and participation.

Stage five:

- The results of KMS are integrated in organisation policy and procedures;
- The structure of KM department is fully developed;
- The Organisation is truly exploiting training and learning for its KM activities;
- Strong sense of TW exists across the organisation; and
- The organisation embraces innovation

## **Duties of Information Technology Management:**

### Stage one:

- Rethink IT management in terms of IT strategies, existence and usage of IT, IT Staff and , IT Skills;
- Determining the type of IT systems required;
- Scanning for the strategic opportunities provided by IT;
- Reviewing the levels of IT skills; and
- Reviewing the existence of IT staff.

### Stage two:

- Establishing IT strategy;
- Establishing strategic IT applications and networks internally and externally
- Appointing a high level manager for IT services area; and
- Initiating core technical skills and some expertise outsourced.

### Stage three:

- Start using and exploiting IT;
- Select possible tools to support the KM processes;
- IT staff provides communication services for all individuals and groups;
- Combining the roles of IT and business to plan the strategic IT.

### Stage four:

- The organisation is benefiting from the IT culture;
- The organisation is using and exploiting IT for its strategic opportunities;
- Full involvement of IT users in KM initiatives; and

- High levels of IT skills in all departments.

### **Duties of all Organisational Levels:**

Stage one:

- Think about implications of organisational knowledge base.

Stage two:

- Clarify the knowledge dimension of the business problem by identifying the KM processes (acquisition, creation, transfer, application and documentation) involved and determine knowledge gap from a process, people and product perspective.

Stage three:

- Initiating KM acquisition activities;
- Initiating KM creation activities;
- Initiating KM transferring activities;
- Initiating KM application activities; and
- Initiating KM documentation activities.

Stage four:

- Producing (creation) mode where the new knowledge is produced;
- Acquiring mode where the new knowledge is acquired from internal and external sources;
- People are encouraged to increase interactions;
- Knowledge is used in functions, reviewing and monitoring purposes; and
- Knowledge is documented by technology and non-technology tools.

Stage five:

- Teams are regularly exchanging knowledge;
- Information flows freely within functional areas;
- Organisation fosters a culture of continuous learning;
- People are encouraged to be innovative by using knowledge; and
- The organisation is regularly documenting and retrieving knowledge.

As the participants expressed in the pre-field evaluation, there should be an evaluation point after each stage to monitor progress towards achieving the strategic objectives, and identify the KM processes that relate to each stage. The KMIFBI framework is commenced to use a reviewing phase after each stage for overseeing all process-related activities from stage one to five. All process activities are undertaken in each respective stage, assisted by information and data held. The outcome from each stage culminates in the generation of a phase review report. This report is used to document all process findings and decisions, the results are stored for future use.

## **11.5 Contribution of this Research**

The purpose of this research is to present a KMS framework for the Libyan public banking industry and to discuss the means for a successful implementation:

- The study first derived generic elements for critical KMS implementation areas through the literature review. Then the study has identified and described components that make up a holistic approach to implementing KM in the Libyan environment. The research provides an empirical assessment of the essential elements in KM implementation in the context of LPUBs. Finally, it introduced a conceptual framework for LBs for the preparation to implement KM initiatives.

- From a practical standpoint, this set of CKIAs as well as the framework itself, is expected to be useful to both managers and researchers. Since organisations may not be able to manage all aspects of KM at the same time, an ordered list of CKIAs would guide the LPUBs to prioritise and adjust their KM practices accordingly.

Considering the need to increase managers' concerns, this work provides a set of factors to justify how a KMS can be implemented within their organisation, as it demonstrates the importance of KM and the key implementation areas. Furthermore, this research identifies mechanisms to incorporate human and IT values to improve KMS implementation, and to leverage competence. Finally, this research discussed the implications of KMS within the banking industry and recommended future research. In this understanding this study provides:

**Clarification:** the research identifies the success areas of KMI within the banking industry in general and LPUBs in particular;

**Effectiveness:** Identification of Libyan banks-specific barriers and promoters for KM implementation.

**Efficiency:** the process framework may improve KM implementation outcomes for a relatively modest initial intervention effort.

The outcome of the research process is expected to provide a useful indications of how the organisation can approach knowledge enactment and how it should evolve to cope with the knowledge requirements of its organisational work practices and vice versa. The results from this research are expected to be of a great benefit to top managers, IS executives, strategic planner, business managers, and other practitioners who are

implementing or planning to implement KM within their own organisations or for their customers.

The real value of the KMIFBI model developed in this research can be highlighted by distinguishing its different roles as: descriptive and empirical. These roles are briefly discussed in the following sub-sections.

### **The KMIFBI as a Descriptive Framework**

The KMIFBI can be used as a conceptual framework which permits researchers to appreciate the myriad of complex factors and variables involved within a banking sector. Hence, the conceptual framework helps to identify the set of variables that are likely to influence such implementation by providing researchers with a framework that highlights potential problems related to the implementation of KMS within a banking context.

### **The KMIFBI as an Empirical Framework**

The KMIFBI has the potential to guide empirical research in the development of KMS in the banking sector. It provides an integrated and holistic view of how raw data flows could be turned into real knowledge assets.

In conclusion, the KMIFBI is aimed at implementing a KMS within the Libyan public banking industry and to identify the areas that could contribute to its deployment. The KMIFBI is expected to aid banks to identify specific KMS implementation areas and guides users through the provision of solutions to problems.

## **11.6 Research Limitations**

The research results and findings are inline with the findings from the literature review; the inherent research limitations need to be taken into consideration. First of all, and as any research in KM, these limitations make it essential for this research to seek to develop a holistic and integrative



understanding of KM, a feature which demands broadening the scope of the study in reviewing a large body of relevant literature.

This research has synthesised the KM literature and reinforced this with structured and semi-structured interviews to develop a proposed framework. Whilst acknowledging the validity and variability of this research methodological approach, it is important to recognise specific limitations, the key area of which embrace:

- Research methodology (approach);
- Data validity (testing);
- Sample size (quantity);
- Sample set (quality);
- Language translation/ semantics (cognitive understanding);
- Applicability (real-world);
- Personal bias (objectivity); and
- Time and resource constraints.

This research sought to compile a comprehensive overview of these generic concepts and practical guidelines, by reviewing various bodies of literature and looking for different types of data from both interviews and questionnaires sources, in order to generalise the usefulness of the proposed framework, more cases need to be analysed, as the present study is limited in terms of sample size, the pseudo random sample choice and the industry type. The main types of organisations that participated were large financial organisations. They were mainly service-oriented, offering both standardised and customised services. This limits the chances for generalisations. In an attempt to ameliorate this limitation, extensive literature review was carried out.

Another limitation is attributed to the immaturity of the KM field together with the unfamiliarity of LPUBs with the KM term which could be argued to weaken the results gathered through interviews and questionnaires. Hence, and in order to overcome this weakness, this research considered the inclusion of banks already applying KMS for data validation (see Chapter 10).

The number of banks selected was rather small. However, this was inevitable since KM is a new and emerging field, and no LPUBs have formally initiated it. However, all possible efforts were made to conduct preliminary and secondary research and interviewing as many people as possible in each bank. With more time given for investigation in group sessions, richer data could have been obtained. Furthermore, the nature of KM practices suggests that measuring the impact of KMS implementation and exploitation might be difficult to quantify over a short period of time. Therefore, time constraints have inhibited this study from venturing into much deeper investigations.

Another limitation is that the research has focused in depth on CKIAs within LPUBs only, although bankers participated in the preliminary research were familiar with the KM concept; they had not formally implemented it. Therefore, the data collected can be argued to be subjective as opposed to being objective. However, the expertise of the research sample minimises the downside of this limitation.

In an attempt to rectify the impact of the mentioned limitations of the research findings, various bodies of literature were sought together with the data collected from both primary and secondary research.

The progress of the research was also bound by the often-limited access to information provided by the banks. There was also no opportunity to use the framework in a real life context the results of implementing KM are not expected immediately (Morey, 2001). Moreover, this was impossible because of time and cost constraints.

In addition, the lack of empirical work was mitigated by the research methodological approach taken. However, despite these limitations, it is believed that this framework can be successfully applied to the real-world context.

## **11.7 Recommendations for Further Research**

This exploratory research into three Libyan public banks provided an holistic examination of senior staff IT and HR managers to identifying and measuring CKIAs, to enhance the successful implementation of KMS. On the basis of the findings and conclusions of this study, specific recommendations are made for further research:

- Multiple replications of this study are recommended to establish the basis for cross-case analysis and the potential for even more compelling evidence and conclusions.
- Additional research is recommended to establish financial valuation measures for critical knowledge areas and the creation of a theoretical foundation for a business formula to identify a measurable return on critical knowledge.
- Further research is recommended to determine the budget and a time plane for each stage and for the overall framework.

Despite the increasing volume of publications generated on KM, this body of literature has not fully encompassed nor addressed the issues facing developing countries.

To summarise, these recommendations for further research would be expected to build upon the theoretical foundation, and to extend and enrich the findings and conclusions from this exploratory case study. The future work may include helping the private banks to develop a centralised

framework for KM processes, and find out the practical issues involved in the development.

Deepening the analysis of managers' interest in knowledge is critical to understand how KM can contribute to improve strategy formulation. Future research should examine the differences among industries, and measure accurately the relative importance of the factors that affect personal characteristics and knowledge development. Because these relations are not fully investigated, additional studies are suggested concerning the industries where knowledge workers have a more defined and important role. Future research on managers' attitudes towards the linkages between strategic management and human value may have to examine carefully the role of their KM orientation in an effort to adequately support successful strategies.

Libyan Banks should conduct a pilot study in a targeted business area within the banks that need a system for capturing, preserving, and sharing knowledge of its expert employees. The KMS pilot study would identify the types of knowledge needed in the targeted area, the types of knowledge missing and available, who needs this knowledge, and how this knowledge is used.

This research could also be expanded to investigate the practice of other Arab countries similar in culture and economic environment (such as Saudi Arabia, Kuwait and UAE). The conduct of a comparative study with some western countries is also recommended. Especially, that it is not clear to what extent the results obtained would hold true in different cultural contexts.

If there is a limit to the success of KM, it lies in the area of human attention. One of the key issues needing attention is understanding how is knowledge allocated by individuals and organisations; knowing how to capture it more effectively for important information and knowledge; using technology for

leverage etc.. In addition to knowledge and KM, in the future all organisations will need to focus their attention in this area (Davenport and Volpel, 2001).

## **11.8 Conclusion**

The purpose of this research was to explore the possibility of the successful implementation of KM initiatives. The research developed a framework that could help banks in general and LPUBs in particular, to select a KMS. The research answered the following questions. What important factors are needed for strategic KMS planning and implementation? How can it be implemented?

Knowledge Management is a relatively new discipline that is now largely considered by organisations but still lacks theory, tools and reliable frameworks. When conducting the research, there was uncertainty regarding the ability to verify the research questions. The results of this research do not offer a magic solution to overcome problems arising by some barriers in implementing KMS, such as budget and time plan. However, this framework addressed the core KM implementation issues facing the Libyan Public Banking environment today.

