Harnessing Knowledge Management to Improve Organisational Performance

R. Amir and J. Parvar

***Abstract*—The key to understanding the development of competitive advantage is understanding knowledge and how it is managed and shared. Organisations not only need to understand comprehensively the concept of knowledge in order to manage it effectively, but also to create and maintain competitive advantages, especially as the business environment has become increasingly competitive. The aim of this study is to understand how the knowledge management concept can be harnessed as a vital factor in the enhancement of productivity, performance and the competitiveness of organisations. In this paper, we have used grounded theory strategy, which provides in-depth information relevant to KM implementation. Data were collected from face-to-face semi-structured interviews with 24 top managers from 19 different top-ranking companies operating in Saudi Arabia. It found that the most important factor influencing the success of KM implementation is the employees' willingness to participate in KM activities and share their knowledge. A theoretical model based on the findings of this study was developed and the theoretical and practical contribution to this model is discussed, as well as the findings.**

***Index Terms*—Critical successful factors (CSFs), employees' willingness, knowledge management (KM), organisational performance (OP).**

I. Introduction

More than a decade ago, knowledge was considered to be one of the most important assets for businesses, and an essential strategic resource for a firm to retain a sustainable competitive advantage [1]-[3]. Many authors have claimed that knowledge is the most important resource [1], [4] even more important than physical assets such as land, capital and labour, etc. [1]. Knowledge management (KM) has become a common function in business organisations [5]. Many organisations are concerned with improving their productivity in order to become more competitive in the market, and to do so they should be able to identify sources of productivity [4]. Competitive advantage no longer relies on tangible assets such as natural resources or material production, but it has instead become dependent on intangible assets such as KM, which helps organisations to perform more productively and thus increases their competitiveness [6]. Moreover, KM helps organisations to reduce costs, increase efficiency and meet customer needs [7], [8]. KM drives organisations to increase profits, identify new markets, improve their market share, improve efficiency and be more effective [7].

KM is a process that helps organisations to generate and gain knowledge, and to select, organise, use, disseminate, and transfer important information and expertise owned by the organisation that is necessary for administrative activities such as making decisions, solving problems, learning, and strategic planning [9]. The implementation and use of KM has increased rapidly since 1990. The percentage of the largest global organisations which have KM projects is 80 percent [10], [11]. Moreover, a report from the Economist Intelligence Unit stated that more than 1,600 senior executives in 100 countries believe KM offers the greatest potential for gains in productivity during the next 15 years (about 43% of the total responders). Most academics and senior executives also believe that KM is the only way for an organisation to be able to meet the challenges of maintaining a continuous competitive advantage [12].

An exploratory quantitative survey study determined that KM practices not only have a direct relationship with Organisational Performance (OP), but also have a direct relationship with intermediate measures of strategic OP which, in turn, are directly related to financial performance [5]. Today, knowledge workers are considered the key to organisational growth since they create innovations, and design marketing programmes and strategies which help their organisations to be competitive. Moreover, the fastest-growing and most profitable organisations are those which have the best-quality knowledge workers and consider themselves to be knowledge-based organisations [13]. Reference [14] argues that the ability for knowledge innovation among all of a firm's employees is the key factor that leads an organisation to be successful in the current competitive environment; it is no longer the investment of capital, labour and raw material. Therefore, organisations should have the capability to understand knowledge, not only to be able to comprehend the development of competitive advantage, but also to manage it effectively [6].

Reference [6] states that the key to understanding the development of competitive advantage is understanding knowledge and how it is shared. However, defining knowledge is a big challenge due to its complex nature. A major challenge facing organisations is the management of tacit knowledge through processes that attempt to convince, coerce, direct or otherwise get individuals within organisations to share their knowledge [9], [15]. An individual may not be willing to share his tacit knowledge because it may involve risks to him, such as a loss of competitive advantage over his peers [16]. In many companies, people feel that their likelihood of promotion depends on their expertise, and not on the extent to which they share their knowledge and help others [17]. Reference [18] states that factors involving individual employees cause some potential barriers towards KM utilisation. These include a lack of time; fear about job security; lack of awareness for KM; lack of interaction with others; poor

Manuscript received August 17, 2013; revised October 5, 2013.

Rafat Amir is with The University of Manchester, Manchester (e-mail: rafat.amir@postgrad.manchester.ac.uk).

verbal and written communication and interpersonal skills; age, gender, and cultural differences; lack of networking skills; and lack of trust. Moreover, Reference [19] points out the main knowledge-sharing barriers as codification process issues, lack of employee initiative and strategy, lack of time and resources, and unsuitable IT.