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# APPENDICES

## APPENDIX 'A'

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### Preliminary Research Questionnaires

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## Part One: Interview Questions

Q1-Does your bank have a number of experts who may possess a huge amount of knowledge?

Yes	No	Don't know
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Q2-Do you think knowledge is a valuable asset in your bank and should be processed and managed by KMS?

Yes	No	Don't know
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Q3-Is the concept of KM clear to you and at your bank or it shapes with other concepts?

Familiar	Neutral	Not familiar	Don't know
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Q4- Do you think your bank naturally will be transformed to KMS?

Agree	Neutral	Disagree	I don't know
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Q5: Select the stage of development of the KM initiative in your unit and in your bank?

There is a KM system	<input type="checkbox"/>
KM program is under consideration	<input type="checkbox"/>
Not considering any KM programme	<input type="checkbox"/>
No KM programme in place	<input type="checkbox"/>
Others	<input type="checkbox"/>

Q6-Why do you think your bank has not implemented any KM systems?

Bank isn't aware of KMS	<input type="checkbox"/>
Inability to implement KM	<input type="checkbox"/>
Insufficient organisation processes	<input type="checkbox"/>
Insufficient knowledge about KMS	<input type="checkbox"/>
Financial limitation	<input type="checkbox"/>
Others	<input type="checkbox"/>

Q7-Do you think your bank should have clear strategies for implementing KMS?

Yes	No	Don't know
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q8- Is KMS important for your bank to be successful in today's business environment?

Yes	No	Don't know
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q8-1: If the answer is yes in the previous question please indicate why:

Knowledge loss	<input type="checkbox"/>
Lack of knowledge	<input type="checkbox"/>
Suffering from error duplications	<input type="checkbox"/>
Data and information are not interpreted well	<input type="checkbox"/>
Others	<input type="checkbox"/>



Q9-What are the Benefits of Knowledge Management System?

No	Benefit	Important	Not important	I don't know
1	Exploitation of the bank's thinking power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Capturing insight and experience to make them available and usable when, where and by whom required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Improve the customer relationship and management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Enhance employees' development and satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Create new value through new services (innovations)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Enhance current value of existing services (knowledge about customers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	KMS could be a base to many other banking programmes (such as National Payment System)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Reduce/avoid costs/promote reuse (knowledge about processes)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Reduce uncertainty/increase speed of response (knowledge about the environment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Increasing workers productivity and performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Fostering collaboration, knowledge sharing, continual learning and improvement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Employees will spend less time looking for information and expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Enabling for more intelligent decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Help banks to become more competitive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Better customer handling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	Faster response to key business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	Improved employee skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	Improved productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	Increased profits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	Increased innovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	Sharing best practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	New ways of working	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Create additional business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24	Staff attraction / retention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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## Part Two: CKIAs Questions

### I - Organisation Commitment Questions

#### Section 1: Senior Management Commitment

1. The senior management has currently a clear vision and goals about Knowledge Management :

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. The senior management provides adequate support to the core Knowledge Management programmes:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Senior management is committed to KM processes:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. The senior managers have the motivation to invest in organisational resources to create favourable conditions for KM implementation:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. The senior management has a primary focus on establishing a culture that appreciates KM processes:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Section 2: Knowledge Management Strategy

6. The relation between your bank's strategies and KM strategy:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. The bank is committed to see KM at a strategic level and delivers all KM strategies to all its employees:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. The bank intends to manage KM in the future:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. The bank handles any consider risks associated with the implementation of knowledge management:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Section 3: Employees' Requirements

10. The bank is committed to meet employees' requirements in terms of KM:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. The bank provides adequate help to the employees to win work:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. The bank encourages employees to create and share their knowledge:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. The bank provides a compensation system regarding knowledge management implementation in your bank:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. The bank motivates the employees according to their knowledge:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Section 4: Having Alliances and Partnership

15. Alliances and partnerships are used as a part of KM strategy:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. The involvement of employees in external relationships in terms of knowledge management:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Section 5: Providing Knowledge Management Resources

17. Providing budget and sources for KM programmes:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. Providing time and resources to take part in the learning and sharing exercises:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Providing enough technologies, policies and procedures for generating, sharing and storing knowledge:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Eliminating any existing and future rules that are likely to obstruct the continuous knowledge sharing:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. The bank reviews the organisation resources regarding to KM:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## II- Change Management Questions

### Section 1- Organisation Policy and Procedures

22. The bank has policies and procedures that are clearly articulated for the implementation of KM:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. These policies and procedures impact on the corporate KM goals and objectives:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. The procedures and policies minimise hierarchical and bureaucratic procedures that may obstruct KM processes:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section 2: Organisational Structure and Responsibility

25. Existence of knowledge management department:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. KM structure is flexible enough to the deliver KM strategies:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27. There is a champion for KM activities:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. Everyone within the bank holds responsibility for KM initiatives:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section 3: Training and Learning

29. The employee's skills and abilities are known and considered in terms of KM:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

30. Re-skilling employees will help implementing successful KM initiatives:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

31. Changes in skills are needed in respect of KM implementation:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

32. Employees are given adequate training to use ICT (software, networks, and databases) to perform KM:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

33. Learning is continuous in all levels:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section 4: Teamwork**

34. The relationship between knowledge management and your teamwork:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

35. The exchange of knowledge between teamwork in your bank:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

36. The members of knowledge work teams have access to different knowledge bases in your bank:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section 5: KM Culture**

37. Encouraging the employees to create a friendly culture:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

38. The culture supports innovation, learning and knowledge sharing:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

39. The culture provides a work environment in which employees are engaged, challenged, motivated and rewarded:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

40. The bank encourages workers to participate in the establishment of their goals and performance objectives:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

41. The workers and co-workers openly discuss what they need of one another:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**III- IT Questions**

**Section 1: IT strategy**

42. IT supports core KM initiatives:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

43. The impact of IT on providing and collecting knowledge from clients:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

44. IT is used as a part of strategic KM implementation alliances:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section 2: IT Staff

45. IT expertise will help to implement KM:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

46. The nature of your IT Department:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

47. The extent and nature of involvement of IT users in the formulation and implementation KM strategy:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

48. There is a champion to implement IT projects related to KM:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section 3: IT Skills

49. Attaching to IT skills in terms of KM:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

50. Measuring IT skills in terms of KM:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section 4: The Existence and Usage of IT Systems

Please indicate how important the existence of the technology support tools/processes pertaining to KM programmes/systems, whereas: A=not important; B= slightly important; C= moderately important; D= important; E= very important; and F= extremely important

Q No	Tools	A	B	C	D	E	F
51.	Existence of website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52.	Existence of corporative intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53.	Existence of Extranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54.	Existence of efficient non-computerised knowledge support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55.	Existence of explicit workflows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56.	Existence of document management system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57.	Existence of internal network where knowledge is diffused (Databases....)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58.	Existence of electronic tools to seek information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59.	Existence of web server sharing information with customers, suppliers, universities, etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60.	Computerised organisation area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## IV- KM Processes Questions

### Section 1: Knowledge Acquisition

61. Business strategies in your bank should have influence on the capturing of information/knowledge:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

62. Knowledge should be accessible to everyone in your bank:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

63. Gaining knowledge about customers, clients, vendors and others:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section 2: Knowledge Creation

64. Creating and storing knowledge in paper or electronic documentation in your bank:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

65. Having accurate and effective knowledge:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

66. Up-dating Knowledge processes projects and innovations:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section 3: Knowledge Transfer

67. The impact of Knowledge sharing on your clients:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

68. Sharing of knowledge among employees to help in winning work:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

69. Having enough information technologies in the bank to enable knowledge sharing strategy:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

70. Transferring knowledge between functions:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

71. Sharing knowledge between individuals:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section 4: Knowledge Application**

72. Using knowledge in decision-making:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

73. Integrating KM in business activities:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section 5: Knowledge Documentation**

74. The participation of IT tools in storing and formulating overall knowledge:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

75. Having clear objectives for KM protection:

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

76. Getting feedback from the customer regarding the organisation's services

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

77. Getting the right amount of knowledge needed in your bank on time :

not important	slightly important	moderately important	important	very important	extremely important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## APPENDIX 'B'

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### Secondary Research Questionnaires

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# I- Organisational Commitments Questions

## Section 1: Senior Management Commitment

51. Does the senior management in your bank currently have a clear vision and goals about KM?

No dedicated senior management commitment for implementing KMS.	Senior managers have a little understanding, visions, and responsibilities for KMS.	Senior management still suffering from some confusion exists within the understanding, visions, and responsibilities of KM.	Senior management currently have a clear vision and goals about KMS.	Senior management have created a climate wherein creativity and responsible risk taking are encouraged, barriers are broken down between functions, and business decisions are challenged.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

52. Does the senior management in your bank provide adequate support to the core knowledge management programmes?

No dedicated senior management commitments for implementing KMS.	Little or no effort is made to establish the KMS initiatives by senior management.	The level of senior manager's participation in the formulation of overall KMS is still very low.	Senior management provide adequate support to the core knowledge management programs.	Senior management have established a forward-looking approach to knowledge management practices to assess department's capacity to sustain desired performance levels in the future.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

53. Does the senior management commitment in your bank involve the whole of KM processes?

No dedicated senior management commitments for implementing KMS.	Senior management has limited involvement in KM processes.	Senior management has developed a short-term plan to improve knowledge management practices.	Senior management commitment involved in whole of KM processes.	Senior management are recognised amongst peers for leadership in implementing knowledge management practices.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

54. Do the senior managers have the motivation to invest in organisational resources and personal reputation to create favourable conditions for KM?