Reference [20] argues that increasing investment in information technology may facilitate the storage and sharing of explicit knowledge, but it will not result in better sharing and use of tacit knowledge because individuals are the ones who will decide whether or not they will share and use tacit knowledge. Moreover, developments in communication and information technology are having a considerable effect on organisations' ability to acquire (or create), refine, store, transfer, share and utilise knowledge because management has developed its styles and cultural and structural paradigms. But the most important factor affecting KM is the human factor. Many organisations have introduced new technology before motivating and sensitising their employees to the use of the new system, which leads to failures in the implementation of such systems [21]. Key to the success of tacit knowledge transfer is the willingness and capability of employees to share what they know and to use what they learn [22], [23]. Reference [20] argues that the willingness of employees to share and use tacit knowledge may depend on the extent to which co-workers are trusted as receivers and sources of knowledge. Moreover, trust in a co-worker and a good personal relationship with them has the most significant effect on willingness to share tacit knowledge. In addition, reference [18] states that organisational cultural can also cause potential barriers towards KM utilisation, such as the inability to communicate and collaborate; fear and insecurity; lack of awareness and sensitivity; lack of integration skills and will; language issues; and fear of imitation.

Reference [24] pointed out the aim of KM is to implement a comprehensive approach in order to manage organisational knowledge while taking into consideration the limitation upon the organisation. Reference [25] argues that KM can improve the effectiveness, efficiency, and degree of innovation of organisational processes by helping organisations to select and perform the most appropriate processes. A survey study was performed by Reference [5] to prove the relationship between KM and OP. The sample size of the study was 88 mid-level managers and senior executives representing ten different industry sectors from Canada, Australia and the USA. Revenues ranged between $2M and $10B and the age of the organisations ranged between two and 187 years, with numbers of employees ranging from 30 to over 300,000. It was found that KM practices do not only have a direct relationship with OP, but they also have a direct relationship with intermediate measures of strategic OP (customer intimacy, product leadership and operational excellence - or the three value disciplines). In addition, it was found that the three value disciplines have a direct relationship with financial performance, and therefore OP has a significant and direct impact on financial performance. Moreover, it was found that there is a significant relationship between KM practices and OP, but there is no significant relationship between KM practices and financial performance [5], [14].

II. Methodology

The research methodology used in this study is grounded theory. Grounded theory is a research methodology primarily associated with qualitative research [26], which was developed by Glaser and Strauss in 1967 [26]-[30] for the purpose of building theory from data [28]. According to Reference [26] the researcher in grounded theory does not concentrate on testing existing theoretical hypotheses from the same field of study, but focuses on developing a new theory from the collecting of empirical data. Therefore, grounded theory has become very popular in qualitative research over the last two decades [31].

Nineteen top-ranked companies operating in Saudi Arabia were studied in order to enhance understanding of the issue at hand, develop theory, and to overcome the risk of failing to collect reliable data. Those companies operate in the following sectors: manufacturing, telecommunication, aviation, oilfield services, wealth and real estate management, IT outsourcing services, software products services, mineral exploration, chemicals and petroleum, banking, education, and marketing communications. Six of these companies are multinational enterprises. The workforces of the participating organisations varies between 3,000 and 105,000. Eleven of the organisations are knowledge-based and eight are non-knowledge-based. The main reason behind this selection is to determine the difference between knowledge-based and non-knowledge-based organisations and thus to determine the impact on OP of implementing KM. We decided to select more knowledge-based organisations than non-knowledge-based in order to benefit from their experiences of implementing KM and to learn from them what challenges they faced, how they overcame those challenges, what they have learned from this experience, and what the impacts of KM have been on their OP.

We suggested a code name for actual companies that participated in this research for ethical reasons. Therefore, we have labeled each interview and each paragraph of written text in order to facilitate the analysis of the interviews and to ensure that each excerpt will be referenced to the relevant interviewee. So, each excerpt was coded as follows: (company code – the level of management or position of the interviewee, such as Director (D), General Manager (GM) and Manager (M) - interview number - paragraph number). For example, an excerpt drawn from paragraph number six of the interview transcript from the first interview with the General Manager of organisation BHC could be coded as (BHC-GM-01-06). Table I shows the participating organisations, sectors, and the number of interviews in each organisation.

III. Case Studies Analysis

This section presents the results of the grounded theory-based analysis of data. It assesses and evaluates the data gathered in this research to understand KM concepts and issues, and explain how these bodies of knowledge and processes can be applied to enhance productivity, performance and competitiveness among organisations in Saudi Arabia. As a result of constant comparative analysis of

open coding, five categories emerged: barriers to KM; organisational learning; means of communication; critical successful factors (CSFs); and impacts of KM on OP.