No dedicated senior management commitments for implementing KMS.	Senior managers have a little motivation in providing KMS infrastructures to support the operations of the KM function.	Senior management still reviewing its plan for supporting KM activities and services to assess where KM is appropriate.	Senior management is linked organisation's corporate goals and objectives to knowledge management initiatives.	Senior managers have the motivations to invest in organisational resource and personal reputation to create favourable conditions for KMS.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

55. Does the senior management have a primary focus on establishing a culture that respects KM processes?

No dedicated senior management commitments for implementing KMS.	Senior management is recognised the need for change in organisational culture.	Senior management still reviewing its plan for supporting KM activities and services to assess where KM is appropriate.	Senior managers are integrated KM in the organisation's corporate strategy and shapes the organisation's knowledge culture.	Senior management have a primary focus on establishing a culture that respects KM processes.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

## Section 2: KM Strategy

56. How would you describe the relationships between your bank's strategies and the KM strategy?

No KM strategy dedicated for implementing KMS.	KM strategies are completely separate entities from organisation's strategy.	The corporate goals and objectives of the KM strategy are not well defined and cleared at the organisation.	Integrated KM strategy is embedded in the organisation's corporate strategy.	KM strategies are clearly defined by senior management and in each management level, and are well understood throughout the organisation.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

57. Is your bank committed to see KM at the strategic level and deliver all KM strategies to all its employees?

No KM strategy dedicated for implementing KMS.	there is no conjunction between the corporate goals, objectives, policies and procedures and KM strategy,	The relations between KM strategy and organisation's goals and objectives are indirectly addressed through its supportive role.	KM strategy supports KM objectives through business efficiency.	The organisation's corporate goals and objectives are fully linked to KM strategy.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

58. How does your bank intend to manage KM in future?

No KM strategy dedicated for implementing KMS.	No involvement of the senior management practical in the formulation and processes of KM strategy.	Very low level of the participation of KM strategy in the formulation of overall KMS in the organisation.	A long term KM plan is in place, and is closely aligned with the organisation policy and procedures.	The KM strategy is established with the continual KM policy and procedures.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

59. Does your bank consider any risks associated with the implementation of knowledge management?

No KM strategy dedicated for implementing KMS.	Limited attention has been given to evaluate the KMS risks.	Only the some issues are reviewed by KM strategy, some risks are partially reflected in KMS plans.	Review KM strategy is included the risks of change management and human resources in internal and external relationships.	Review results play a major role in redirecting focus of KM design, and in determining the type of risks that might face the performance of KMS.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

### Section 3: Employees' Requirements

60. Is your bank committed to meet employees' requirements in term of KM?

No motivation system provided for implementing KMS.	Communication tends to be downward, with management controlling and limiting information to employees.	No formal mechanisms exist for senior management to manage its relationship with employees, or to measure the extent of the communication benefits.	General communication tools are provided to link senior management with employees.	Senior management is committed to communicate the importance of meeting employees as well as providing regulatory and legal requirements to promote knowledge process.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

61. Does your bank provide adequate help to the employees to win work?

No motivation system provided for implementing KMS.	Information on employee satisfaction is collected on an informal and ad hoc basis.	Only some arrangements for surveying employee encouragement and satisfaction exist across the organisation.	Formal mechanisms are in place to survey employees' encouragement and satisfaction regarding to KM on a regular basis, and results are tracked over time.	Incentive, rewards, and recognition systems are constantly being improved and customised to the social and money bases needs.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

62. How much does your bank encourage employees to create and share their knowledge?

No motivation system provided for implementing KMS.	There is a little encouragement by the top management.	Senior management seeks to provide employees with KM activities.	Senior management is driven some of programs to encourage employees for create and share knowledge.	Senior management is fully encouraged employees for create and share knowledge.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

63. What is the level of the compensation system regarding knowledge management implementation in your bank?

No motivation system provided for implementing KMS.	Confusion exists in accountabilities for achieving and reporting results regarding to employees satisfaction and motivation.	Indirect linkage between KMS and employees incentives and rewards.	Improvements are created to develop plans to address high priority issues such as incentive, rewards for knowledgeable employees.	Knowledgeable people are fully rewarded at the organisation, and all further carrier steps is depended on the accumulation and the application of knowledge.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

64. Does your bank measure its employees' performance according to their knowledge accumulations?

No motivation system provided for implementing KMS.	No formal measurement to the level of knowledge accumulation and no link to the employees' performance measurement.	Limited monitoring, measurements, and analysis of results of the accumulation of the knowledge by employees, and they are on a trend basis in term of motivation systems.	Employees' role in KM is a key consideration in the employees' performance measurements.	Value of human capital in the organisation is measured and tracked over time.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

### Section 4: Having Alliances and Partnership

65. Alliances and partnerships are used as a part of your KM strategy:

No Alliances or partnerships dedicated for implementing KMS.	Only season-term partnerships and collaboration are provided at the organisation, as a result no clear opportunities provided by partnering or relationships in term of KM improvement.	Short-term partnerships and collaboration with national and international organisations just started recently; the organisation began to prepare for partnership within the industry for KM interaction.	Med-term partnerships and collaboration with other organisations that help the organisation to learn from others, it becomes a partner within the only a part of its industry, and it requires to be a larger partners in the international organisations; it shows flexibility and adopt formats to accommodate its needs.	The organisation has a long-term partnerships and collaboration which provide the organisation to learn from others, and transfer knowledge to their organisation base.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

66. The involvement of employees in external relationships in terms of knowledge management:

No Alliances or partnerships dedicated for implementing KMS.	Benefits from Partnering are not clear yet.	Only some benefits can be realised at the organisation by partnering.	Partnering is benefiting the organisation and supporting KM processes.	The organisation essentially beneficial from partnering in supporting its resources to support KM processes, and it is a larger partners in the international organisations.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

### Section 5: Providing KM Resources

67. Considering your bank's commitment, what is the level of budget and resources for KM programs?

No KM resources allocated for implementing KMS.	No systematic/formal approach or process to resource allocation for KM.	Resource levels are adjusted for new activities/priorities only in term of KM, and are managed independently by each organisational unit (e.g. branch, region).	Resource planning models are used to estimate resource requirements for KM only.	Resources are re-allocated between KM programs based on priorities that reflect results achieved.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

68. How much time and resources does your bank provide to take part in the learning and sharing exercises?

No KM resources allocated for implementing KMS.	Roles and responsibilities as they pertain to identifying and providing strategy resources for KM are generally not well understood.	KM resources are managed by low managerial level.	Senior managers are the only responsible for resources allocation.	All management levels are highly committed and supportive to, and participate actively in the resource allocation process for KM.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

69. Does your bank provide enough technologies, policies, and procedures for generating, sharing, and storing knowledge?

No KM resources allocated for implementing KMS.	No mechanisms exist for the organisation to manage its resources for KM.	No formal mechanisms are in place to facilitate resource re-allocations between branches/regions or other organisations.	Organisation is more interesting in internal resources as provided mechanisms to facilitate resource re-allocations between branches/regions.	External and internal resources are provided to all managers and employees.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

70. Does your bank eliminate any existing and future rules that are likely to obstruct the continuous provision of resources?

No KM resources allocated for implementing KMS.	Information on the KM resources is mainly anecdotal.	The top management provide time and resource only when required.	Only managers have the access to the knowledge resources.	The resources allocation culture supports openness and flexibility to all the staff and be coded for positions.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

71. How often does your bank review the organisation's resources regarding to KM?

No KM resources allocated for implementing KMS.	KM resources do not seem to be reviewed in term of KM every five years.	KM resources are reviewed in term of KM every three years.	KM resources are reviewed in term of KM every five years.	KM resources are reviewed continuously in term of KM.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

## II- Change Management and HR Management

### Section 1: Organisational Policies and Procedures

72. Does your bank have currently policies, procedures that clearly articulate the implementation of KMS?

No dedicated policy or procedures for KMS.	Some KM policies exist but are not understood or applied in a consistent manner.	No KM policy or procedures written but it finds its own way within the bank processes.	People follow clear guidelines and instructions about KM.	A written policy and procedures exist which defines all roles, responsibilities, and procedures related to knowledge management.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

73. What is the impact of these policies and procedures on your corporate KM goals and objectives?

No dedicated policy or procedures for KMS.	No clear impact from the organisational policy and procedures.	Some informal KM policy; procedures have impact on the value of knowledge.	Organisational strategy, policy, procedure, and structure meet knowledge process requirements in a reliable and timely manner.	The results of knowledge management are integrated in organisational policies, procedures, and practices.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

74. Do the current policies and procedures minimise hierarchical and bureaucratic procedures that may obstruct KM processes?

No dedicated policy or procedures for KMS.	It might be that at the organisation there is only a small development in terms of KM dominated by technical issues.	Knowledge standards and cycles could be in it way of establishment but the KMS guidelines are needed urgently for specific operational areas.	A long-term KM plan is in place, and is closely aligned with the organisation's strategic and business plans.	KM planning is done on an integrated basis for all assets (e.g. facilities, equipment) across the organisation. Efforts are made to improve knowledge process levels.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

### Section 2: Organisational Structure

75. What is the nature of your knowledge management department?

There is no dedicated organisational structure for KMS.	There is a small technical unit providing group technical service and minority of KM services	There is a large technical division providing technical service and only some KM services.	The KM department is a small KM unit providing technical and KM policies.	The KM department is fully developed, and has full responsibility for strategy and business.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

76. Is the current KM structure in your bank flexible enough to the deliver KM strategies?

There is no dedicated organisational structure for KMS.	Is not clear yet the flexibility of organisational structure in term of KMS.	Organisational structure only for some new KM functional.	Organisational structure is flexible to for the new KM functional.	Organisational structure is flexible for the new KM functional, and advanced change management developed as key part of the KM.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

77. Who is the champion for KM activities in your bank?

No responsibility dedicated for KMS.	Technical staff is the champion for KM project.	The Human Resources manager could be only the champion for KM projects.	Senior management is the champion for KM project.	Knowledge chief executive is the champion for KM project.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

78. Does everyone within the bank, hold responsibility for KM initiatives?

No responsibility dedicated for KMS.	No clear responsibility for KMS at the organisation.	Only senior managers responsible for KMS.	All organisations' managers are held responsibility for KMS.	KM is everyone responsibility at the organisation.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

**Section 3: Training and Learning**

79. Are the employee's skills and abilities in your bank known and considered in terms of KM?

No dedicated training or learning activities for KMS.	Little or no information exists on training and learning requirements for KM practices for either functional employees or managers.	Training activities are prevented because of cost and the complexity of KM forms a barrier that is influencing the awareness of strategic possibilities offered by training and learning.	The organisation is just starting to plan to strategically exploit training and learning for KM and competitive advantage.	The organisation is among the very few best practice organisations that are truly exploiting training and learning for their KM.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

80. Is your bank re-skilling its employees to implement successful KM initiatives?

No dedicated training or learning activities for KMS.	Limited tools and techniques are available at the organisation to assist managers in conducting KM analysis.	Training and learning activities are defined to varying degrees and techniques depending on KM areas.	The organisation is seeking and up-grading the quality of training, and seeking to provide all key training and learning in terms of KM.	The organisation is well developed and a wide range of training and learning support tools and techniques are available, fully understood and used by all staff in terms of KM.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

81. The level of importance for skills development for KM implementation?

No dedicated training or learning activities for KMS.	The objectives of training analysis are dependant upon low cost training initiatives.	Training and learning process are analysed on an ad hoc basis.	Managers' skills gaps in KM practices are being analysed. Learning plans have been developed.	Analysis of training and learning requirements is done using integrated information.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

82. Are employees given adequate training to use ICT (software, networks, and databases) to perform KM?

No dedicated training or learning activities for KMS.	Training provided only to the main departments only.	Provide training when required.	Seeking and up-grading the quality of training on the organisation business processes.	The organisation developing intensive and divers education and training program for all changes, including senior management.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