TABLE I: THE PARTICIPATING ORGANISATIONS

Companies	Sectors	Total Interviews
SG	Manufacturing-Food	2
SL	Oilfield services	1
BHC	Oilfield services	1
STC	Telecommunication	1
BNGF	Manufacturing	1
Airlines Co.	Aviation industry	2
HAC	Real estate management	1
F-Service	IT outsourcing services	1
O-Co.	Software products and services	1
M-Co.	Mineral exploration	1
A-Co.	Chemicals/ Petroleum	1
S-Bank	Banking	1
H-Bank	Banking	1
CBA	Education	1
S-Co.	Wealth management	2
U-Co.	Manufacturing-Consumer products	1
AACC	Aviation industry	2
SE	Manufacturing-Electrical equipments	2
TS	Marketing communications	1

A. Barriers to the Implementation of KM

Implementing KM in any organisation is a difficult task and a lot of barriers and challenges may be faced. Real-world evidence of such barriers emerged from the informants' statements. This section introduces the barriers to KM implementation and each barrier will be discussed in detail. This category is sub-divided into seven concepts as follows: knowledge is power-unwillingness of employees to share knowledge; lack of job security and trust; resistance to change; lack of time and time consuming processes; costly; poor verbal and written communication; and difficulty in documenting certain types of knowledge.

A number of informants argued that the main reason behind the unwillingness of their employees to share their knowledge is because they believe that knowledge is power. That is, they believe knowledge makes them valuable to the organisation and protects their position. Most employees think they will lose their power by sharing their knowledge.

"The biggest challenge facing KM implementation is creating willingness among employees to share, manage and transfer knowledge, because there are a great number of employees who do not like to share their knowledge because they consider it as a source of power and they do not want to give up this source of power to anyone else. They want to keep knowledge to themselves to keep their power and value" (A-M-01-14).

Many informants argued that the second issue making people unwilling to share their knowledge is lack of job security and trust. Some employees believe that if they share their knowledge they will be abandoned by the organisation or they will lose their power and value.

"Some of them do not like to share their knowledge and I believe the reason for this is lack of trust that the company will not abandon them if they give up their knowledge, or lack of trust in their colleagues not to take over their position. Trust is a very important factor of knowledge sharing" (SC-M-02-05).

The third barrier to the implementation of KM projects is that there are some employees who resist change for a number of reasons, such as that they do not like change overall, or that they have become used to performing their work according to the same routine every day for decades and they do not want to change the way they do their jobs. Some employees do not like to learn anything new or learn how to use new systems. One of the informants interviewed pointed out that getting people to change is the hardest thing to do, especially after a long period of time doing the same job according to the same routine.

Moreover, a number of informants posited that sharing or posting knowledge requires enough free time to do it. Most employees are overloaded and are too busy with their daily work to participate in knowledge-sharing practices. Indeed, lack of time is considered one of the main barriers to sharing knowledge. The following statement shows how this issue creates an obstacle to KM:

"The lack of time… Ah…there are some employees willing to share their knowledge but they are very overloaded and they have no time to coach other people and they said either I do my work or I will be as an instructor" (AACC-D-01-05).

A number of informants have argued the initiation of KM implementation in some organisations will be costly, particularly if those organisations need new systems, as they will need to train their employees how to use the new system.

"I believe there will be several challenges, first of all at the beginning of implementing KM it will be costly because you have to pay for a system and pay for training and I think you have to create a KM department because it will affect employees so you will need someone to run the process" (S-M-01-10).

Poor verbal and written communication and interpersonal skills is considered one of the barriers to KM utilisation. According to an informant from company H,

"Some employees are willing to share their knowledge and have no problem with the time issue, but they do not know how to communicate with people or do not communicate well" (H-M-01-08).

Some informants said there are types of knowledge that are difficult to document, such as technical knowledge, experience and skills. Also, in some departments or types of business it is hard to record all knowledge and practice due to there being hundreds of scenarios, such as sales and service businesses and customer service.

B. Organisational Learning (OL)

A number of informants pointed out that OL is very important. It is considered to be the main goal of KM and it helps the organisation to sustain a competitive advantage and to improve employees' performance and efficiency. OL encourages employees to learn by creating a good learning environment.

"SG considers OL to be the goal of KM through the distribution and application of knowledge, and it helps the organisation to achieve its goals and to sustain a competitive advantage" (SG-M-02-01).

The organisational learning category can be sub-divided into six concepts as follows: training programmes (teaching); learning by doing (On-the-Job training); e-learning activities (self learning); investing in research and development

(R&D); knowledge worker recruitment, and standard operation procedures (SOP).

A number of informants believed training to be the most important priority and a very important issue. Their organisations have adopted training in order to coach employees and give them a great deal of important knowledge that improves employees' performance. Also, they said training has been designed depending on job requirements or the skills required to perform specific jobs efficiently. Organisations must encourage people to share their knowledge through teaching others. This informant explained that the main goal of adopting a training program is to transfer and share knowledge between people and to improve employees' performance and efficiency:

"SG has adopted different ways to ensure that knowledge has been transferred and shared among all employees by adopting a special training programme to train employees and give them a great deal of important knowledge that improves employees' performance and efficiency" (SG-M-02-01).

A number of informants stated that OTJ training is the best way to transfer and share knowledge, and it the best way to learn something new, especially when it comes to technical issues and 'functional training'. They all agreed that organisations must provide all new employees with OJT training by selecting the most experienced employees to coach new employees for a period of time, until those employees are ready to do their jobs alone. Moreover, some organisations provide their staff with E-learning websites that consist of a considerable number of courses and presentations. This kind of learning is a type of self learning and its success depends on the willingness of people to improve and develop themselves and learn something new.

One of the informants interviewed pointed out that his organisation focused on R&D, and that there is a special department for this. The investment of his company in R&D increases every year, and in 2011 it invested $802 million in R&D for oilfield activities. He said this is the main reason why his company is number one in the world in the oilfield services sector.

"SL has always invested a significant amount of time and money on research and engineering as a long-term strategy to support and grow its technology leadership. The most notable factor in the company's competitive advantage is that it is investing more each year in research and development than all other oilfield services companies combined. In 2011, SL invested $802 million in research and development for oilfield activities" (SL-GM-01-01).

Many of the informants argued that it is very important to record the process of all business transactions in a manual or system in order to sustain the quality of the work and support people in how to perform their job according to the standards of the company. This manual or system should be accessible and easy to use. This manual has been given different names; some call it a standard operation procedure (SOP).

C. Means of Communication

A number of informants suggested that a well-structured communication system is a vital factor of KM success because its role is to facilitate the passing of knowledge to the appropriate people. There has to be direct communication and contact in order to share knowledge and find common solutions to problems. Examples of the best communication practices are meetings, newsletters, magazines, public lectures, presentations, direct phone calls, help desks and emails. Communication categories can be sub-divided into four concepts as follows: meetings/ networking; newsletters; public lectures and presentations; and direct phone calls/help desks.

"The method SG has adopted to increase sharing is a monthly meeting called "learning hour". Every month, the company selects an expert person and asks him to choose a topic from his experience and present this topic within one hour by explaining briefly about his experience or about the topic" (SG-M-02-04).

D. Critical Successful Factors (CSFs)

The study identified 14 important factors that aid the implementation of KM successfully, as follows: 1) top management commitment and support, 2) awareness campaigns, 3) KM project teams, 4) organisational culture, 5) organisational structure, 6) team work, 7) technology, 8) time, 9) roles of managers, 10) reward and punishment systems, 11) reassurance of knowledge-possessing employees (job security), 12) involvement in decision making, 13) job rotation, 14) follow-ups and audits.

Many informants said that the commitment and support of top management is the most important factor in achieving successful KM implementation in any organisation. Top management are not only the initiators of KM implementation, but they are also the providers of all necessary budgets, manpower, time and systems. In other words, they will provide whatever is necessary to ensure the success of KM.

"The most vital factor for the successful implementing of KM in SL is that the top management fully supports the objective, and provides whatever is necessary to ensure the success of KM and organisational learning" (SL-GM-01-06).

The second important factor is the operation of awareness campaigns in order to get employees' attention and to indicate the importance of implementing KM. Also, awareness campaigns aim to ask workers to personally commit to the KM project. A number of informants argued that any organisation intending to implement KM should educate their employees by explaining to them what KM is, the reasons why it needs to be applied, and what advantages there are to applying it. This campaign should occur before the organisation commences the implementation of KM in order to prepare the employees to accept it and use it. Otherwise, if the organisation does not prepare employees before beginning to implement KM, it will struggle to convince them to change and accept the process. This informant explained the importance of awareness campaigns, due to them helping to educate people of the aims and benefits of implementing KM.

The third important factor is the creation of a KM project team. Many informants believe that there should be one team who is responsible for coordinating and obtaining knowledge from expert employees. The KM team should include experts from the human resources department, not only because they understand the regulations and policies of the company procedures, but also because they can help to create a culture

that encourages knowledge creation and sharing.

"Any organisation that wants to manage its knowledge successfully should have a special team to coordinate and manage the knowledge...Ah...this team should consist of employees from both HR and IT departments and...Ah...the chief knowledge officer (CKO) is the manager of this team, who should report directly to the CEO" (STC-M-01-08).

Fourthly, imbuing a knowledge culture is one of the CSFs of KM implementation. The role of organisational culture is to create an environment that encourages KM activities and knowledge sharing between people. In fact, organisational culture is a very important factor because its role is to establish the strategic framework of the organisation. It affects organisational structure, HR management and management style. Also, an organisational learning culture makes KM implementation easier because it has a big role in motivating people and making them more willing to share their knowledge within the organisation. Organisational culture also helps to promote trust between people, encourage a team work culture, involve people in decision making and stimulate people to commit to KM practice through a rewards system.

Fifthly, having the right organisational structure facilitates communication between employees and motivates teamwork. The study found that organisational structure has an impact on the distribution of ideas, and removes all barriers that inhabit the diffusion of ideas, allowing them to flow across the whole organisation.