83. Is your bank promoting continuous learning on all levels?

No dedicated training or learning activities for KMS.	The organisation may need to analyse its current situation concerning various aspects of change management, including education and training programmes.	No, or limited training, is done regarding KM.	The organisation is seeking and up-grading the application of training, and seeking to provide all key training and learning activities in terms of KM.	Managers are applying training and learning in their day-to-day operations of KM.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

### Section 4: Teamwork

84. How would you describe the relationship between knowledge management and teamwork?

No dedicated teamwork for KMS.	Teamwork and KM are completely separate entities.	The organisation is starting to create teamwork and a culture that would support KM initiatives and corporate goals.	The organisation appears to be truly planning to exploit a co-operation culture for improving its position, capabilities, and expertise.	Strong sense of teamwork exists across the organisation.
E	D	C	B	A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

85. How would you describe the exchange of knowledge between teams in your bank?

No dedicated teamwork for KMS.	Teamwork is not encouraged in terms of KM, and work is distributed in line with individual competencies and preferences.	Some recognition and incentive programmes are in place for teams regarding KMS.	A mix of national and local rewards, recognition and incentive programmes are in place for teams.	A strong link exists between incentives, rewards, recognition, and team contributions.
E	D	C	B	A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

86. Do the members of knowledge work teams have access to different knowledge-bases in your bank?

No dedicated teamwork for KMS.	Teamwork does not involve exchanging any knowledge in terms of KMS.	Some knowledge exchange through some integrated systems with some information sharing exists at the organisation.	Teamwork is encouraged to share and exchange information in order to promote KM initiatives, and work is distributed in line with individual competencies and preferences.	Teams in the organisation are regularly exchanging knowledge and reach conclusive decisions related to major change.
E	D	C	B	A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section 5: Organisational Culture

87. Is your bank encouraging the employees to create a friendly culture?

No organisational culture dedicated for KMS.	The prevailing culture reinforces compliance and risk-averse behaviour where people are expected to follow orders and defined procedures.	People are encouraged to increase interaction and look for efficiencies by providing input and are allowed to make suggestions only when changes occur.	Information flows freely within functional areas, and is shared between functional areas.	KM supports a cultural shift to knowledge - smart workforce and environment.
E	D	C	B	A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

88. Is the culture in your bank supportive of innovation, learning, and knowledge sharing??

No organisational culture dedicated for KMS.	Employees have to concentrate on their work and let the top management make the organisation's policy and strategies.	Employees only can make suggestions through out their bosses.	People are able to speak out and participate in discussions without fear of reprimand.	Results of KM are used to support innovation, learning and continuous improvement.
E	D	C	B	A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

89. Does the culture in your bank provide a work environment in which employees are engaged, challenged, motivated, and rewarded?

No organisational culture dedicated for KMS.	Weak fit exists between organisational and individual aspirations as the communication tends to be downward, with management controlling and limiting information to staff.	People tend to work independently with some interaction.	People in the organisation are treated with value and respect, Pro-active effort is made to share new ideas and approaches across the organisation.	The integration of KM into decision-making is supported by a corporate philosophy and culture that believes KM is everyone's business.
E	D	C	B	A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

90. Does the bank encourage workers to participate in the establishment of their goals and performance objectives?

No organisational culture dedicated for KMS.	Changes are decided by management and communicated as necessary to staff.	Information is available for monitoring purposes and shared amongst functions where inter-relationships exist.	The organisation fosters a culture of continuous learning and participation.	The organisation embraces innovation and responsible knowledge-taking.
E	D	C	B	A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

91. Are the workers and co-workers encouraged to openly discuss what they need of one another.?

No organisational culture dedicated for KMS.	Culture barriers that prevent efficient delivery of KM still exist.	People are consulted and sometimes given the opportunity to participate in major change initiatives.	People are empowered to take responsibility for KM, and are encouraged to be innovative.	The organisation is seen as a leader in KM. People are highly committed to the success of the organisation					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

### III- IT Questions

#### Section 1: IT strategy

92. Does IT support your core KM initiatives?

No IT strategy dedicated for implementing KMS.	The organisation needs to rethink the way in which intended to manage IT.	The organisation is aware of some of the strategic opportunities provided by IT, but, the bottom-up approach has formed a barrier to the IT progress in term of KMS.	Strategic IT applications are developed with external-oriented knowledge and built over and based on the existing KM systems.	The organisation is in a position to benefit from the IT strategy that has been developed and maintain IT on the urgent agenda of concern of KMS.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

93. What is the impact of IT on providing and collecting knowledge from your clients?

No IT strategy dedicated for implementing KMS.	IT is not viewed as an important part of KM and business strategy and IT applications are mainly directed at support and functional systems with very little in term of integration and the Information on IT program outcomes is very limited, and there is no link between IT and KMS	The organisation starting to create an IT infrastructure and culture that would support its KM activities and corporate goals by investing in such software and databases.	The organisation is benefiting from some of the strategic opportunities provided by IT.	The organisation appears to be using and exploiting IT for its strategic opportunities and can be able successfully to perform KMS.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

94. How is IT used as a part of strategic KM implementation alliances?

No IT strategy dedicated for implementing KMS.	Reviews of IT roles are carried out on an ad hoc basis.	IT Reviews are carried out as issues arise.	The organisation is developing a measurement of IT outcome in term of KMS.	IT measures are in place to measure its outcomes in term of KMS, information is collected regularly to measure these outcomes.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>



### Section 4: The Existence and Usage of IT Systems

**Technology/Practices:** Please indicate how effective these technologies are in supporting KM programmes/systems, where: E= not applicable, D = urgently requiring attention, C= requiring more attention, B= further improvement possible and A= satisfactory/ best practice.

Q No	Tools	A	B	C	D	E
31	Effectiveness of website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	Effectiveness of corporative intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	Effectiveness of Extranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	Effectiveness of non-computerised knowledge support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	Effectiveness of explicit workflows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36	Effectiveness of document management system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	Effectiveness of internal network where knowledge is diffused (databases....)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	Effectiveness of electronic tools to seek information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	Effectiveness of web server sharing information with customers, suppliers, universities, etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	Effectiveness of computerised organisation area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section 3: IT staff

95. How do you currently involve IT users in your KM processes in your bank?

No IT staff dedicated for implementing KMS.	External contractors may be used to develop/install systems as required.	Core hybrid IT staff is sought, developed, and retrained.	Almost all needed IT technical specialist staff are in-house	Core IT staff consists of expertise such as in some large organisations.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

96. How would you describe the diversity of IT staff in your organisation?

No IT staff dedicated for implementing KMS.	IT staff consist of a law –level technicians and programmers only.	The small IT staff consists, in addition to programmers and low-level technicians, from systems analysts.	Added to the programmers and analysts, dedicated IT planners and database administrators are appointed.	IT function head become a full member of the board of direction to play be an active part in setting strategic direction not only as an advisor, because strategic plans need to have the required IT element 'cooked' in them from the beginning					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

97. What is the level of participation of your IT function in the formulation of your over all knowledge strategy?

No IT staff dedicated for implementing KMS.	Little involvements of IT users in any KM initiatives.	IT staff is just now charged with the responsibility of adequately understanding the users requirements might be needed for KM systems' development.	IT workforces are coordinated with current and future IT needs at both the organisational and unit levels.	Full involvement of qualified IT users in KM initiatives, in addition to the programmers, systems analysts, and database administrators, business analysts now exist to act as a liaison between their units and the IT function.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

98. Is there in your organisation a champion for IT project in term of KMS implementation?

No IT staff dedicated for implementing KMS.	No IT managers allocated responsibility for IT.	A technically-oriented IT manager is just appointed as a responsible for IT functions.	High level manager for IT services area is appointed, with middle management status.	High level manager for IT services area is appointed, with senior management status.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

**Section 4: IT skills**

99. How would you describe the developments of IT skills in terms of KMS?

There is no IT skills dedicated for implementing KMS.	Users find it hard to acquire the skills to use the IT that exist and skills are individually based and jealously guarded from others.	Low technical competence at the organisation because of the low-developed IT related skills (programming, analysis, security, networking etc.).	The organisational workforces are constantly enhancing their IT capabilities to perform their assigned tasks and responsibilities for KMS.	IT business planners have the skill and experience to plan the strategic exploitation of IT for individual units and the organisation as whole in term of KMS.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

100. How do you measure your IT performance in terms of KM?

There is no IT skills dedicated for implementing KMS.	Development needed as the low level technical nature and there may limit advanced in IT skills exist in the organisation (programming or systems analysis).	IT staff acquire the skills needed to develop and maintain complete systems such as programming and analysis, in addition to being able to install off-the-shelf ready-made packages that might be used in term of KMS implementation.	All individuals are involved in capturing/documenting their knowledge and experience from performing IT-related work to be used in enhancing their competency and performance.	Individuals and workgroups are continuously improving their IT-related capability throughout IT training and learning activities.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

101. How would you describe the implementation of the internet to support KM initiatives in your bank?

There is no IT skills dedicated for implementing KMS.	Very low levels of IT skills and expertise in all departments the emphasis might be on technology rather than people.	The levels of IT skills in some departments are needed some attention, and partial commitment to R&D initiatives may slow down the rate of progress of IT in the organisation.	IT skills are used wherever possible, and technical skills start to be encouraged within the IT and user workforce, while very knowledgeable users of IT become quite normal, where they now contribute freely to the whole IT operation.	High levels of IT skills in all departments and partial commitment to R&D initiatives may slow down the rate of progress of IT in the organisation.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

**IV- Knowledge Management Processes Questions**

**Section 1: Knowledge Acquisition**

102. Do business strategies in your bank have any influence on the capturing of information/knowledge?

There is no dedicated knowledge acquisition.	Knowledge acquisition includes buying or acquiring the critical knowledge capabilities missing in the organisation, the organisation hires new staff members who posses missing knowledge.	Before developing products or services the organisation some times does marketing research among potential clients, these relationships often have excellent potential for providing knowledge, yet are not fully utilised.	The organisation is doing market research to find out about the customer wishes and needs and importing from external sources and helping it to draw on the expertise in customer, supplier, and partner relationships.	Members of the organisation are collecting information about needs and wishes of clients and make a validation for it and are active in an external professional network or association as they are credited their knowledge form imitating knowledge from their competitors and then using it for their own advantages.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

103. Is knowledge accessible to everyone in your bank?

There is no dedicated knowledge acquisition.	Only the chairman or the deputy of the organisation has the information access.	Information access is limited to top management only.	The access to information and knowledge bases is coded from the top, middle management, and some employees.	Member of the organisation regularly access to information and knowledge for developing new methods/approaches(list, tree, net), methods and they have the ability for presenting knowledge (knowledge maps, topic maps, associative nets, contents) and tools for converting, transforming and loading acquired knowledge into existing systems.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

104. Is your organisation keen to gain knowledge about customers, clients, vendors and others?

There is no dedicated knowledge acquisition.	The clients' wishes and needs only treated by guesses and imaginations.	Important knowledge is not easily available, the organisation always buy it (i.e. advisers, licences) if needed.	Possible sources could be information systems, stakeholders (e.g. customers, partners), other knowledge products (e.g. software or patents), or even production systems.	The organisation does research (i.e. with universities) to explore future chances/possibilities.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

## Section 2: Knowledge Creation

105. Do you think knowledge can be created and stored in paper or electronic documentation in your bank?

There is no dedicated knowledge creation method.	There no link between new projects and knowledge creation.	Changes are under consideration by senior management only to link the new projects with validity knowledge available.	Some of the new projects at the organisation are depending on the knowledge that generated by expert staff.	Knowledge creation methods are in place to serve new projects that depending on know-how and availability of knowledge.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

106. Is you organisation creating new knowledge from peoples' interactions could be accurate and effective knowledge?

There is no dedicated knowledge creation method.	The set of the input or output of the information is unknown at the organisation.	Input information level of rest of employees in this the organisation is not well managed.	New ideas and insights lead is necessary to redesign of business processes and work methods at the organisation.	Knowledge gained by internal and external changes which cause business to adapt-for example the generation of new services or new technologies and social and economic changes.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

107. Is your organisation up-dating and developing new knowledge processes for innovations?

There is no dedicated knowledge creation method.	New services and production is not promoted at the organisation.	Only some members in the organisation promote new knowledge (products and services) internally.	Knowledge generated by informal networks-groups of people brought together by common interests of top management.	Knowledge gained by brining together individuals or groups of people with different perspectives to work together on projects.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

### Section 3: Knowledge Transfer

108. What is the impact of Knowledge sharing on your clients?

No knowledge transferring is dedicated.	Knowledge is only transferred in very precise informal ways ("in the corridors").	Employees have to concentrate on their work, and they have a limited time for knowledge transferring and sharing.	The environment at the organisation encouraging employees to freely transfer and share knowledge with expertise, and experiences with their peers out side the organisation.	The sharing and dissemination of knowledge within an organisation the industry and with the international organisation makes it easier for the organisation to turn isolated expertise and information into something of use to the whole organisation.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

109. Do you think sharing knowledge among employees will help you to win work?

No knowledge transferring is dedicated.	No informal tools for knowledge transferring or sharing at the organisation.	Embedding knowledge in routine business processes rather than being seen as an additional activity over and above "routine" makes it very hard for employees to win work.	Providing employees the flexibility to question existing ways of operating and experiment within broad boundaries with new methods or processes based on learning from outside their function or company.	The transferring of knowledge makes it easy for getting the right knowledge to the right place at the right time.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

110. Does your bank have enough information technologies to enable knowledge sharing?

No knowledge transferring is dedicated.	There are no regular meetings being organised in which professional matter are discussed to help employees in their work.	Limited tools are used in the organisation for knowledge transferring; it is limited to classic method only (face to face).	Certain tools and techniques are frequently used to facilitate knowledge transferring process not just the establishment of networks which providing access to knowledge but also the transfer of people.	The organisation is used many methods for knowledge transferring and tools such as (KMS/Knowledge Portal), a people-oriented method (Storytelling) and a combination method (Micro articles).					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

111. Is your organisation transferring knowledge between functions and departments?

No knowledge transferring is dedicated.	Employees have to keep their knowledge in their mind otherwise they will lose their positions.	The trust among colleagues still in low manner which make knowledge transfer going very slowly.	Colleagues inform each other regularly about positive experiences and successful projects.	Problems, failure, and doubts are discussed openly in the organisation, there are learning groups, where members from different departments can discuss their work experience and strategies					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

112. Is your organisation transferring knowledge with national and international organisations?

No knowledge transferring is dedicated.	Only by force knowledge and information is transferred with the international community.	Only some types of knowledge and information can be shred and documented.	Knowledge is transferred with international organisation.	Full knowledge and information transferring with international organisations.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

### Section 4: Knowledge Application

113. Is your organisation using knowledge in decision-making?

There is no dedicated knowledge application.	Decisions always taken without any consideration at the organisation.	Decision making at the organisation depends only on senior managers' ability of understanding the environment or the situation, only some decisions are depending on knowledge provided.	The organisation informs its members to systematically use knowledge in their day-to-day work.	The existing of know-how in the organisation is used in a creative manner of new applications through effective decision making.					
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

114. Is your organisation integrating KM in the organisation's business activities?

There is no dedicated knowledge application.		No development of products or services provided at the organisation.		Employees use knowledge and information only in some events.		Organisation's members promote new knowledge (products and services) and occasionally they use it.		Selling knowledge, products, or services gets explicit attention and embedded in organisation's business.	
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

### Section 5: Knowledge Documentation

115. What is the level of participation of your IT tools in the storage and formulation of your overall knowledge?

There is no dedicated knowledge documentation.		Only manual archives exist at organisation for storing data and information.		The organisation used the basic systems and the archives for storing knowledge.		Software (s) are developed for knowledge documentation.		Full tools including IT application are used in storing knowledge at the organisation.	
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

116. What are the objectives of your KM protection?

There is no dedicated knowledge documentation.		Knowledge is not protected at the organisation.		Knowledge is protected by the people who own it (tacit knowledge only).		The software that developed for knowledge documentation has already knowledge security methods.		Full systems are developed for knowledge protection and safety.	
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

117. At what level does your bank get feedback from the customer regarding its services?

There is no dedicated knowledge documentation.		The feed backs do not recorded at the organisation.		All feed backs are only archived at the organisation.		All feed backs are considered but some of them are implemented in the development of the organisation's product or services.		The feed back from organisation's agents are effectively considered in the development of products and services.	
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

118. Is it easy to get the knowledge needed in your bank on time and in a sufficient amount?

There is no dedicated knowledge documentation.		No clear any up-date for knowledge.		Employees have to up-date their knowledge themselves.		The organisation is up-dated knowledge after filtering.		This organisation has its disposal up-to-date handbooks, which are frequently used.	
E	<input type="checkbox"/>	D	<input type="checkbox"/>	C	<input type="checkbox"/>	B	<input type="checkbox"/>	A	<input type="checkbox"/>

## **APPENDIX 'C'**

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### **Conceptual Work (CKIAs Interpretations)**

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Table SMC (Senior Management Commitment)

Category	Interpretation
Category "A" SMC satisfactory/ best practice	<ul style="list-style-type: none"> <li>▪ Senior management have created a climate wherein creativity and responsible risk taking are encouraged, barriers are broken down between functions, and business decisions are challenged.</li> <li>▪ Senior management have established a forward-looking approach to KM practices to assess department's capacity to sustain desired performance levels in the future.</li> <li>▪ Senior management are recognised amongst peers for leadership in implementing KM practices.</li> <li>▪ Senior managers have the motivations to invest in organisational resource and personal reputation to create favourable conditions for KMS.</li> <li>▪ Senior management have a primary focus on establishing a culture that respects KM processes.</li> </ul>
Category "B" SMC further improvement possible	<ul style="list-style-type: none"> <li>• Senior management currently have a clear vision and goals about KMS,</li> <li>• Senior management provide adequate support to the core KM programmes.</li> <li>• SMC involves the whole of KM processes.</li> <li>• Senior management is linking organisation's corporate goals and objectives to KM initiatives.</li> <li>• Senior managers are integrated KM in the organisation's corporate strategy and shape the organisation's knowledge culture.</li> </ul>
Category "C" SMC requiring more attention	<ul style="list-style-type: none"> <li>• Senior management is suffering from some confusion regarding the understanding, visions, and responsibilities of managing knowledge.</li> <li>• The level of senior manager's participation in the formulation of overall KMS is still very low.</li> <li>• Senior management has developed a short-term plan to improve KM practices,</li> <li>• Senior management is reviewing the plan for supporting KM activities and services to assess the appropriateness of KM,</li> <li>• Senior management recognised the need for change in OCL.</li> </ul>
Category "D" SMC urgently requiring attention	<ul style="list-style-type: none"> <li>• Little or no overlap exists in understanding, visions, and responsibilities for KMS among senior managers.</li> <li>• Little or no effort is made to reconcile the KMS initiatives by senior management.</li> <li>• Senior management has limited involvement in KM processes,</li> <li>• Senior managers have little motivation in providing KMS infrastructures to support the operations of the KM function.</li> </ul>

	<ul style="list-style-type: none"> <li>• Senior management is not highly committed to support OCL for KM practices.</li> </ul>
Category "E" SMC not Applicable	<ul style="list-style-type: none"> <li>• No SMCs dedicated for implementing KM.</li> </ul>

**Table KMST (KM Strategy)**

Category	Interpretation
Category "A" KMST satisfactory/ best practice	<ul style="list-style-type: none"> <li>• KM strategies are clearly defined by senior management and in each management level, and are well understood throughout the organisation.</li> <li>• The organisation's corporate goals and objectives are fully linked to KM strategy.</li> <li>• The KM strategy is established with the continual KM policy and procedures.</li> <li>• Reviewing results play a major role in redirecting focus of KM design, and in determining the type of risks that might face the performance of KMS.</li> </ul>
Category "B" KMST further improvement possible	<ul style="list-style-type: none"> <li>• Integrated KM strategy is embedded in the organisation's corporate strategy.</li> <li>• KM strategy supports KM objectives through business efficiency.</li> <li>• A long term KM plan is in place, and is closely aligned with the organisation policy and procedures.</li> <li>• KM strategy review included the risks of CM and HR in internal and external relationships.</li> </ul>
Category "C" KMST Category requiring more attention	<ul style="list-style-type: none"> <li>• The corporate goals and objectives of the KM strategy are not well defined within the organisation.</li> <li>• The relations between KM strategy and organisation's goals and objectives are indirectly addressed through its supportive role.</li> <li>• Very low level of the participation of KM strategy in the formulation of overall KMS in the organisation.</li> <li>• Only some issues are reviewed by KM strategy, some risks are partially reflected in KMS plans.</li> </ul>
Category "D" KMST urgently requiring attention	<ul style="list-style-type: none"> <li>• KM strategies are completely separate entities from organisation's strategy.</li> <li>• there is no conjunction between the corporate goals, objectives, policies and procedures and KM strategy,</li> <li>• No involvement of the senior management in the formulation and processes of KM strategy,</li> <li>• Limited attention has been given to evaluate the KMS risks.</li> </ul>
Category "E" KMST not Applicable	<ul style="list-style-type: none"> <li>• No KM strategy dedicated for implementing KMS.</li> </ul>



Table ER (Employees' Requirements)