"The organisational structure enables the ideas to get into and across the organisation. It aids the diffusion of new ideas, allowing them to flow across the whole organisation without the rejection of any new things or the rejection of change. The organisational structure is considered to be the framework that enables the effective distribution of ideas to the maximum number of people. Also, it influences the organisational culture by making the organisation more willing to take risks and adopt new ideas" (F-GM-01-08).

Sixth, a number of informants stated that the principal of team work is a very effective tool to get people together to solve problems or to increase the level of trust among them, and thus increase knowledge sharing. Team work is the best way to ensure the sharing of knowledge among the team, not only by putting the employees in teams and giving them tasks, but also by motivating the whole team by rewarding all the team members when they do the task given successfully. In this way, all team members will work together and share their knowledge, and no one will hide any knowledge that might be helpful to complete the task.

The seventh factor is a supporting system, which must be easy to use and have all the necessary functions, such as an intranet. Employees can easily locate specific information by searching the knowledge base, which saves employee time, and therefore company expenditure.

"A standard and user-friendly web interface makes it easier to get information and solutions quickly and conveniently. The system should be easy to use, accessible and not complicated" (O-M-01-09).

Eighth, the study found that to ensure the successful implementation of KM, organisations should allocate special time or extra time for each employee to post knowledge or post best practice.

"All employees are required to spend about 10-15% of their working time in developing best practice KM value-adding activities" (F-GM-01-07).

Ninth, managers must plan and implement the processes and structures that encourage employees and teams to share and use organisational knowledge. Furthermore, there are some techniques which can be used to encourage and motivate employees to share their knowledge, such as applying a reward system linked to promotion or bonuses. The company should reassure expert employees that the company will not abandon them because they have shared their knowledge, but that this activity will in fact increase their value and the company will keep them because the success of the company derives from the success and effectiveness of its staff.

"We should reassure the knowledge-possessing employees that the company will not abandon them because they have shared their knowledge, but that sharing knowledge will increase their value and the company will keep them because the success of the company depends on the success of its effective staff" (SG-GM-01-07).

Also, the study found that employees should be involved in decision making in the things that relate to them. In this way, the loyalty and commitment of people will increase and they are more likely to support the decisions that are made. Moreover, job rotation is extremely helpful for sharing knowledge. Companies perform job rotation between people every time a set period of time has passed, and in this way employees have to hand over all the knowledge they have to their colleagues.

Finally, organisations should conduct internal audits and follow up with experts to share their knowledge. Those people who are not participating in KM should be punished.

E. Impacts of Knowledge Management on Organisational Performance

There are eight main benefits gained by knowledge-based organisations due to the implementation of KM, as follows: retaining a sustainable competitive advantage; making information available, obtainable and accessible; increasing employees' learning curve, commitment and loyalty; better decision making based on required information; sustaining mission critical knowledge; learning lessons and solving recurring issues and problems; benchmarking; and improving OP and efficiency. Most informants stated that there is a clear relationship between KM and OP, productivity and efficiency.

IV. Discussion of Findings

We have continuously studied the data collected from the interviews and the five main categories that emerged through axial coding in order to select the core category. Reference [28] stated that the first step of the integration process is identifying the core category. Moreover, it found that the most important factor influencing the success of KM implementation is the employees' willingness to participate in KM activities and share their knowledge. This implies that organisation that want to be a knowledge-based organisation

by implementing KM activities need to improve the willingness of employees to participate in the project, otherwise it will fail. Therefore, we label this category employees' willingness and we select it as a core category. We believe that this category can provide new insights into implementing KM successfully.

After we studied the five main categories once again, we found the employees' willingness category is the highest potential category for linking all the five main categories together. In brief, unwillingness of employees to participate and share their knowledge is the biggest barrier to implementing KM and all other barriers are affected by employees' willingness. Moreover, the main aim of organisational learning, good communication, and CSFs is positively affecting employees' willingness to participate in the knowledge activities by encouraging them and facilitating sharing. Then, the high level of employees' willingness to participate in knowledge activities leads to the successful implementation of KM, which impacts positively on OP.

Therefore, a theoretical model has been developed in Fig. 1. The theoretical model of this study demonstrates the relationships between the employees' willingness category and the other five categories. In this respect, the model illustrates how employees' willingness can be influenced by the others categories. We used two colours of arrow: blue and red. The blue arrows are used to indicate the positive influence of these main categories on employee willingness. These categories are critical successful factors, organisational learning and means of communication. Red arrows are used to indicate the negative influence of these barriers to employee willingness.