Category	Interpretation
<p>Category "A" ER satisfactory/ best practice</p>	<ul style="list-style-type: none"> <li>• Senior management is committed to communicate the importance of meeting employees' requirements as well as providing regulatory and legal requirements to promote knowledge process.</li> <li>• Incentive, rewards, and recognition systems are constantly being improved and customised.</li> <li>• Knowledgeable people are fully rewarded at the organisation, and all actions are depended on the accumulation and the application of knowledge.</li> <li>• Value of human capital in the organisation is measured and tracked over time.</li> </ul>
<p>Category "B" ER further improvement possible</p>	<ul style="list-style-type: none"> <li>• General communication tools are provided to link senior management with employees.</li> <li>• Formal mechanisms are in place to survey employees' encouragement and satisfaction regarding to KM on a regular basis, and results are tracked over time.</li> <li>• Plans are developed and improved to address high priority issues such as incentive, rewards for knowledgeable employees,</li> <li>• Employees' role in KM is a key consideration in the employees' performance measurements.</li> </ul>
<p>Category "C" ER Category requiring more attention</p>	<ul style="list-style-type: none"> <li>• No formal mechanisms exist for senior management to manage its relationship with employees, or to measure the extent of the communication benefits.</li> <li>• Only some arrangements for surveying employee encouragement and satisfaction exist across the organisation.</li> <li>• Indirect linkage between KMS and employees incentives and rewards.</li> <li>• Limited monitoring, measurements, and analysis of results of the accumulation of the knowledge by employees, and they are on a trend basis in terms of motivation systems.</li> </ul>
<p>Category "D" ER urgently requiring attention</p>	<ul style="list-style-type: none"> <li>• Communication tends to be downward, with management controlling and limiting information to employees.</li> <li>• Information on employee satisfaction is collected on an informal and ad hoc basis.</li> <li>• Confusion exists in accountabilities for achieving and reporting results regarding to employees satisfaction and motivation.</li> <li>• No formal measurement to the level of knowledge accumulation and no link to the employees' performance measurement</li> </ul>
<p>Category "E" ER not Applicable</p>	<ul style="list-style-type: none"> <li>• No motivation system provided for implementing KMS.</li> </ul>

Table AP (Alliances and Partnerships)

Category	Interpretation
Category "A" AP satisfactory/ best practice	<ul style="list-style-type: none"> <li>• The organisation has a long-term partnerships and collaboration which provide the organisation to learn from others, and transfer knowledge to their organisation database.</li> <li>• The organisation essentially benefits from partnering with international organisations in supporting its KM processes .</li> </ul>
Category "B" AP further improvement possible	<ul style="list-style-type: none"> <li>• Medium-term partnerships and collaboration with other organisations that help the organisation to learn from others, it becomes a partner within the only a part of its industry, and it requires to be a larger partners in the international organisations; it shows flexibility and adopt formats to accommodate its needs.</li> <li>• Partnering is benefiting the organisation and supporting KM processes.</li> </ul>
Category AP "C" Category requiring more attention	<ul style="list-style-type: none"> <li>• Short-term partnerships and collaboration with national and international organisations just started recently; the organisation began to prepare for partnership within the industry for KM interaction.</li> <li>• Only some benefits can be realised within the organisation by partnering.</li> </ul>
Category "D" AP urgently requiring attention	<ul style="list-style-type: none"> <li>• Only season-term partnerships and collaboration are provided at the organisation, as a result no clear opportunities provided by partnering or relationships in term of KM improvement.</li> <li>• Benefits from Partnering are not clear.</li> </ul>
Category "E" AP not Applicable	<ul style="list-style-type: none"> <li>• No Alliances or partnerships dedicated for implementing KMS.</li> </ul>

**Table KMR (Knowledge Management Resources)**

Category	Interpretation
<p>Category "A" KMR satisfactory/ best practice</p>	<ul style="list-style-type: none"> <li>• Resources are re-allocated between KM programmes based on priorities that reflect results achieved.</li> <li>• All management levels are highly committed and supportive to, and participate actively in the resource allocation process for KM.</li> <li>• External and internal resources are provided to all managers and employees</li> <li>• The resources allocation culture supports openness and flexibility to all the staff.</li> <li>• KM resources are reviewed continuously in terms of KM.</li> </ul>
<p>Category "B" KMR further improvement possible</p>	<ul style="list-style-type: none"> <li>• Resource planning models are used to estimate resource requirements for KM only.</li> <li>• Senior managers are solely responsible for resources allocation.</li> <li>• Organisation is more interested in internal resources by providing mechanisms to facilitate resource re-allocations between branches/regions.</li> <li>• Only managers have the access to the knowledge resources.</li> <li>• KM resources are reviewed in terms of KM every five years.</li> </ul>
<p>Category "C" KMR Category requiring more attention</p>	<ul style="list-style-type: none"> <li>• Resource levels are adjusted for new activities/priorities only in terms of KM, and are managed independently by each organisational unit (e.g. branch, region).</li> <li>• KM resources are managed by low managerial level.</li> <li>• No formal mechanisms are in place to facilitate resource re-allocations between branches/regions or other organisations.</li> <li>• The top management provide time and resource only when required.</li> <li>• KM resources are reviewed in terms of KM every three years.</li> </ul>
<p>Category "D" KMR urgently requiring attention</p>	<ul style="list-style-type: none"> <li>• No systematic/formal approach or process to resource allocation for KM.</li> <li>• Roles and responsibilities as they pertain to identifying and providing strategy resources for KM are generally not well understood.</li> <li>• No mechanisms exist for the organisation to manage its resources for KM.</li> <li>• Information on the KM resources is mainly anecdotal.</li> <li>• KM resources do not seem to be reviewed in terms of KM every five years.</li> </ul>
<p>Category "E" KMR not Applicable</p>	<ul style="list-style-type: none"> <li>• No KM resources allocated for implementing KMS.</li> </ul>

Table OPP (Organisational Policy and Procedures)

Category	Interpretation
Category "A" OPP satisfactory/ best practice	<ul style="list-style-type: none"> <li>• A written policy and procedures exist which defines all roles, responsibilities, and procedures related to KM.</li> <li>• The results of KM are integrated in organisational policies, procedures, and practices.</li> <li>• KM planning is done on an integrated basis for all assets (e.g. facilities, equipment) across the organisation. Efforts are made to improve knowledge process levels.</li> </ul>
Category "B" OPP further improvement possible	<ul style="list-style-type: none"> <li>• People follow clear guidelines and instructions about KM.</li> <li>• Organisational strategy, policy, procedure, and structure meet knowledge process requirements in a reliable and timely manner.</li> <li>• A long-term KM plan is in place, and is closely aligned with the organisation's strategic and business plans.</li> </ul>
Category "C" OPP requiring more attention	<ul style="list-style-type: none"> <li>• No KM policy or procedures written but it finds its own way within the bank processes</li> <li>• Some informal KM policy; procedures have impact on the value of knowledge.</li> <li>• Knowledge standards and cycles could be in the process of being established, but the KMS guidelines are needed urgently for specific operational areas.</li> </ul>
Category "D" OPP urgently requiring attention	<ul style="list-style-type: none"> <li>• Some KM policies exist but are not understood or applied in a consistent manner.</li> <li>• No clear impact from the organisational policy and procedures.</li> <li>• Within the organisation there is only little development in terms of KM dominated by technical issues.</li> </ul>
Category "E" OPP not Applicable	<ul style="list-style-type: none"> <li>• No dedicated policy or procedures for KMS.</li> </ul>

Table OST (Organisational Structure)

Category	Interpretation
Category "A" OST satisfactory/ best practice	<ul style="list-style-type: none"> <li>• The KM department is fully developed, and has full responsibility for strategy and business.</li> <li>• Knowledge chief executive is the champion of the KM project.</li> </ul>
Category "B2" further improvement possible	<ul style="list-style-type: none"> <li>• The KM department is a small unit providing technical and KM policies.</li> <li>• Senior management is the champion of the KM project.</li> </ul>
Category "C" OST requiring more attention	<ul style="list-style-type: none"> <li>• There is a large technical division providing technical service and only some KM services.</li> <li>• The HR manager could be the champion of the KM projects.</li> </ul>
Category "D" OST urgently requiring attention	<ul style="list-style-type: none"> <li>• There is a small technical unit providing group technical service and minimal KM services.</li> <li>• Technical staff is the champion for KM project.</li> </ul>
Category "E" OST not Applicable	<ul style="list-style-type: none"> <li>• There is no dedicated organisational structure for KMS.</li> <li>• No responsibility dedicated for KMS.</li> </ul>

Table OTL (Organisational Training and Learning)

Category	Interpretation
Category "A" OTT satisfactory/ best practice	<ul style="list-style-type: none"> <li>• The organisation is among the very few best practice organisations that are truly exploiting training and learning for their KM.</li> <li>• The organisation is well developed and a wide range of training and learning support tools and techniques are available, fully understood and used by all staff in terms of KM.</li> <li>• Analysis of training and learning requirements is done using integrated information.</li> <li>• Managers are applying training and learning in their day-to-day operations of KM.</li> </ul>
Category "B" OTT further improvement possible	<ul style="list-style-type: none"> <li>• The organisation is just starting to plan to strategically exploit training and learning for KM and competitive advantage.</li> <li>• The organisation is seeking and up-grading the quality of training, and seeking to provide all key training and learning in terms of KM.</li> <li>• Managers' skills gaps in KM practices are being analysed. Learning plans have been developed.</li> <li>• The organisation is seeking and up-grading the application of training, and seeking to provide all key training and learning activities in terms of KM.</li> </ul>
Category "C" OTT requiring more attention	<ul style="list-style-type: none"> <li>• Training activities are prevented because of cost and the complexity of KM forms a barrier that is influencing the awareness of strategic possibilities offered by training and learning.</li> <li>• Training and learning activities are defined to varying degrees and techniques depending on KM areas.</li> <li>• Training and learning process are analysed on an ad hoc basis.</li> <li>• No, or limited training, is done regarding KM.</li> </ul>
Category "D" OTT urgently requiring attention	<ul style="list-style-type: none"> <li>• Little or no information exists on training and learning requirements for KM practices for either functional employees or managers.</li> <li>• Limited tools and techniques are available within the organisation to assist managers in conducting KM analysis.</li> <li>• The objectives of training analysis are dependant upon low cost training initiatives.</li> <li>• The organisation may need to analyse its current situation concerning various aspects of CM, including education and training programmes.</li> </ul>
Category "E" OTT not applicable	<ul style="list-style-type: none"> <li>• No dedicated training or learning activities for KMS.</li> </ul>

Table TW (Teamwork)

Category	Interpretation
Category "A" TW satisfactory/ best practice	<ul style="list-style-type: none"> <li>• Strong sense of TW exists across the organisation.</li> <li>• A strong link exists between incentives, rewards, recognition, and team contributions.</li> <li>• Teams in the organisation are regularly exchanging knowledge and reach conclusive decisions related to major change.</li> </ul>
Category "B" TW further improvement possible	<ul style="list-style-type: none"> <li>• The organisation appears to be truly planning to exploit a co-operation culture for improving its position, capabilities and expertise.</li> <li>• A mix of national and local rewards, recognition and incentive programmes are in place for teams.</li> <li>• TW is encouraged to share and exchange information in order to promote KM initiatives, and work is distributed in line with individual competencies and preferences.</li> </ul>
Category "C" TW requiring more attention	<ul style="list-style-type: none"> <li>• The organisation is starting to create TW and a culture that would support KM initiatives and corporate goals.</li> <li>• Some recognition and incentive programmes are in place for teams regarding KMS.</li> <li>• Some knowledge exchange through some integrated systems with some information sharing exists at the organisation.</li> </ul>
Category "D" TW urgently requiring attention	<ul style="list-style-type: none"> <li>• TW and KM are completely separate entities.</li> <li>• TW is not encouraged in terms of KM, and work is distributed in line with individual competencies and preferences.</li> <li>• TW does not involve exchanging any knowledge in terms of KMS.</li> </ul>
Category "E" TW not applicable	<ul style="list-style-type: none"> <li>• No dedicated TW for KMS.</li> </ul>