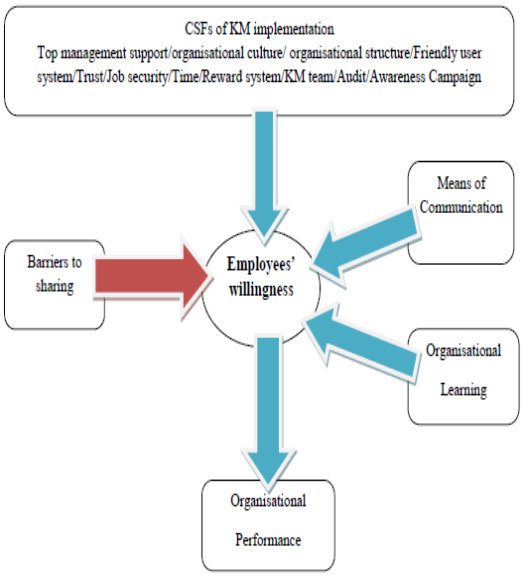

Fig. 1. Theoretical model of knowledge sharing.

A. Comparative Analysis of Organisational Performance between Knowledge-Based and Non-Knowledge-Based Organisations

In this Section, we present the comparative case-analysis between the two types of organisations, and we focus on the organisational performance of these two types. As mentioned previously, there were 11 knowledge-based organisations and they are SG, SL, STC, HAC, F, A, S-Bank, CBA, U, SC and O. There were eight organisations that are non-knowledge-based and they are H-Bank, BHC, BNGF, Airlines Co., M, SE, AACC and TS. It is difficult to perform a comparative analysis between all nineteen organisations; therefore, we grouped the participating organisations in this study into two groups according to whether or not they are knowledge-based and we considered all organisations in one group as a singular case study. The comparative analysis starts with the impact of implementing KM on the organisation's performance and the main advantages of implementing KM in organisations. The main aim of comparative analysis between knowledge-based and non-knowledge-based organisations is to determinate how KM enhances productivity, performance and competitiveness within those organisations. In addition, comparative analysis aids us to identify the similarities and differences between two types of organisation, and thus facilitate the determining of the impact of implementing KM on an organisation's performance.

TABLE II: THE COMPARATIVE ANALYSIS

Knowledge-based organisations	Non-knowledge-based organisations
Sustain critical knowledge by transferring tacit knowledge to explicit knowledge.	Losing mission critical knowledge.
Having the information available, obtainable and accessible. Easy to obtain required information, facts and knowledge.	Information is not available, not obtainable and not accessible. It is very difficult to obtain required knowledge and employees are wasting their time looking for information.
Facilitate the communication and sharing of knowledge among all departments.	Communication is difficult between departments and there are a lot of barriers to knowledge sharing.
Benchmarking.	No benchmarking.
Lessons learned and solve recurring problems and issues, which will reduce cost and time.	Reinventing the wheel from the beginning whenever recurring problems happen.
Increase learning curve.	Learning curve is very slow.
New employees can learn quickly and take over jobs in a short period of time.	New employees get lost and they need a long time to learn how to do the work.
Knowledge workers will be happier in such an organisation.	Knowledge workers are not happy in such an organisation and will look for jobs elsewhere.
Managers and employees able to make decisions based on facts, information and knowledge.	It is very difficult to make the right decision without the available information to hand. You need to collect information because it is not available.
Eliminate the costs associated with duplicated effort and wasted time (save cost and time).	Duplicated effort and wasted time and money.
Help companies to foresee and avoid future problems.	It is less easy to foresee future problems
Retain sustainable competitive advantages.	Loss of competitive advantage.
Increase the loyalty, commitment and morale of employees.	Reduction in loyalty, commitment, and morale of employees.
Increase efficiency, performance, and effectiveness; reduce cost and capital expenditure; improve return investment; meet customer needs and satisfaction; identify new markets and market plans; and increase profit and OP.	Reduction in efficiency and performance. Less effective.

Table II shows the difference between knowledge-based and non-knowledge-based organisations, and lists the benefits of implementing KM in those organisations. At the end of the day, all the main benefits will impact positively on

OP by increasing efficiency and performance; improving effectiveness; reducing cost and capital expenditure; eliminating the costs associated with duplicated effort and wasted time; improving return investment; meeting customer needs and satisfaction; identifying new markets and market plans; retaining a sustainable competitive advantages; and increasing profit and OP.

"In BHC there were no training courses at all, which caused new employees to get lost, not knowing what to do for a period of time. Even when the employee became a manager, he did not know how to be a good manager. It was very difficult to obtain information in BHC. In SL an employee can be a good manager within four years, but in BHC the employee needs more than 14 years to be just a manager" (BHC-GM-01-02).

"A very good example of this is SL and BHC companies - because of the successful implementation of KM, SL is the largest worldwide company in the oilfield services sector, with revenues of $22.7 billion in 2009; whereas BHC is the third largest worldwide company in oilfield services, with revenues of $5bilion in 2009" (BHC-GM-01-04).

The following informant argued that KM enables his organisation to double its productivity and decrease the manpower by half. To that end, it improved OP.

"…now with the new system I can get any information within no time and I can do the production plan within an hour...Ah we have in the factory in Jeddah 460 employees and only six production lines but now after implementing KM and the new system we have 214 employees and 13 production lines...I mean we doubled our productivity and decreased manpower by half...Ah we have made the system more efficient, which has improved the efficiency of the staff and thus improved the performance of the company" (U-M-01-09).