**Table OCL (Organisational Culture)**

Category	Interpretation
<p>Category "A" OCL satisfactory/ best practice</p>	<ul style="list-style-type: none"> <li>• KM supports a cultural shift to knowledge - smart workforce and environment.</li> <li>• Results of KM are used to support innovation, learning and continuous improvement.</li> <li>• The integration of KM into decision-making is supported by a corporate philosophy and culture that believes KM is everyone's business.</li> <li>• The organisation embraces innovation and responsible knowledge-taking.</li> <li>• The organisation is seen as a leader in KM. People are highly committed to the success of the organisation.</li> </ul>
<p>Category "B" OCL further improvement possible</p>	<ul style="list-style-type: none"> <li>• Information flows freely within functional areas, and is shared between functional areas.</li> <li>• People are able to speak out and participate in discussions without fear of reprimand.</li> <li>• People in the organisation are treated with value and respect, pro-active effort is made to share new ideas and approaches across the organisation.</li> <li>• The organisation fosters a culture of continuous learning and participation.</li> <li>• People are empowered to take responsibility for KM, and are encouraged to be innovative.</li> </ul>
<p>Category "C" OCL requiring more attention</p>	<ul style="list-style-type: none"> <li>• People are encouraged to increase interaction and look for efficiencies by providing input and are allowed to make suggestions only when changes occur.</li> <li>• Employees only can make suggestions</li> <li>• People tend to work independently with some interaction.</li> <li>• Information is available for monitoring purposes and shared amongst functions where inter-relationships exist.</li> <li>• People are consulted and sometimes given the opportunity to participate in major change initiatives.</li> </ul>
<p>Category "D" OCL urgently requiring attention</p>	<ul style="list-style-type: none"> <li>• The prevailing culture reinforces compliance and risk-adverse behaviour where people are expected to follow orders and defined procedures.</li> <li>• Employees have to concentrate on their work and let the top management make the organisation's policy and strategies.</li> <li>• Weak fit exists between organisational and individual aspirations as the communication tends to be downward, with management controlling/limiting information to staff.</li> <li>• Changes are decided by management and communicated as necessary to staff.</li> <li>• Culture barriers that prevent efficient delivery of KM still exist.</li> </ul>
<p>Category "E" OCL not applicable</p>	<ul style="list-style-type: none"> <li>• No OCL dedicated for KMS.</li> </ul>



Table ITST (Information Technology Strategy)

Category	Interpretation
Category "A" ITST satisfactory/ best practice	<ul style="list-style-type: none"> <li>• The organisation is in a position to benefit from the IT strategy that has been developed and maintain IT on the urgent agenda of concern of KMS.</li> <li>• The organisation appears to be using and exploiting IT for its strategic opportunities and can be able successfully to perform KMS.</li> <li>• IT measures are in place to measure its outcomes in terms of KMS, information is collected regularly to measure these outcomes.</li> </ul>
Category "B" ITST further improvement possible	<ul style="list-style-type: none"> <li>• Strategic IT applications are developed with external-oriented knowledge and based on the existing KM systems.</li> <li>• The organisation is benefiting from some of the strategic opportunities provided by IT.</li> <li>• The organisation is developing a measurement of IT outcome in terms of KMS.</li> </ul>
Category "C" ITST requiring more attention	<ul style="list-style-type: none"> <li>• The organisation is aware of some of the strategic opportunities provided by IT but, the bottom-up approach has formed a barrier to the IT progress in terms of KMS.</li> <li>• The organisation is starting to create an IT infrastructure and culture that would support its KM activities and corporate goals by investing in software and databases.</li> <li>• IT Reviews are carried out as issues arise.</li> </ul>
Category "D" ITST urgently requiring attention	<ul style="list-style-type: none"> <li>• The organisation needs to rethink the way in which it is intending to manage IT.</li> <li>• IT is not viewed as an important part of KM and business strategy and IT applications are mainly directed at support and functional systems with very little in terms of integration and the information on IT programme outcomes is very limited, and there is no link between IT and KMS</li> <li>• Reviews of IT roles are carried out on an ad hoc basis.</li> </ul>
Category "E" ITST not applicable	<ul style="list-style-type: none"> <li>• No IT strategy dedicated for implementing KMS.</li> </ul>

**Table EUIT (Existence and usage of IT Systems)**

Category	Interpretation
<p>Category "A" EUIT satisfactory/ best practice</p>	<ul style="list-style-type: none"> <li>• Existence of shared inter-organisational systems (with suppliers, customers, government, etc.) by using shared IT infrastructure services.</li> <li>• Existence of diverse hardware architecture according to each unit's needs.</li> <li>• Inter-organisational networks with outside entities (government, suppliers, customer, etc.), with the use of Internet and e-commerce technology</li> <li>• Existence of organisation-wide network, where all groups are connected and the central IT function provides communication services for all individuals and groups in the organisation</li> </ul>
<p>Category "B" EUIT further improvement possible</p>	<ul style="list-style-type: none"> <li>• In-house IT applications covering most major operation areas with office automation in an isolated stand-alone manner.</li> <li>• IT systems rely on gathering and processing internal data through the use of IT systems, some external data being collected particularly from government.</li> <li>• Networks functions supporting communication, cooperation and linking of individuals in the organisation.</li> <li>• Internet and intranet provision improves effectiveness within the organisation.</li> </ul>
<p>Category "C" EUIT requiring more attention</p>	<ul style="list-style-type: none"> <li>• An increase in the number of IT application systems is being developed or purchased but concentration is still on operational systems in the financial area while a small number of other core business-oriented systems are being developed.</li> <li>• IS is independent and unconnected organisation-wide or even with the same group, which makes IT portfolios of each group differ from the rest of the organisation.</li> <li>• The organisation just starts to network its divisions and people as there is an urgent need to find better ways of internal and external information sharing with customers and business partners.</li> <li>• IT systems rely only on gathering and processing internal data only.</li> </ul>
<p>Category "D" EUIT urgently requiring attention</p>	<ul style="list-style-type: none"> <li>• Almost all existing systems are small packages for financial operations</li> <li>• No IT systems to gather and process external and internal data, only computer hardware exists in finance departments.</li> <li>• Ad hoc IT development where each unit invests independently from the rest of the organisation and the approval process of IT project differs between units.</li> <li>• Only intranet exist within the organisation connecting some of the important divisions with the top management,</li> </ul>

	networks still seen not important for the organisation.
Category "E" EUIT not applicable	<ul style="list-style-type: none"> <li>No IT system installed for implementing KM.</li> </ul>

**Table ITST (Information Technology Staff)**

Category	Interpretation
Category "A" ITSF satisfactory/ best practice	<ul style="list-style-type: none"> <li>Core IT staff consists of expertise such as in some large organisations.</li> <li>IT function head becomes a full member of the board to play be an active part in setting strategic direction not only as an advisor, because strategic plans need to have the required IT element 'cooked' in them from the beginning</li> <li>Full involvement of qualified IT users in KM initiatives, in addition to the programmers, systems analysts, and database administrators, business analysts now exist to act as a liaison between their units and the IT function.</li> <li>High level manager for IT services area is appointed, with senior management status.</li> </ul>
Category "B" ITSF further improvement possible	<ul style="list-style-type: none"> <li>Almost all needed IT technical specialist staff are in-house. In addition to the programmers and analysts, dedicated IT planners and database administrators are appointed.</li> <li>IT workforces are coordinated with current and future IT needs at both the organisational and unit levels.</li> <li>High level manager for IT services area is appointed, with middle management status.</li> </ul>
Category "C" ITSF requiring more attention	<ul style="list-style-type: none"> <li>Core hybrid IT staff is sought, developed, and retrained.</li> <li>The small number of IT staff consists, in addition to programmers and low-level technicians, systems analysts.</li> <li>IT staff is just now charged with the responsibility of adequately understanding the users requirements that may be needed for KM systems' development.</li> <li>A technically-oriented IT manager is just appointed to be responsible for IT functions.</li> </ul>
Category "D" ITSF urgently requiring attention	<ul style="list-style-type: none"> <li>External contractors may be employed to develop/install systems as required.</li> <li>IT staff consist of a low-level technicians and programmers only.</li> <li>Little involvements of IT users in any KM initiatives.</li> <li>No IT managers allocated to be responsible for IT.</li> </ul>
Category "E" ITSF Not applicable	<ul style="list-style-type: none"> <li>No IT staff dedicated for implementing KMS.</li> </ul>

Table ITSK (Information Technology Skills)

Category	Interpretation
Category "A" ITSK satisfactory/ best practice	<ul style="list-style-type: none"> <li>• IT business planners have the skill and experience to plan the strategic exploitation of IT for individual units and the organisation as a whole in terms of KMS.</li> <li>• Individuals and workgroups are continuously improving their IT-related capability through IT training and learning activities.</li> <li>• High levels of IT skills exist in all departments and partial commitment to R&amp;D initiatives may slow down the rate of progress of IT in the organisation.</li> </ul>
Category "B" ITSK further improvement possible	<ul style="list-style-type: none"> <li>• The organisational workforces are constantly enhancing their IT capabilities to perform their assigned tasks and responsibilities for KMS.</li> <li>• All individuals are involved in capturing/documenting their knowledge and experience from performing IT-related work to be used in enhancing their competency and performance.</li> <li>• IT skills are used wherever possible, and technical skills start to be encouraged within the IT and user workforce; very knowledgeable users of IT contribute freely to the whole IT operation.</li> </ul>
Category "C" ITSK requiring more attention	<ul style="list-style-type: none"> <li>• Low technical competence exists within the organisation because of the low-developed IT related skills (programming, analysis, security, networking etc.).</li> <li>• IT staff acquire the skills needed to develop and maintain complete systems such as programming and analysis, in addition to being able to install off-the-shelf ready-made packages that may be used in terms of KMS implementation.</li> <li>• The levels of IT skills in some departments need some attention, and partial commitment to R&amp;D initiatives may slow down the rate of progress of IT in the organisation.</li> </ul>
Category "D" ITSK urgently requiring attention	<ul style="list-style-type: none"> <li>• Users find it hard to acquire the skills to use the IT that exist and skills are individually based and guarded from others.</li> <li>• Development needed as the low level technical nature in IT skills exist in the organisation (programming or systems analysis).</li> <li>• Very low levels of IT skills and expertise in all departments - the emphasis might be on technology rather than people.</li> </ul>
Category "E" ITSK not applicable	<ul style="list-style-type: none"> <li>• There is no IT skills dedicated for implementing KMS.</li> </ul>