Reference [9] states that KM can be defined as a process that helps organisations to generate and gain knowledge; and select, organise, use, disseminate, and transfer important information and expertise owned by the organisation, which is necessary for administrative activities such as making decisions, solving problems, learning, and strategic planning.

Moreover, the study found that there is a clear relationship between KM and OP, productivity and efficiency.

"There is a clear relationship between KM practices and organisation performance and productivity" (SG-M-02-05).

A survey study of 88 mid-level managers and senior executives representing ten different industry sectors from Canada, Australia and the USA has been performed by Reference [5]. The revenues of those organisations ranged between $2M and $10B and the age of those companies ranged between two and 187 years, with numbers of employees ranging from 30 to over 300,000. The study found that KM practices have a direct relationship with OP.

V. Conclusions

The study found that the most common barrier to knowledge sharing is the unwillingness of employees to participate and share their knowledge due a number of reasons, which are: knowledge is power; lack of trust; resistance to change; lack of time; poor verbal and written communication; and that there are types of knowledge that are difficult to document. All of these reasons negatively affect employees' willingness to participate in KM and share their knowledge.

Moreover, we found that OL is very important and it is considered to be the main goal of KM. It was also found to help organisations to sustain a competitive advantage and to improve the employees' performance and efficiency. OL encourages employees to learn by creating a good learning environment. This study found that knowledge-based organisations adopted the following methods to encourage people to learn: training courses, OJT, E-learning, and investment in R&D. In addition, the main aim of adopting OL is to transfer and share knowledge between people and to improve employees' performance and efficiency. Thus, it will increase employees' willingness to participate and share their knowledge. Therefore, the learning curve of employees is very high in knowledge-based organisations compared with non-knowledge-based organisations, which is very slow. Employees in the knowledge-based organisations can easily find the information they require and can learn how to perform their work in a short period of time because all the information they need is in their hands. Therefore, knowledge workers are happier and wish to remain in the knowledge-based organisation because the work environment is very good and there is a lot of learning involved. These organisations will earn employees' commitment and loyalty, and thus they will earn employees' willingness to share knowledge.

The study found that there are certain factors that are very important to the successful implementation of KM and these positively influence the employees' willingness to share knowledge. They are: top management support, organisational culture, organisational structure, user-friendly systems, trust, job security, time, reward systems, KM teams, awareness campaigns, and auditing. Moreover, a well-structured communication system is a very vital factor for KM success because its role is to ensure and facilitate the passing of knowledge to the appropriate people. Examples of the best communication practices are meetings, newsletters, magazines, public lectures, presentations, direct phone calls, help desks and emails. Therefore, good communication improves the level of support for employees and facilitates KM activities, especially knowledge-sharing activities. Thus it will increase employees' willingness to share their knowledge.

The comparative analysis between knowledge-based and non-knowledge-based organisational performance was presented in this paper in order to determine the similarities and differences between the two types of organisations. The main aim of comparative analysis between knowledge-based and non-knowledge-based organisations was to determine how KM enhances productivity, performance and competitiveness. This facilitates the determining of the impact implementing KM has on OP. Finally, this study presented a theoretical model of knowledge sharing.

Acknowledgments

I would hereby like to commence by sending my deepest gratitude and appreciation to my supervisor Dr Jamshid

Parvar for having provided this research opportunity and for his continuous guidance and support throughout the duration of this study. Special thanks are due to the Government of Saudi Arabia for providing the necessary financial support and for sponsoring me.

REFERENCES

[1] Y. Y. Chen, S. P. Yeh, and H. L. Huang, "Does knowledge management "fit" matter to business performance?" *Journal of knowledge management*, vol. 16, no. 5, pp. 671-687, 2012.
[2] B. Choi and S. K. Poon, "Effects of knowledge management strategy on organizational performance: A complementarily theory-based approach," *Omega: The International Journal of Management Science*, vol. 36, no. 2, pp. 235-251, 2008.
[3] I. Nonaka, R. Toyama, and N. Konno, "SECI, ba and leadership: A unified model of dynamic knowledge creation," *Long Range Planning*, vol. 33, no. 1, pp. 5, 2000.
[4] C. D. Stam, "Making sense of knowledge productivity: beta testing the KP-enhancer," *Journal of Intellectual Capital*, vol. 8, no. 4, pp. 628-640, 2007.
[5] M. Zack, J. Mckeen, and S. Singh, "Knowledge management and organizational performance: an exploratory analysis," *Journal of knowledge management*, vol. 13, no. 6, pp. 392-409, 2009
[6] L. Yang, "Knowledge, Tacit Knowledge and Tacit Knowledge Sharing: Brief Summary of Theoretical Foundation," in *Proc. the International Conf. on Management and Service Science*, Wuhan, 2009, pp. 1-5.
[7] E. Civi, "Knowledge management as a competitive asset: a review," *Marketing Intelligence and Planning*, vol. 18, no.4, pp. 166-174, 2000.
[8] C. J. Grayson *et al*., "Mining your hidden resources," *Across the Board*, vol. 35, no. 4, pp. 23-28, 1998.
[9] B. Gupta, L. Lyer, and J. Aronson, "Knowledge management: practices and challenges," *Industrial Management and Date System*, vol. 100, no.1, pp. 17-21, 2000.
[10] KPMG, "Knowledge Management Research Report," *KPMG consulting*, 2000
[11] G. Lawton, "Knowledge management: ready for prime time," *IEEE Computer*, vol. 34, no. 2, pp. 12-14, 2001.
[12] S. Walker, "12 steps to a successful KM program," *Knowledge Management Review*, vol. 9, no. 4, pp. 8-9, 2006.
[13] T. H. Davenport, "Improving Knowledge Worker Performance," *Strategy to Execution*, pp. 215-235, 2008.
[14] E. Rasoulinezhad, "Measuring the Role of Knowledge Management Processes in the Commercial Banks of Iran," *The Electronic Journal of Knowledge Management*, vol. 9, no. 4, pp. 353-364.
[15] M. J. Leseure and N. J. Brookes, "Knowledge management benchmarks for project management," *Journal of knowledge management*, vol. 8, no. 1, pp. 103-116, 2004.
[16] D. Stenmark, "Sharing tacit knowledge: a case study at Volvo," in *Knowledge Management System: Theory and Practice*, S. Barrens, Ed. London, Thomson Learning, 2002.
[17] M. Alavi and D. E. Leidner, "Review: Knowledge Management and Knowledge Management System: Conceptual Foundation and Research Issues," *MIS Quarterly*, vol. 25, no. 1, pp. 107-136, 2001.
[18] J. Pawlowski and M. Bick, "The Global Knowledge Management Framework: Towards a Theory for Knowledge Management in Globally Distributed Settings," *The Electronic Journal of Knowledge Management*, vol. 10, no. 1, pp. 92-108, 2012.
[19] V. Santos, A. Soares, and J. Carvalho, "Knowledge sharing Barriers in Complex Research and Development Projects: an Exploratory study on the Perceptions of Project Managers," *Knowledge and Process Management*, vol. 19, no. 1, pp. 27-38, 2012.
[20] J. S. Holste and D. Fields, "Trust and tacit knowledge sharing and use," *Journal of knowledge management*, vol. 14, no. 1, pp. 128-140, 2010.
[21] G. Turner and C. Minonne, "Measuring the Effects of Knowledge Management Practices," *Electronic Journal of Knowledge Management*, vol. 8, no. 1, pp. 161-170, 2010.
[22] T. Foos, G. Schum, and S. Rothenburg, "Tacit knowledge transfer and the knowledge disconnect," *Journal of Knowledge Management*, vol. 10, no. 1, pp. 6-18, 2006.
[23] C. O'Dell, C. Grayson, and N. Essaides, *If Only We Knew What We Know: The Transfer of Internal Knowledge and Best Practice*, New York. The Free Press, 1998.
[24] P. Heisig, "Harmonisation of knowledge management- comparing 160 KM frameworks around the globe," *Journal of knowledge management*, vol. 13, no. 4, pp. 4-31, 2009.
[25] I. Becerra-Fernandez, A. Gonzalez, and R. Sabherwal, *Knowledge Management: Challenges, Solutions, and Technologies*, New Jersey, Pearson Education, Inc., 2004
[26] C. Dunne, "The place of the literature review in grounded theory research," *International Journal of Social Research Methodology*, vol. 14, no. 2, pp. 111-124, 2011
[27] K. Charmaz, *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*, London, Sage Publication Ltd, 2006.
[28] J. Corbin and A. Strauss, *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 3rd ed. London, Sage Publications Ltd, 2008
[29] M. Easterby-Smith, R. Thorpe, and P. Jackson, *Management Research*, London, SAGE Publications Ltd, 2008.
[30] M. Saunders, P. Lewis, and A. Thornhill, *A. Research Methods for Business Students*, 5th ed. Pearson Education Limited: Essex, 2009.
[31] S. Payne, "Grounded theory," in *Analysing Qualitative Data in Psychology*, E. Lyons and A. Coyle, Eds. London: Sage, 2007, pp. 65–86.

Rafat Amir is a Ph.D. student at the School of Mechanical, Aerospace and Civil Engineering, The University of Manchester, Manchester M601QD UK.

Jamshid Parvar is a lecturer. He got the BSc. (Hons), MPhil., Ph.D. at the School of Mechanical, Aerospace and Civil Engineering, The University of Manchester.

He has more than 20 years experience of Project Management and IS/IT Systems Project Management.