**Table KA (Knowledge Acquisition)**

Category	Interpretation
<p>Category "A" KA satisfactory/ best practice</p>	<ul style="list-style-type: none"> <li>• Members of the organisation are collecting information about needs and requirements of clients and validate it; and are active in an external professional network or association imitating knowledge from their competitors and then using it for their own advantages.</li> <li>• Member of the organisation regularly have access to information and knowledge for developing new methods/approaches, and they have the ability to present knowledge (knowledge maps, topic maps, associative nets, contents) and tools for converting, transforming and loading acquired knowledge into existing systems.</li> <li>• The organisation does research to explore future chances/possibilities.</li> </ul>
<p>Category "B" KA further improvement possible</p>	<ul style="list-style-type: none"> <li>• The organisation is doing market research to find out about the customer requirements to draw on the expertise in customer, supplier, and partner relationships.</li> <li>• The access to information and knowledge bases is coded from the top, middle management, and some employees.</li> <li>• Possible sources could be IS, stakeholders (e.g. customers, partners), other knowledge products (e.g. software or patents), or even production systems.</li> </ul>
<p>Category "C" KA requiring more attention</p>	<ul style="list-style-type: none"> <li>• Before developing products or services the organisation some times does market research among potential clients, these relationships often have excellent potentials for providing knowledge, yet are not fully utilised.</li> <li>• Information access is limited to top management only.</li> <li>• Important knowledge is not easily available, the organisation always buy it (i.e. advisers, licences) if needed.</li> </ul>
<p>Category "D" KA urgently requiring attention</p>	<ul style="list-style-type: none"> <li>• KA includes buying or acquiring the critical knowledge capabilities missing in the organisation, the organisation hires new staff members who possess missing knowledge.</li> <li>• Only the chairman or the deputy of the organisation has access to this information.</li> <li>• The clients' requirements are treated on an ad-hoc basis.</li> </ul>
<p>Category "E" KA not applicable</p>	<ul style="list-style-type: none"> <li>• There is no dedicated KA.</li> </ul>

Table KC (Knowledge Creation)

Category	Interpretation
Category "A" KC satisfactory/ best practice	<ul style="list-style-type: none"> <li>• KC methods are in place to serve new projects that depend on know-how and availability of knowledge.</li> <li>• Knowledge gained by internal and external changes which cause business to adapt (for example the generation of new services or new technologies and social and economic changes)</li> <li>• Knowledge is gained through bringing individuals or groups of people with different perspectives to work together on projects.</li> </ul>
Category "B" KC further improvement possible	<ul style="list-style-type: none"> <li>• Some of the new projects at the organisation are depending on the knowledge that is generated by expert staff.</li> <li>• New ideas and insights lead to the redesign of business processes and work methods at the organisation.</li> <li>• Knowledge generated by informal networks/ groups of people brought together through common interests of top management.</li> </ul>
Category "C" KC requiring more attention	<ul style="list-style-type: none"> <li>• Changes are under consideration by senior management only to link the new projects with validated knowledge available.</li> <li>• The input level of information is not well managed.</li> <li>• Only some members in the organisation promote new knowledge (products and services) internally.</li> </ul>
Category "D" KC urgently requiring attention	<ul style="list-style-type: none"> <li>• There is no link between new projects and KC.</li> <li>• The input/ output of information is unknown within the organisation.</li> <li>• New services and production is not promoted at the organisation.</li> </ul>
Category "E" KC not applicable	<ul style="list-style-type: none"> <li>• There is no dedicated KC method.</li> </ul>

Table KT (Knowledge Transferring)

Category	Interpretation
Category "A" KT satisfactory/ best practice	<ul style="list-style-type: none"> <li>• The sharing of knowledge within organisation/ industry and international organisations turn isolated expertise and information into useful knowledge to the whole organisation/ industry.</li> <li>• The transferring of knowledge makes it easy for getting the right knowledge to the right place at the right time.</li> <li>• The organisation is uses several methods and tools for knowledge transfer, such as (KMS/Knowledge Portal), a people-oriented method (Storytelling) and a combination of method (micro articles).</li> <li>• Problems, failure, and doubts are discussed openly in the organisation, there are learning groups, where members from different departments can discuss their work experience and strategies</li> <li>• Full knowledge and information transfer with international organisations.</li> </ul>
Category "B" KT further improvement possible	<ul style="list-style-type: none"> <li>• The environment within the organisation is encouraging employees to freely transfer and share knowledge with expertise, and experiences with their peers outside the organisation.</li> <li>• Providing employees with the flexibility to question existing ways of operating and experimenting new methods or processes based on learning from outside their function or company.</li> <li>• Certain tools and techniques are frequently used to facilitate KT process not just the establishment of networks which provides access to knowledge but also the transfer of people.</li> <li>• Colleagues inform each other regularly about positive experiences and successful projects.</li> <li>• Knowledge is exchanged with international organisation.</li> </ul>
Category "C" KT requiring more attention	<ul style="list-style-type: none"> <li>• Employees have to concentrate on their work, and they have a limited time for knowledge transfer and sharing.</li> <li>• Embedding knowledge in routine business processes rather than being perceived as an additional activity over and above "routine" makes it very hard for employees to win work.</li> <li>• Limited tools are used in the organisation for knowledge transfer; it is limited to classic method only (face to face).</li> <li>• The trust among colleagues is in low manner which make KT difficult.</li> <li>• Only some types of knowledge and information can be shared and documented.</li> </ul>
Category "D" KT urgently	<ul style="list-style-type: none"> <li>• Knowledge is only transferred in very precise informal ways ("in the corridors").</li> <li>• No formal tools for KT or sharing at the organisation.</li> </ul>

requiring attention	<ul style="list-style-type: none"> <li>• There are no regular meetings being organised in which professional matter are discussed to help employees with their work.</li> <li>• Employees have to keep their knowledge in their mind otherwise they will lose their positions.</li> <li>• Only by force knowledge and information is transferred with the international community.</li> </ul>
Category "E" KT not applicable	<ul style="list-style-type: none"> <li>• No knowledge transfer is dedicated.</li> </ul>

**Table KAP (Knowledge Application)**

Category	Interpretation
Category "A" KAP satisfactory/best practice	<ul style="list-style-type: none"> <li>• The existence of know-how in the organisation is used in a creative manner in new applications through effective decision making.</li> <li>• Selling knowledge, products, or services gets explicit attention and is embedded in organisation's business.</li> <li>• Failures and successes are evaluated and "lessons learned" are set down.</li> </ul>
Category "B" KAP further improvement possible	<ul style="list-style-type: none"> <li>• The organisation informs its members to systematically use knowledge in their day-to-day work.</li> <li>• Organisation's members promote new knowledge (products and services) and occasionally they use it.</li> <li>• Experiences from others (e.g. clients) are used to improve products and services.</li> </ul>
Category "C" KAP requiring more attention	<ul style="list-style-type: none"> <li>• Decision making within the organisation depends only on senior managers' ability of understanding the environment or the situation; only some decisions are depending on knowledge provided.</li> <li>• Employees use knowledge and information only in some occasions.</li> <li>• The organisation only depends on its knowledge in the day-to-day work, no partners or competitors knowledge provided.</li> </ul>
Category "D" KAP urgently requiring attention	<ul style="list-style-type: none"> <li>• Decisions always taken without any consideration within the organisation.</li> <li>• No development of products or services provided at the organisation.</li> <li>• Only knowledge from the organisation branches or departments are used and considered.</li> </ul>
Category "E" KAP not applicable	<ul style="list-style-type: none"> <li>• There is no dedicated KAP.</li> </ul>



Table KD (Knowledge Documentation)

Category	Interpretation
Category "A" KD OCL satisfactory/ best practice	<ul style="list-style-type: none"> <li>• Full tools including IT application are used in storing knowledge within the organisation.</li> <li>• Full systems are developed for knowledge protraction and safety.</li> <li>• The feedback from organisation's agents is effectively considered in the development of products and services.</li> <li>• The organisation has its disposal up-to-date handbooks, which are frequently used.</li> <li>• The organisation has documented the specific knowledge and skills of individual members</li> <li>• Experts are urged to make explicit the methods they use in retrieving knowledge.</li> </ul>
Category "B" KD further improvement possible	<ul style="list-style-type: none"> <li>• Software is availale for KD.</li> <li>• The software developed for KD has knowledge security methods.</li> <li>• All feedbacks are considered but some of them are implemented in the development of the organisation's product or services.</li> <li>• The organisation is updating knowledge after filtering.</li> <li>• The software that is installed in the organisation is used also in knowledge retrieving.</li> </ul>
Category "C" KD requiring more attention	<ul style="list-style-type: none"> <li>• The organisation uses the basic systems and archives for storing knowledge.</li> <li>• Knowledge is protected by the people who own it (tacit knowledge only).</li> <li>• All feedbacks are only archived within the organisation.</li> <li>• Employees have to up-date their knowledge themselves.</li> <li>• Knowledge is retrieved manually by the person who needs it.</li> </ul>
Category "D" KD urgently requiring attention	<ul style="list-style-type: none"> <li>• Only manual archives exist within the organisation for storing data and information.</li> <li>• Knowledge is not protected within the organisation.</li> <li>• The feedbacks are not recorded within the organisation.</li> <li>• No clear up-date for knowledge.</li> <li>• No formal retrieving system exists within the organisation.</li> </ul>
Category "E" KD OCL not applicable	<ul style="list-style-type: none"> <li>• There is no dedicated KD.</li> </ul>

## APPENDIX 'D'

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### Framework Validation Questions

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## The Questions of the Framework Validation

Please rate the following questions relating to the KMIFBI framework whereas 1=totally disagree and 5= extremely agree

### 1- Overall Framework

Component	1	2	3	4	5
Evaluation stage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evaluation component	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adoptability (Could be implemented)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reliability ( Could have results)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 2- The Framework Stage One

Component	1	2	3	4	5
Glossary of terms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Linking KM to strategic goals and objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strategic context	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Place the business changes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implications for the organisational Knowledge base	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 3- The Framework Stage Two

Component	1	2	3	4	5
Monitoring KM strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Level of organisational readiness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Determine of KM tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
KM clarification process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 4- The Framework Stage Three

Component	1	2	3	4	5
Identification of KMS plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Links KM and change management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IT impact on KMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implications of KM processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 5- The Framework Stage Four

Component	1	2	3	4	5
Providing Formal mechanisms for KM,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Integrated KM in business processes,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exploiting KM tools and technologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increase interactions amongst staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 6- The Framework Stage Five

Component	1	2	3	4	5
Constant improvements in KM infrastructure,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Embraces innovations through KMS results,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Benefiting from KM technologies and tools,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Providing knowledge on time, with quantity and quality.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>